KNOWLEDGE OF WOMEN OF CHILD BEARING AGE ON THE UTILISATION OF INTERMITTENT PREVENTIVE TREATMENT OF MALARIA IN PREGNANCY AT DANGAMVURA AND SAKUBVA HEALTH CENTERS, MUTARE, ZIMBABWE.

By

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ABSTRACT

Even though it appears as if countries in sub-Saharan Africa have made important progress in IPTp implementation, coverage levels remain low. Various studies done have come out with various findings ranging from lack of knowledge to negative attitudes of woman towards the program. The purpose of this study was to determine the association between knowledge and utilization of IPTp by pregnant women attending ANC services at Dangamvura and Sakubva Mutare city clinics. Pender’s health promotion model was used to guide and direct the study. A descriptive correlation design was used for the study. The author examined the strength of the relationship between knowledge and utilisation of IPTp by pregnant women attending ANC at Dangamvura and Sakubva Mutare Clinics. A sample of 80 women who were attending ANC visits was selected by systematic random sampling. Data were collected through face to face interviews using a structured questionnaire. Interview guide consisted of questions on knowledge and utilization of IPTp and the association between knowledge and utilization were asked. Additionally Focus Group Discussions were used. Data were analysed using descriptive and inferential statistics. Pearson’s correlation showed an insignificant correlation \( r=0.097 \) women’s knowledge to utilisation of IPTp. The findings did not support that knowledge on IPTp improves utilisation of the program. It is important therefore for Midwives to intensify tailor made health education and motivate women to utilise IPTp services.
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Special thanks go to all the participants who consented to be part of this study, without your participation and cooperation this study would not have been possible, may your wombs forever remain fertile. I am also grateful for the many formal and informal contributions made by my colleagues and friends too numerous to list.

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<td>ACT</td>
<td>Artemisinin-based combination therapy</td>
</tr>
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<td>AL</td>
<td>Artemether/lumefantrine</td>
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<tr>
<td>ANC</td>
<td>Antenatal care</td>
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<tr>
<td>CDC</td>
<td>Centers for Disease Control and Prevention</td>
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<tr>
<td>CHW</td>
<td>Community health worker</td>
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<tr>
<td>DDT</td>
<td>Dichloro-Diphenol-Trichloroethane</td>
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<td>DHS</td>
<td>Demographic and Health Survey</td>
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<td>DOT</td>
<td>Directly observed therapy</td>
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<td>FGD</td>
<td>Focused Group Discussion</td>
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<td>HPM</td>
<td>Health Promotion Model</td>
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<td>IPTp</td>
<td>Intermittent preventive treatment of pregnant women</td>
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<td>IPT-SP</td>
<td>Intermittent preventive treatment of malaria in pregnancy using Sulphadoxine-pyrimethamine</td>
</tr>
<tr>
<td>IRS</td>
<td>Indoor residual spraying</td>
</tr>
<tr>
<td>ITN</td>
<td>Insecticide-treated net</td>
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<tr>
<td>LLIN</td>
<td>Long-lasting insecticide-treated net</td>
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<td>MCAZ</td>
<td>Medicine Control Authority of Zimbabwe</td>
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<td>MCH</td>
<td>Maternal and Child Health</td>
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<td>Malaria in Pregnancy</td>
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<td>National Malaria Control Program</td>
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<td>NMPP</td>
<td>National Malaria Prevention Policy</td>
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<td>SP</td>
<td>Sulphadoxine-pyrimethamine</td>
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WHO World Health Organisation
CHAPTER 1
BACKGROUND AND ORGANISING FRAMEWORK

Introduction

Plasmodium falciparum infection in pregnancy is associated with an increased risk of maternal and foetal complications including maternal anaemia and low birth weight. This has prompted the World Health Organization (WHO, 2013) to recommend a package of interventions for preventing and controlling malaria infection in pregnancy (MIP) in endemic areas. The interventions include the early diagnosis and treatment of malaria, intermittent preventive treatment during pregnancy (IPTp) using Sulphadoxine-pyrimethamine (SP) and the use of insecticide-treated nets (ITNs). SP has been rated as having the most favorable cost-benefit profile because of its relatively low cost, high compliance and efficacy in reducing maternal anaemia and low birth weight (Smith, Jones, Adjei, Antwi, Afra et al, 2013)

Akinleye, Falade & Alaji, (2009) stated that each year, more than 30 million African women in malaria endemic areas become pregnant and are at risk of infection with Plasmodium falciparum. This results in high prevalence of parasitemia and clinical malaria in pregnancy. The same author also observed that malaria during pregnancy causes up to 10,000 maternal deaths each year and contributes to high rates of maternal morbidity including fever and severe anemia, especially in first time mothers. Malaria in pregnancy also causes low birth weight and placental parasitaemia and infant deaths. Malaria may contribute to 3–5% of maternal anaemia, 8–14% of low birth weight (LBW) and 3–8% of infant mortality. The harmful impact of malaria is most apparent in the first and second pregnancies of most pregnant women living in areas of relatively stable transmission. Globally, WHO has
recommended a package of interventions for preventing and controlling malaria infection in pregnancy (MIP) in endemic areas, which includes the early diagnosis and treatment of malaria, IPTp using SP and the use of ITNs. Currently, SP-IPT has been rated as having the most favorable cost-benefit profile because of its relatively low cost, high compliance and efficacy in reducing maternal anaemia and low birth weight. implementation of IPTp in pregnancy in most settings is limited by social, cultural, economic and operational challenges despite good coverage of antenatal services. (Smith, Jones, Adjei, Antwi, Afra & greenwood, 2010), this was supported by Onoka, Hanson, & Onwujeke, (2012), when they cited WHO end of 2008 which stated that 35 of 45 sub-Saharan African countries had adopted IPTp as national policy even though coverage has remained below the target in many countries including Nigeria.

Use of IPTp is estimated to reduce the occurrence of low birth weight by 42%, neonatal death by 38%, and placental malaria by 65% and antenatal parasitemia by 26%. Even in areas where SP monotherapy for symptomatic malaria results in up to 25% treatment failures, 2 doses of IPTp with SP continued to provide considerable benefit to pregnant women. A study which was carried out in Ibadan established that IPTp-SP was highly effective in preventing maternal and placental malaria among parturient women as well as improving pregnancy outcomes such as delivery of bigger babies and lower prevalence of pre-term deliveries and maternal anaemia, (WHO, 2010).

Akinleye, Falade & Alaji, (2009) estimated that less than 5% of pregnant women had access to effective malaria interventions and this is worse in the rural areas. These authors, in a survey carried out in four African countries observed that less than 20% of women use this malaria prophylactic regimen close to the WHO recommendation. According to WHO, (2004)
this could be poor access. Malaria therefore, remains one of the most important causes of maternal and childhood morbidity in sub-Saharan Africa, Zimbabwe included.

In a study conducted in Tanzania, majority of the respondents associated low compliance with IPTp to poor acceptance of SP because of perceived association of SP with side effects. In the same study, it was also reported that pregnant women discard drugs after leaving the clinic. Other factors influencing compliance included late enrolment, periodic shortages of drugs and health workers under performance, (Akinleye et al, 2009).

UNICEF-Zimbabwe, (2005), reported that malaria is a serious health threat in Zimbabwe. It causes more deaths among children under five years of age. An estimated one million cases of malaria are reported annually in Zimbabwe, posing a serious threat to pregnant women and newborns. The Ministry of Health and Child Care
Zimbabwe(MOHCCZ), through the Department of Disease Prevention and Control adopted a goal aimed at preventing morbidity and mortality, social and economic losses due to malaria. MOHCCZ has a policy that recommends IPTp with 2-3 courses of SP, the first course being given in the second trimester (16th - 27th week) and a repeat dose in the third trimester (28th – 34th week gestation) at intervals of not less than four weeks using a Directly Observed Treatment (DOT) approach.

According to the Zimbabwe Demographic Health Survey (ZDHS), (2005/6), only 12% of pregnant women from malaria prone regions took at least one dose of SP. In a malaria case management audit of 2009, 45.5% of the women attending antenatal care received at least one dose of SP. Twenty eight percent received at least 2 doses of IPTp. This indicates that a large proportion of women are therefore not obtaining the benefits which accrue from IPTp
such as increased birth weight of the baby, reduction in preterm birth, anaemia and reduced malaria morbidity and mortality. HIV positive women receiving cotrimoxazole prophylaxis should not take SP because the two drugs contain sulphur which is contraindicated in pregnancy. The Zimbabwe National Malaria Control Program’s IPTp policy was adopted in 2004 is being implemented in 30 districts which fall in the moderate to high malaria transmission categories.

According to the (2011) National Malaria Treatment Guideline and Policy, Zimbabwe recommends SP as first line agent for IPTp and quinine for treatment of clinical malaria in all trimesters, Artemisinin based combination therapy (ACT) is considered safe second line agents in the second and third trimesters and may be used in first trimester where there are no suitable alternatives. In addition, ACT is recommended for treatment of uncomplicated malaria for the general populace following the development of resistance to chloroquine and SP.

Since the adoption of the IPTp policy, several trainings in control of malaria during pregnancy have been conducted by the NMCP in collaboration with the Division of Reproductive Health for health workers in moderate to high transmission areas in control of malaria during pregnancy. The NMCP conduct a quantification of SP needs, procure the drugs for the districts train health workers on IPTp implementation and collects data. The target of the NMCP is that 85% of women in the 30 medium to high malaria transmission district should receive 3 doses of SP during their pregnancy under direct observation of a health worker. (PMI-ZIM-ML,(2012).
Problem statement

In a strategy to achieve at least 85% of IPT-2 by 2012, MOHCC introduced IPT-SP in 2004 for pregnant women attending antenatal care in 30 high transmission districts. The three dose regimen is recommended with doses of SP given at least 4 weeks apart.

The goal of IPTp in Zimbabwe is to reduce prevalence of severe anemia in the mother and prevalence of low birth weight babies due to Malaria in pregnancy in line with WHO, (2010) recommendation. However the IPTp component of Malaria prevention and control is failing to meet its targets in Mutare district. Review of District ANC data shows that in 2011 IPTp coverage was at 37 % for IPT1 and 19 % for IPT2 which is below national targets of 85%.

Mutare City is within the district and has a population of 300 000 people and 9 health centers. Sakubva health centre had ANC attendance of 1892 in 2012. Currently maternity unit has a total population of 2581, a target population of 2501 and a monthly population of 251. IPTp coverage was 79.7 % for IPTp1, 57.4 % for IPTP2 and 13.7% for IPTP3. Dangamvura maternity unit has a population of 9805 child bearing women and 1797 expected pregnancies for year 2013, ANC attendance was 1 434, IPTp1 51. 8 %, IPTp2 34.3%, and IPTp3, 30.2 %. Since January 2012 the district recorded 3 maternal deaths due to malaria in pregnancy. This poor coverage prompted the investigator to conduct this study to establish if level of mothers on utilization of IPTp was hindering utilisation of the program.
Purpose of the study

The district is amongst the high malaria burdened districts reporting an average of 320 cases per week. Despite IPTp, pregnant women continue to die of malaria. Given the low utilization of IPTp in Dangamvura and Sakubva clinics, the investigator sought to establish the relationship between knowledge and utilization of IPTp by pregnant women in Mutare City. According to Mutare City health 2012 report statistics are below national target of 85% and indicate low utilization of IPTp.

Theoretical framework

According to Burns and Grove (2005), theoretical framework is the abstract logical structure of meaning that guides the development of the study and enables the researcher to link the findings to nursing’s body of knowledge. Nola Pender’s theoretical model of health promotion was used to guide this study and enabled the investigator to explain the findings on the knowledge and utilization of IPTp by pregnant women attending Antenatal Clinic services at Dangamvura and Sakubva, Mutare maternity clinics.

Nurse educators used to teach their patients how to manage illness and now, the focus is directed towards teaching people how to remain healthy. The overall health of the population can improve significantly as more people grow in their awareness of activities and actions that lead to good health and become knowledgeable about their own health status and the health of their families. Pregnant women have to be aware of benefits of IPTp to their health and that of the unborn baby in order to improve pregnancy outcome. This might decrease the incidence of maternal and infant morbidity.
The Health Promotion Model (HPM) proposed by Pender (1982; revised, 1996) defines health as a positive dynamic state not merely the absence of disease. Health promotion is directed at increasing a client’s level of well-being. This model (HPM), describes the multi-dimensional nature of persons as they interact within their environment to pursue health. The model focuses on following three areas: Individual characteristics and experiences, Behavioral specific cognitions and affect, Behavioral outcomes.

According to Pender, (1996) this model (HPM), notes that each person has unique personal characteristics and experiences that affect subsequent actions. The set of variables for behavioral specific knowledge and affect have important motivational significance. These variables can be modified through nursing actions. Health promoting behavior is the desired behavioral outcome and is the end point in the HPM. Health promoting behaviors should result in improved health, enhanced functional ability and improved quality of life at all stages of development.

In this nursing model, age, gender, strength and marital status are personal biological factors as shown in figure 1. Personal psychological factors include variables such as self-motivation, personal competence, perceived health status and definition of health. One’s perception of the IPTp programmed influences her utilization of the services. One’s perception of being ill with malaria is influenced by ones characteristics and experiences and level of awareness of the IPTp services. Personal socio-cultural factors encompass variables such as race, ethnicity, acculturation, education and socioeconomic status. These factors might have influence on the uptake of the program if one has a strong belief in traditional healing. Behavioral specific cognition and affect factors have influence on one’s perception on malaria prevention using fansidar (SP) and this can have influence on the utilisation of the programme.
Perceived benefits of action is the anticipated positive outcomes that will occur from health behavior and in malaria prevention this might be use of insect treated nets, use of repellents and coils to prevent mosquito bites. Perceived barriers to action which can be anticipated imagined are those factors that are thought to affect the provision of IPTp. These include the availability of the drug, distance from the health centre and costs in terms of transport and medical services.

Cognition concerning behaviours, beliefs or attitudes of others and interpersonal influences include norms, social support and modeling. Primary sources of interpersonal influences are families, friends and health personnel (midwives). The interaction between the midwives in the antenatal clinic during ANC will determine the woman’s willingness to participate in malaria prevention using fansidar (SP). Behavior outcome entails the concept of intention and identification of planned strategy leads to implementation of health behavior and this involves the commitment to utilize the IPTp services.

Pender’s health promotion model was used to explore the effects of the independent variable of knowledge on intermittent preventive treatment of malaria in pregnancy on the dependent variable, utilization of IPTp. Knowledge of women of child bearing age on the benefits of IPTp should improve Utilisation of the programme.
The Health Promotion Model

**Individual characteristics and experiences**
- Personal biological factors: age, marital status, obstetric history, especially bad obstetric, attitude towards IPTp
- Psychological factors: self-esteem, the wish to be a mother to a healthy baby.
- Personal socio-cultural: cultural belief, educational level, socio-economic status, and knowledge level.

**Behavior specific cognition and affect**
- Perceived benefits of IPTp: Early detection and treatment of malaria.
- Perceived barriers: transport and service costs, side effects of drugs, time, midwives’ attitudes and competence, availability of drugs, availability and accessibility of services.

**Knowledge on the effects of malaria on pregnancy:** abortion, preterm delivery, still death, low birth weight, fetal death and maternal death, fetal or maternal morbidity.

**Behavior outcome**
- Utilisation of IPTp, use of insect treated nets, preventing mosquito bites by use of repellents and coils, and taking full course.

Figure 1: Adapted and modified from Nola Pender’s Nursing Model (1996).
The Health promotion model has five key concepts which are person environment, nursing, health and illness.

The person is observed as a biophysical organism shaped by the environment, which also seeks to create an environment in which human potential can be fully expressed. This makes the relationship between person and environment reciprocal. Individual characteristics and live experiences shape one’s behaviour.

The environment is described as the social, cultural, and physical context in which life unfolds. The person can manipulate the environment to create a positive context of cues and facilitators for health enhancing behaviors. The role of nursing is collaboration among patients, families and communities to create the best conditions for the expression of optimal health and high level wellbeing.

Health is defined as the actualization of the human potential through goal directed behavior, self care, and relationships with others with necessary adjustments made to maintain relevant environments.

According to the HPM illnesses are discrete events in the life that can hinder or facilitate the patient’s continuing quest for health.

Conceptual Definition of Terms

Health Promotion: The process of enabling people to increase control over their health and its determinants, and thereby improve their health.
Malaria: Malaria is a parasitic infection caused by the 4 species of Plasmodium that infect humans: vivax, ovale, malariae, and falciparum. Of these, Plasmodium falciparum is the most deadly. The infection is transmitted by the female anopheline mosquito; therefore factors that influence mosquito breeding, such as temperature, humidity, and rainfall, affect malaria incidence.

IPTp is defined as provision of treatment doses of SP to asymptomatic individuals living in malaria endemic regions, regardless of malaria parasitemia status.

Utilisation: To put to use, especially to find a profitable or practical use for. The extent to which a given group uses a particular service in a specified period. Although usually expressed as the number of services used per year per 100 or per 1000 persons eligible for the service, utilization rates may be expressed in other ratios.

Research objectives

The study objectives are:

1. To determine knowledge levels of women of child bearing age on IPTp attending ANC at Dangamvura and Sakubva, Mutare clinics.
2. To establish the nature of utilization of IPTp by pregnant women attending ANC at Dangamvura and Sakubva Mutare City clinics.
3. To determine the relationship between knowledge and utilization of IPTp by pregnant women attending ANC services at Dangamvura and Sakubva Mutare city clinics.
Research questions

1. What knowledge levels do women of child bearing age attending ANC at Dangamvura and Sakubva clinics have on IPTp?

2. What is the nature of utilization of IPTp by women of child bearing age attending ANC at Dangamvura and Sakubva clinics?

3. What is the relationship between knowledge and utilization of IPTp?
CHAPTER TWO

LITERATURE REVIEW

Introduction

A methodological review of primary and secondary sources of relevant data any academic research (Webster & Watson, 2002). Hart, (1998) acknowledged that the need to uncover what is already known in the body of knowledge prior to initiating any research study should not be underestimated.

According to WHO, (2004) malaria in pregnancy, in malaria-endemic settings may account for 2-15% of maternal anemia, 5-14% of low birth weight newborns, 30% of “preventable” low birth weight newborns, 3-5% of newborn deaths. WHO recommended the malaria-endemic countries to implement SP for IPTp as one of the essential services under the focused antenatal care service package on the assumption that every woman in a malaria endemic area is infected with malaria,. The recommendation specifies at least two doses to be administered, the first one during the second trimester and the second dose during the third trimester of pregnancy (WHO, 2004).

To ensure compliance in uptake of IPTp doses by the pregnant women attending ANC, the guidelines emphasize on DOT by a qualified health worker. SP brand name Fansidar is currently considered the most effective drug for IPT, SP is a combination of two different drugs. Each tablet of SP contains: 500 mg of Sulphadoxine, and 25 mg of pyrimethamine. A single dose consists of three tablets taken at once, preferably under direct observation of the healthcare provider. SP is generally more effective than chloroquine because of increasing prevalence of chloroquine resistance and the need for less frequent dosing when compared with chloroquine, (WHO, 2004)
WHO, (2008) in its bulletin stated that malaria is the leading cause of morbidity and mortality in Uganda. It mainly affects pregnant women and children age less than five years. Surveillance reports show that proportionate mortality ratio (PMR) due to malaria for all ages has increased progressively from 20.2% in 1988 to 32.1% in 2004. This increase has been attributed to high transmission of malaria in areas that were previously free of the disease. Limited access to adequate treatment in the formal health-care facilities, increasing resistance to antimalaria drugs, and inadequate treatment of malaria at home where most people receive the first treatment are other contributing factors. The resurgence of malaria necessitates intensification of treatment and preventive interventions and identification of new delivery approaches to increase access to effective interventions

Igunma, (2010), observes that Malaria remains an important public health problem worldwide especially in the tropics and it is an important cause of morbidity in pregnancy. The author also noted that in Nigeria, it is a leading cause of outpatient clinic consultation and is among the three common causes of death. Malaria in pregnancy can be associated with serious complications for the mother or the developing foetus. The maternal complications mentioned by the author included haemolytic anaemia, acute febrile attacks, cerebral malaria, renal failure and maternal mortality. Fetal complications such as early pregnancy losses, preterm delivery, low birth weight and intrauterine foetal death were attributed to malaria in pregnancy.

Ndyomugyenyi, (2009) and Oyeeguni, (2012) concur that Malaria in pregnancy remains a major public health problem in sub-Saharan Africa. WHO’s Roll Back Malaria (RBM) initiative aims to decrease the burden of malaria through three proven interventions: prompt management of presumed malaria cases, intermittent preventive treatment of malaria in pregnancy (IPTp), and widespread use of insecticide-treated bed nets (ITNs). Most of these
interventions are limited to people that have access to health facilities even though IPTp with SP remains a key intervention for malaria control in most of sub-Saharan Africa. WHO recommends at least two doses of SP—IPTp where transmission of Plasmodium falciparum is stable and resistance to the drug is low and the RBM partnership had set a target of 80% by 2010. Implementation and ensuring effective access of SP—IPTp within the context of health-service constraints remains a challenge.

Despite that countries in sub-Saharan Africa have made important progress in IPTp implementation, coverage levels remain low. Community-directed approaches, in which the community itself rather than the health service directs the treatment/intervention process in malaria remains an important public health problem worldwide especially in the tropics and it is an important cause of morbidity in pregnancy. In Nigeria, it is a leading cause of outpatient clinic consultation and is among the three common causes of death. (Ndyomugyenu, 2009)

The Zimbabwe National Malaria Control Program (2012) adopted the IPTp and recommends three doses of SP during ANC visits. The first dose is administered after quickening has been established that is 16-27 weeks gestational age and the other two doses four weeks apart. Review of Mutare District ANC data shows that in 2011 IPTp coverage was at 37 % for IPT1 and 19 % for IPT2 which is below national targets of 85% indicating that the IPTp prevention and control component of malaria is failing to meet its target.

Mutare City has a population of 300 000 people and 7 health centers. Sakubva health centre had ANC attendance of 1892 in 2012, IPTp coverage was 79.7 % for IPTp1, 5. 4 % IPTp2 and 13.7 % IPTP3. Dangamvura health center ANC attendance for year 2012 is 1 434, IPTp1 51. 8 %, IPTp2 34. 3%, and IPT3 0. 2 %. Initial women were being given IPTp1 and 2
until September when they started receiving IPTp3. Still these statistics are below national target.

**Utilisation of IPTp**

According to World Malaria Report (2010), in 2007–2009, the percentage of women who received two doses of treatment during pregnancy ranged from 2.4% in Angola to 62% in Zambia. A study in Benin 2007, on evaluation of the strategies of malaria control during pregnancy showed that 60.7% of the women surveyed in healthcare training and 66.6% of the women in the general population had received IPT-SP appropriately (two doses).

In May 2000, African leaders, under the RBM partnership set the target that by 2005 at least 60% of all pregnant women in their first pregnancy and are at risk of malaria, should have access to chemoprophylaxis. According to WHO reports that at the end of 2008, 35 of 45 Sub-Saharan African countries had adopted IPTp as national policy. Coverage has remained far below the target in many countries including Nigeria, (Onoka et al 2012).

Gross, (2011) stated that by 2010, 80% of all pregnant women living in high transmission areas are expected to receive IPTp but the coverage of the intervention is still low. Kenya is one of the first countries to implement IPTp, as recommended at the Abuja conference, the national coverage with two doses of SP was only 4% five years after IPTp implementation. Only one country (Malawi) is close to achieving the 2000 Abuja target of 60% coverage of pregnant women.

Gross, (2011), observed that among all women eligible for IPTp, 79% received a first dose of IPTp and 27% were given a second dose. Although pregnant women initiated ANC attendance late, their timing was in line with the national guidelines recommending IPTp delivery between 20-24 weeks and 28-32 weeks of gestation. Only 15% of the women delayed
to the extent of being too late to be eligible for a first dose of IPTp. Less than 1% of women started ANC attendance after 32 weeks of gestation contributing to low second dose coverage. Simplified IPTp guidelines for front-line health workers as recommended by WHO could lead to a 20 percentage point increase in IPTp coverage.

Other renowned experts have supported Gross’s findings by commenting that in Uganda, there is low utilization of health service based interventions, like ANC, delivery care, immunization and chemoprophylaxis for malaria in pregnancy and IPT,(Ndyomugyenyi et al. 1998; Ammoti-Kaguna & Nuwaha 2000; Mbonye at al. 2006). Less than 42% of pregnant women attend ANC four times as recommended by the Ministry of Health (Uganda Bureau of Statistics 2001). This low use of ANC limits access to IPTp, and has been attributed to the cost of services and long distances to health units.

Schultz et al.( 1994;) and Menendez (1999) concluded that malaria control programs that rely only on ANC as a delivery system are likely to have poor coverage and compliance to IPTp. Helitzer-Allen et al. (1994); Kengeya et al. (1994); Ndyomugyenyi et al. (19980; Guyatt et al. ( 2004); Holtz et al. (2004) and Mbonye et al.(2006), agreed that this situation prevails despite the fact that women in malaria endemic countries recognize malaria as a serious illness.

Helitzer-Allen et al., (1994) and Menendez, (1999) recommended that alternative delivery approaches should be identified. To increase compliance to antimalarial drugs, it is necessary to provide health education, to train providers and to disseminate information on the side effects of drugs. Affordability, dissemination of national treatment policies and accessibility to antimalarial drugs must be improved (Mwenesi et al. 1995; Goodman et al. 2001; Agyepong et al. 2002; Tarvrow et al. 2003; Depoortere et al. 2004; Leslie et al. 2004).
Amoran, Ariba, and Iyaniwura, (2012), observed that utilization (40.4%) of SP (the drug recommended by the policy for IPTp) for preventive treatment of malaria with 14.6% taking the second dose at the appropriate time was very low among the study population and only 12.9% sleeping under ITN. This observation has been made by several other studies in Nigeria and other part of Africa. Even lower prevalence was reported in the national community survey, (2008) Nigeria Demographic and Health Survey with only 11.8% of pregnant women slept under an ITN, and only 6.5% of pregnant women had taken the recommended two doses of SP during pregnancy.

The same author’s observation has been attributed to fear of the safety of SP during pregnancy on the part of the health workers and unavailability of the drugs at the facility due to stock out. This indicates that programs that focused towards increasing the knowledge and awareness of the importance of IPTp and other preventive measures should be introduced among this vulnerable population in the rural areas in Africa. This might lead to reduction in maternal mortality since most of the death comes from this rural environment. (Amoran et al 2012). Onoka (2012) also stated that the level of access to intermittent preventive treatment for malaria in pregnancy (IPTp) in Nigeria is still low despite relatively high ANC coverage in the study area.

The use of IPTp has been shown to reduce the incidence of anaemia in pregnancy, increase the birth weight of the baby, and reduce the burden of placental malaria, thus leading to better materno-foetal outcomes. A participatory manner, has proven effective for onchocerciasis control. (Ndyomugyenyu, 2009)

Oyeegun, (2012) reported that IPTp with SP is effective in reducing the risk of placental malaria, low birth weight (LBW), and severe maternal anemia, and, together with insecticide-treated nets (ITNs), is the main strategy for the control of malaria in pregnancy in
Africa. IPTp consists of the administration of full curative doses of an efficacious anti-malarial drug given presumptively in the second and third trimester at least 1 month apart. It provides intermittent clearance or suppression of existing asymptomatic infections from the placenta (treatment effect) and post-treatment prophylaxis by preventing new infections through the maintenance of a suppressive drug level for up to 6 weeks in areas with low levels of parasite resistance to SP.

IPTp entails administration of a curative dose of an effective antimalarial drug (currently SP) to all pregnant women whether or not they are infected with the malaria parasite. IPTp should be given at each routine antenatal care visit, starting in the second trimester. Pregnant women are routinely given folic acid supplementation to prevent neural tube defects in their infants. However, high doses of folic acid counteract the effect of SP. Therefore, it is preferred that women take only the recommended 0.4 mg daily dose of folic acid. In some countries, 5 mg of folic acid are used, and in those countries, it is recommended to withhold folic acid supplementation for two weeks after taking IPTp with SP to ensure optimal efficacy. (CDC - Malaria - Malaria Worldwide 2012).

WHO, (2004), recommends at least 2 curative doses of SP in human immune-deficiency virus (HIV)–negative women and 3 doses for HIV positive women who are not protected by cotrimoxazole. Although SP resistance has increased to high levels in some areas of southern and eastern Africa, resistance in most of western Africa is still low. Furthermore, SP has now been reserved for use as IPT, and the reduced drug pressure may prolong the longevity of this very valuable drug in areas with low-to-moderate resistance. IPTp with SP is thus likely to remain the mainstay of malaria control in pregnancy for several years in these regions.
In Mukono District, Uganda, women delayed attending ANC clinics and lowly utilised ITNs and IPTp due to the prevailing community myth and belief that adolescent girls and primigravid were at low risk. Findings from some studies in sub Saharan Africa show that pregnant women and the society associate SP with severe adverse outcomes such as abortion, skin reaction and lack of anti-fever effect, SP can cause effects such as Stevens-Johnson syndrome in people who are allergic to sulphur with possible dramatic and potentially fatal effects. However, such side-effects are rare and in most cases exaggerated, (Mbonye, 2008).

According to a study by Ndyomugyenyi et al, (2009) in Uganda women are disappointed when they wait longer at the service delivery point, are mishandled by nurses, and lack of diagnostic facilities. Also a study by Murira et al (2007) in Zimbabwe women avoid contacting clinics for ANC in fear of the lack of privacy at the consultation bad language of the nurses or unfriendly opening hours and/or unfair and unexpected costs.

Sabin, (2007), in the American journal contends that several studies conducted in malaria-endemic areas of Africa regarding attitudes and practices toward malaria control measures among pregnant women indicate that malaria is perceived as a serious illness, knowledge of malaria risks during pregnancy is relatively high, and contact with traditional healers and self-medication with local remedies is common. In addition, pregnant women have limited confidence in the effectiveness of ITNs and intermittent preventive therapy for protection from malaria.

Although the WHO currently recommends that all pregnant women living in malaria-endemic regions use insecticide-treated bed nets and IPTp-SP (intermittent presumptive treatment in pregnancy with at least 2 doses of Sulphadoxine-pyrimethamine), studies show poor uptake of both preventative efforts among pregnant women. A recent survey among
postpartum women in rural Uganda, in which 88% had made more than 1 prenatal visit, found that only 31% of women used a bed net during pregnancy and only 36% had received 2 doses of IPTp-SP. This indicates that as access to and utilization of ante-partum care increase, there is still a role for improved administration of IPTp-SP and education regarding bed net use. (Schantz-Dunn & Nour, 2009)

In Zimbabwe the proportion of women receiving IPTp was 25% and also during the case management study 46% of women eligible for IPT1 receive the dose (ZDHS, 2010-2011). Between 2005 and 2010 ITN ownership and use increased significantly. Second dose uptake of IPTpMP and the proportion of children under five with fever receiving antimalarial treatment remain low, demonstrating that efforts to scale up interventions must continue for Zimbabwe to achieve the RBM, PMI and national targets. (Zimbabwe-mop-fy12)

According to Districts report 2012, Mutare district is among 30 districts in Zimbabwe which are implementing NMPP. The district has 38 health facilities implementing IPTp. The district has 13919 expected pregnancies. Seventy seven percent of pregnant women attend ANC at least once during pregnancy. The malaria control program is supported by NMCP and also partners such as Plan International and MCHIP.

Women’s knowledge on IPTp

Amoran (2012) commented that a major determinant of utilization of IPTp among the study population was the knowledge of prophylaxis for malaria prevention. For pregnant women to use IPTp properly they must be well informed about the dangers of pregnancy-related malaria and receive the appropriate therapy at the right time during pregnancy. The focus on community directed interventions in the design of Preventive intervention is essential.
Pregnant women's knowledge about IPTp and the risks of malaria during pregnancy should be enhanced as well as their ability and power to demand IPTp and other ANC services. (Gross et al, 2011). Mutagonda et al (2012) in a study done Tanzania stated that the number of SP doses taken had an association with the level of knowledge of pregnant women for IPT policy using SP.

In Sub-Saharan Africa women’s late presentation at ANC is common, with nearly 25% of them presenting for the first time in the second trimester and for the second time during the third trimester, and this has contributed to lowering the effectiveness of ANC and IPTp related services. Age may influence pregnant women’s preference of particular service providers. A study on the determinants of pregnant women’s use of IPTp services in Mufindi District, Tanzania noted some older women disliking to be attended by the nurses whose ages were as low as the ages of such women’s daughters. Myths and unfound beliefs may also negatively affect ANC attendances, (Mubyazi, 2009).

In another study by Onoka et al (2012), only two out of all participants had ever heard of IPTp. One (from the urban area) heard of it when some visitors to the facility she registered talked about it. The second woman (from the rural area) heard of it from a friend in school. Thus, no one heard of IPTp from health workers. The two who said they knew about it said it was something they do to prevent malaria but had no idea what drug is used, how many doses to be take when pregnant, and how it should be given. Participant from the rural area reported that a woman who books at the eight month of pregnancy should not receive two doses. After IPTp was described to participants, some participants from one of the four discussion groups (rural area) recalled being given SP (in combination with other drugs) by health workers during pregnancy for prevention, but not for treatment. Two recalled being asked by the
caregiver to take two tablets first and one later while another took three at a time and were given a second dose one month before delivery.

A significant number of mothers, (45.9%) believe that the risk of malaria increases with pregnancy. More than half (52.9%) knew that malaria is associated with low birth weight while (45.9%) knew that malaria can cause both pregnancy loss and maternal anaemia. One hundred and fifty four (60.4%) of the respondents reported that they had received some information on malaria prevention during pregnancy. Nurses and doctors were the major source of information to well over half (68.9%) of the respondents while chemists were the source of information to 7.1% of the women on malaria during pregnancy. The rest of the women who got information on malaria during pregnancy got it through other sources (such as the media, friends, faith based organization, etc, (Onoka et al 2012).

According to a study by Sangare et al, 2010, on the use of IPTp in Uganda it was found that receipt of a full-course of IPTp-SP was relatively more common among women living in a rural village compared to a peri-urban area (RR: 2.73; 95% CI: 1.50, 4.99), those with the capacity to decide if SP should be used during pregnancy (RR: 2.28; 95% CI: 1.48, 3.49), and those who were less knowledgeable about the safety of SP use during pregnancy (RR: 1.87; 95% CI: 1.40, 2.49). Furthermore, women with lower educational attainment were more likely to receive a full-course (RR: 1.56; 95% CI: 1.03, 2.38), as were women living more than 30 minutes walking distance to the ANC clinic (RR: 2.06; 95% CI: 1.23, 3.46). No differences were found between other socio-demographic factors, pregnancy history, or socio-cultural factors. The main reasons given for not having taken a full-course of IPTp were “I didn't know about it” (49.3%), and “it wasn't offered” (34.7%). Among women in our study, the predominant factor predicting preventive use of SP during pregnancy was being offered IPTp
during an ANC visit. The majority of women was either offered SP and used it, or SP was never mentioned during their visit and they did not use it.

Effects of malaria in pregnancy

According to CDC Malaria worldwide 2013 adults who have survived repeated malaria infections throughout their lifetimes may become partially immune to severe or fatal malaria. Because of the changes in women’s immune systems during pregnancy and the presence of a new organ (the placenta) with new places for parasites to bind, pregnant women lose some of their immunity to malaria infection. It is a particular problem for women in their first and second pregnancies and for women who are HIV-positive. The problems that malaria infection causes differ somewhat by the type of malaria transmission area: stable (high) or unstable (low) transmission.

Knowledge and utilisation of IPTp

Mubyazi, (2008), concluded that knowledge of malaria risks during pregnancy was high among pregnant women although some women did not associate coma and convulsions with malaria. Contacting traditional healers and self-medication with local herbs for malaria management was reported to be common. Pregnant women and ANC staff were generally aware of SP as the drug recommended for IPTp, albeit some nurses and the majority of pregnant women expressed concern about the use of SP during pregnancy. Some pregnant women testified that sometimes ANC staff allows the women to swallow SP tablets at home which gives room for some women to throw away SP tablets after leaving the clinic.

The same author also observed that 96% of the respondents perceived malaria to be a problem during pregnancy and 74% believed that antimalarial drugs taken during pregnancy would be harmful to the pregnant woman and her unborn child. A study in Malawi showed that out of 809 pregnant women interviewed 37% believed that malaria would be harmful to
both the mother and unborn child. The massive concern expressed about the use of SP calls for intensified health education to avoid possible consequences.

The findings of study support the hypothesis that the success of any health intervention in terms of achieving its objectives cannot be merely justified by its efficacy. It also depends on other factors such as the knowledge and skills of service providers and users, their motivation, attitudes, practices and a range of other socio-economic factors. Pregnant women deciding to contact formal health facilities expect services of a certain desired quality besides receiving drug prescriptions. (Mubyazi, 2005).

Maiga, (2011) in a study carried out in Mali observed that three doses of IPTp with SP was considerably more effective in reducing maternal and placental malaria, low birth weight, and premature delivery than was the standard 2-dose regimen in this area with low SP resistance and highly seasonal malaria. The extra dose of SP was well tolerated. Size at birth and prematurity of the infant are important risk factors for infant morbidity and mortality, and both are associated with permanent deficits in childhood growth and neurocognitive development and performance in later life.

Provision of IPTp

In Zimbabwe, the IPTp program has been characterized by regular stock out of these drugs hence hindrance to IPTp provision even though EU and UNICEF are assisting with the procurement and distribution of which SP is included.

A study in Benin also reported that the availability of SP was unstable in the country and also the geographical area (with a higher probability of receiving ITP in the north than in the south), and the type of town (with a higher probability of receiving ITP in rural areas than in towns). The study findings show that women who had had at least four prenatal consultations had a better chance of receiving ITP than the others. This confirms the WHO
recommends, that pregnant women should have at least four prenatal consultations, three of which after active foetal movements. If SP was administered during these last three prenatal visits, a large proportion of pregnant women would receive the two recommended doses. In Uganda stock-outs of SP were responsible for missed doses; only during of ANC visits woman were informed that the clinic was out of stock of SP and they should purchase it on their own, (USA, 2006)

According to a study by Van Eijk et al, (2007) in Kenya, travel distance was reported as one of the major challenges to women’s access to and utilisation of reproductive and child health (RCH) services. Even if the RCH services were provided free of charge, the long travelled distance leads to additional time cost, and in many cases, financial expenditures that overburden the poorer women who ultimately are deterred from attending clinics for ANC or childbirth. The timing of ANC attendance is considered to increase the opportunity for the pregnant women to receive IPTp.

Nigeria adopted the intermittent preventive treatment for malaria in pregnancy (IPTp) strategy in 2001. Although studies in Nigeria show the efficacy of IPTp in preventing anaemia in pregnancy among Nigerian women, there is still low coverage of the intervention in Nigeria. The most recent demographic and health survey (DHS) in Nigeria revealed that both first and second dose coverage remain low, being 8.0% and 4.6% respectively in Northen Nigeria, and 9.9% and 5.4% in south-east Nigeria. A recent study reported values of 13.7% and 7.3% for first and second doses, respectively. IPTp using Sulphadoxine-pyrimethamine (SP) is given to pregnant women during ANC visits on at least two occasions following quickening; a dose during the second and during the third trimesters of pregnancy under direct observation, (Onoka et. al 2012).
Attendance at antenatal care does not guarantee effective delivery of IPTp as favourable provider-side factors need to be in place as well. Since antenatal clinics serve as the usual entry point for IPTp implementation, the nature of service provision in the clinics as well as attendance by pregnant women is key to optimal IPTp coverage. Facility and policy-related factors were reported as being more serious impediments to IPTp coverage in Tanzania than the timing of ANC attendance. The poor level of knowledge of guidelines for IPTp delivery amongst health workers in Malawi negatively affected IPTp delivery. Health workers have also been found to offer all women IPTp (including first trimester clients) during their first clinic visits. In some cases, health workers are confused about the appropriate timing of first dose, and spacing between doses of SP, resulting in low coverage. (Onoka et al 2012)

Schultz and Steketee. (1994), stated that in Malawi, some health workers were of the opinion that SP should not be taken on an empty stomach, which reduced the delivery of SP under DOTS. Unavailability of clean water in Malawi, drug stock-outs in Kenya, Tanzania, Uganda and Zambia, and staff shortages in antenatal clinics in Uganda have also negatively impacted coverage levels. Studies in Nigeria have reported low knowledge of IPTp guidelines amongst a sample of all cadres of health care providers, and poor experience of DOTS strategy among ANC attendees with 36.8% of women offered IPTp taking it in the facility and only 14.3% doing so under health worker observation.

According to the findings by Gross (2012), there was a high coverage level of the first IPTp dose (79%) but confirmed a low uptake of the second one with only 27% of pregnant women having received two SP doses. Although 71% of all women started ANC after the four gestational months recommended by guidelines, their late attendance was not found to be the main constraint for IPTp delivery since 81% of the women had attended the ANC clinic at the
time of the first IPTp delivery and 60% had attended both during the first and the second IPTp delivery period.

Gross, (2012) also observed that among these women only 73% actually received one dose and only 29% received two doses of IPTp, pointed to the high number of missed opportunities. Low coverage levels for the second IPTp dose could be explained by health workers delivering IPTp to significantly less women during the second IPTp delivery period than the first one (55% vs. 73%) despite their high knowledge about the IPTp policy. Apart from women’s late ANC initiation, it appeared that the majority of pregnant women respected the ANC schedule. However, it seemed that women’s attendance was rather based on norms and rituals than on their awareness of the benefits of ANC services for their own and their child’s health. Late ANC initiation was associated with belonging to the Sukuma ethnic group, multiparity, and late recognition of pregnancy.

Early ANC attendance, on the other hand, was triggered by primiparity, experience of a previous reproductive loss and feeling supported by the partner or husband. Male’s support during pregnancy appeared to be facilitated and constrained by a broad range of institutions working along the lines of gender, family and kinship. On the other hand new norms and values imposed by the legal system or the ‘modern’ health system were identified as being influential on men’s support during the prenatal period. (Gross 2012).

Conceptual Framework

Peterson & Bredow (2009) draw from various studies to note that “tailoring interventions has been found to increase intervention effectiveness”. Many other studies have also proved useful in explaining variances in behavior in health promotion (Peterson & Bredow, 2009).
Brown (2009) reviews studies that have used the Physical Activity Lifestyle Model (or PALM) which is similar to the HPM but has been more useful in the needs of adolescents. Although many studies exist using Health Promotion Theory.
the HPM in adults, Shrof & Velsor-Friedrich (2006) state that “little work has been done to apply and explore the HPM in relation to the adolescent population”.

Pender, Murdaugh, & Parsons, (2006) stated that the MPH has been used in numerous studies to assess influences on health-promoting behaviors. These influencing factors are individual characteristics and experiences that includes prior related behaviors and personal factors. Personal factors fall into three categories: biological, psychological, and sociocultural.

The Health Promotion Model which was developed by Dr. Pender is used internationally for research, education, and practice. During her active research career, she conducted research testing on the Health Promotion Model with adults and adolescents. She also developed the program “Girls on the Move” with her research team and began intervention research into the usefulness of the model in helping adolescents adopt physically active lifestyles, developing a number of instruments that measure components of the model.

The final behavioral demand is also influenced by the immediate competing demand and preferences, which can derail an intended health promoting act synthesizes research findings from nursing, psychology and public health into an explanatory model of health behavior that still must undergo further testing, (Cole 2011),

Summary

Various studies reviewed in the literature review shows that low uptake of IPTp is still a major problem in Africa. According to literature review there are various reasons stated by pregnant women which cause programme failure. These reasons include late booking, unfriendly health workers, attitudes of women towards the programme and drug being out of stock. This study cited studies done Onoka et al, Maiga et al and Mbonye to mention the few.
CHAPTER THREE

METHODOLOGY

INTRODUCTION

This chapter focuses on the methodology used in the study, which include the research design, sampling plan, sample size, sampling procedure, variables, instruments, data collection plan, protection of human subjects and data analysis.

Study design

A descriptive correlation design was used for the study. Nieswiadomy (2008) observed that in co-relational studies, the researcher examines the strength of the relationship between variables by determining how changes in the independent variable are associated with changes in the dependent variable. Correlation therefore was chosen in this study to suggest the extent to which knowledge on IPTp is related to utilisation of the IPTp program. Polit and Hungler (1999), suggest that a descriptive research design seeks to observe, describe and document characteristics of an individual, situation or group. This was supported by Burns and Grove (2005), when they stated that the purpose of a descriptive co-relational design is to describe variables and examine relationships that exist in a situation. In a descriptive co-relational study, the investigator combines aspects of both descriptive and co-relational design. The conceptual framework chosen to guide this study was the Health Promotion Model by Nola Pender 1996.
Study setting

The study was conducted in Mutare city a small city in the eastern border of Zimbabwe. The town lies north of the Bvumba Mountains and south of the Imbeza valley. The population is predominantly Shona, the majority of them speaking the Manyika dialect. According to the (2002) preliminary census data, Mutare has a population of about 170 106. Recent district reports have pegged the population at 434 397; and that of women being 105 554. The major occupation of the inhabitants of Mutare are citrus farming and mining. Most of the women also engage in mining activities. The health programmes of the local government is planned and managed by the Primary Health Care Department at the provincial headquarters. There are thirteen health centers which render antenatal services and one general hospital. Nine primary health centers are within the local government area and among them Dangamvura and Sakubva were chosen for the study. These two City clinics of Mutare were chosen because of their volume of work and due to recent outbreak of malaria. They are located in high density suburbs where the researcher was able to capture many women for participation.

Sampling Plan

A sampling plan refers to the process of selecting a portion of the population to represent and make generalizations about the entire population. It is developed to increase representativeness, decrease bias and decrease sampling errors (Burns & Grove, 2005). A sample consists of a subset of the units that compose the population (Polit & Hungler, 1999). The study population was all pregnant women within child bearing age, attending ANC at Dangamvura and Sakubva health centers. The systematic random sampling which is a
probability sampling method was considered when recruiting participants to the study. This allowed every participant to have an equal chance of being included in the study. Participants were recruited as they came for ANC services at the hospital and those who met the study criteria were included in the study.

Sampling criteria

According to Burns and Grove (2005) sampling criteria lists the characteristics necessary for membership in the target population. Inclusion criteria are characteristics that must be present for an individual to be included in the sample for instance one should have visited the antenatal clinic at least once before the interview. This was used as proof that they have been registered in that facility. Only pregnant women who attended ANC at the selected clinics during the period of study were interviewed. The exclusion criteria refers to characteristics people must not possess for them to be included in the study (Burns & Grove 2005, Polit & Hungler 1999). The woman should not have disabilities like blindness or mental illness that disallows responses to questionnaire. The inclusion criteria help to control extraneous variables, ensure a homogenous sample and provide guidance for sample recruitment a (Burns & Grove, 2009)

The investigator took into account that sampling criteria which are too narrow or restrictive may reduce the sample size or make obtaining sample difficult and introduce bias. On the other hand defining the criteria too broadly may make interpretation of results difficult, while a sample which is too homogenous may not be a true reflection of the population (Burns & Grove, 2009).
Sample size

A sample size is the number of subjects required in a study (Polit & Hungler, 1999). According to Burns and Grove (2009), a sample must be of sufficient size to describe a phenomenon, to detect a relationship or difference or to determine the effect of treatment. Generally the larger the sample the more representative of the population it is likely to be, (Polit & Hungler, 1999). In this study the investigator determined the sample size by performing a power analysis based on an alpha of 0.05, power 0.8 and an effect size of 0.5.

Power is the capacity of the study to detect differences or relationships that actually exist in the population (Burns and Grove, 2009). A study set a higher power assists in determining the relationships so that it reduces type 2 error or beta where the investigator accepts a null hypothesis when it should be rejected. A power of 0.80 is the accepted standard in nursing studies (Burns & Grove, 2009). The significance level also known as p-value or alpha was 0.05 which is conventionally accepted for social science research (Burns and Grove, 2009). Significance level tries to control the likelihood of making Type I error which occurs when the investigator rejects the null hypothesis when she should fail to reject.

In this study a significance level of 0.05 indicates that only 5 times out of a hundred would be the findings unreliable. The effect size is the extent of the presence of a phenomenon and is concerned with the strength of relationships among variables (Burns & Grove, 2009, Polit& Hungler, 1999). The effect size ranges from 0.2(small), through 0.5(medium) to 0.8(large). In this study the effect size was 0.5 which is the most frequent used in nursing research (Burns and Grove 2009).
In this study basing on a power 0.80, effect 0.5 and significant level 0.05, the sample size of 65 was sufficient according to Lipsey (1990). However, the sample needed to be higher to cater for the attrition, therefore, fifteen additional subjects were included to make a sample of eighty (80).

**Sampling procedure**

Probability sampling was used. Every element of population had an equal chance of being included in the study (Burns & Grove, 2009). In this study all clients who met the sample inclusion criteria attending ANC at Dangamvura and Sakubva Mutare Health centers had an equal chance of being included in the sample. Systematic Random sampling was achieved by selecting elements from a sampling frame. The number of each participant was obtained from women who attended ANC. Every 3rd woman was selected from the population. The ANC cards were collected from the present pregnant women and every third card was selected from the pile until the desired number is achieved. The procedure was repeated at each ANC repeat visit day for both Dangamvura and Sakubva clinics until the required sample for the study was obtained.

**Data Collection Plan**

A data collection plan details how a study will be implemented (Burns & Grove, 2009). The investigator sought permission to conduct the study from the Medical Research Council of Zimbabwe, an ethical review board for the protection of the human subjects in the study. The Department of Nursing Sciences through a designated supervisor reviewed the proposal to reduce study risks to subjects in the study. Permission to conduct the study at the two city clinics was sought from the Mutare City Health Director. Obtaining permission from
key persons to access a study site can facilitate data collection. The joint Review Committee of the College of Health Science also reviewed the proposal.

Study variables

Conceptual and operational definitions

Burns and Groove, (2010) stated that a conceptual definition provides a variable with a connotative meaning referring to how the variable is defined. An operation definition describes how the variable or concept was measured in the study. The main study variables of this study are knowledge of women of childbearing age on IPTp as the independent variable and utilization of IPTp as the dependent variable.

Utilisation of IPTp

The involvement of women malaria prevention practices and timing of IPTp was conceptual. Women were involved in health education, preventive ways such as sleeping under the net and using mosquito repellents and coils. This was measured using the IPTp utilisation questions.

Knowledge on IPTp

This was measured through the examination of women’s knowledge on preventive practices, drug used for IPTp and knowledge on the effects of malaria on pregnancy. Questions on IPTp knowledge were used to measure the knowledge levels of participants on intermittent prevention of malaria in pregnancy.
Demographic variables

Demographic variables addressed participants’ age, sex, marital status, religion, educational level, occupation, income, residence, gestational age and parity. The demographic questions measured the attributes of the sample.

Instrument

An instrument is a device or tool that an investigator uses to collect data, for example, questionnaire or observation schedule (Polit & Hungler, 1999). Information was collected using interviewer-administered questionnaire, designed by the investigator and pre-tested prior to use. The questionnaire was written in both English and Shona Languages and was administered by two trained midwives (one from each clinic) and the investigator in the language the participants understood better. The questionnaire comprised of questions on socio-demographic characteristics, obstetric history, knowledge of pregnant women on malaria prevention, antenatal clinic use, and IPTp use.

Closed-ended and open-ended questions were used. Close ended questions also called pre-coded questions offer answer choices from a number of fixed responses. These were the majority of the questions because, although they are difficult to construct they are easy to administer and analyze (Polit & Hungler, 1999). Open ended questions allow participants to answer in their own way. The analysis of open-ended questions is often difficult and time consuming (Polit & Hungler, 1999). Therefore, in this study open-ended questions were few. In addition Focused Group Discussion was undertaken to further explore pregnant women’s perspectives on IPTp use.
Validity

Validity is the degree to which an instrument measures what it is supposed to measure (Polit & Hungler, 1999). Experts in the area, which is the advisor and the midwives in the clinic were asked to review the content of the questions and make necessary adjustments.

Reliability

Reliability is the degree of dependability or consistency with which an instrument measures the attribute it is designed to measure (Polit and Hungler, 1999). Reliability is a measure that gives the same results every time it is used (Burns & Grove, 2005). The instrument was tested before use to verify its reliability so that relevant modification was made.

Instrument pretest

A pilot is a mini research conducted to develop and refine instruments or data collection process (Burns & Grove, 2005). Eight clients who met the inclusion criteria were studied to test the instrument at the Sakubva health centre but were included in the sample. This was done to determine clarity of the terms and consistency of responses. In this way the investigator became familiar with the study instrument and correct any foreseeable problems before the major study was undertaken. Some changes were done on questions structure.

Ethical considerations

According to Burns & Grove (2009) investigators have an ethical responsibility to recognize and protect the rights of human subjects. The human rights that require protection in research include the right to self-determination, privacy, anonymity, fair treatment and protection from discomfort and harm (Polit & Hungler, 1999). Permission to conduct the study
was sought from the Joint Ethics Research Committee and Parerenyatwa Group of Hospital and Medical Research Council of Zimbabwe. This was to ensure that the ethical requirements are met. The investigator explained the purpose of the study and gave information on the value and benefits of the study.

Participants were assured of the right to self-determination through informed consent by informing them about the proposed study, allowing them to voluntarily choose to participate without being penalized. Anonymity and confidentiality were assured by coding the data collection forms so that no participant names appear. Signed consent forms were not attached to the instruments to ensure anonymity. Completed forms were locked in a lockable cabinet to ensure confidentially and there after data were stored in a flash stick as a backup system destroyed after the completion of the study. Privacy was maintained throughout data collection by use of a private room. There was no women battering or child abuse observed during data collection.

Data collection procedure

The purpose and benefits of the study were explained to the Sister-in-Charge and staff of the ANC to gain their co-operation. The investigator requested for a private room in which to conduct the interviews so as to minimize the distraction of participants and reduce potential extraneous variables of noise and unnecessary interruptions (Burns and Grove, 2009). Data were collected through face to face interviews using a structured questionnaire while the participants were waiting to be seen by the doctor/midwives to reduce potential threat of internal validity such as history as participants had received information that would influence their responses.
Courtesy, politeness and effective communication helped to increase access to participants. Reassurance and explanations were offered to subjects through informed consent. The interview lasted 20-25 minutes as the investigator considered the time factor to prevent attrition that may introduce bias. Data collection was done during the month of March and April 2013.

Data analysis

Data analysis is the systematic organization and synthesis of research data, and testing of research hypothesis using those data (Polit & Hungler, 1999). It is conducted to reduce, organize and give meaning to data (burns and Grove, 2009). The investigator collected raw data which was systematically organized, coded using a code book and then entered into a computer. The Statistical Package for Social Sciences (SPSS) was used to analyse data. Research questions were analysed using descriptive and inferential statistics. Descriptive statistics are used to describe and synthesize data while inferential statistics are used to make inferences or to draw conclusions (Polit & Hungler, 1999)

Demographic Variables

Demographic variables were analysed using descriptive statistics. The variables age, gender, marital status, level of education, occupation, religion, place of residence, income, gestational age, and main source IPTp health education were analysed using frequency distribution tables and narratives.

Utilisation of IPTp
Questions the author sought to answer included “When did you take the first and second dose? How was the drug obtained and taken? Whether the woman took fansidar during the previous pregnancy or not.” Data obtained from the responses were described using frequency distribution tables and narratives.

Women’s knowledge on IPTp

Women’s knowledge was sought by asking questions on whether the participant ever heard about IPTp or not, source of information, questions on preventive practices, and knowledge on effects of malaria on pregnancy.

Relationship between knowledge and utilisation of IPTp by pregnant women

The participants responded to questions on IPTp timing of IPTp. Data was analysed using inferential statistics and correlational coefficient (r) using Pearson’s product moment correlation. This was according to (Polit & Hungler, 1999), who stated that the correlation coefficient is an index that summarises the degree of relationship between variables. The variables tested in this study were knowledge on IPTp, which was the independent variable and utilisation of IPTp which was the dependent variable.

Summary

The study was carried out at Dangamvura and Sakubva city clinics of Mutare. A descriptive correlation study design was used and systemic random sampling was used to select 80 research participants. Data collection was done through face to face interview using a structured questionnaire. Data analysis was done using SPSS.
CHAPTER 4
RESULTS

Introduction

This chapter seeks to analyse and present data that was obtained from the research study. It highlights responses to the objectives of the study which sought to establish the knowledge of women within the child bearing age on the utilisation of Intermittent Preventive Treatment of Malaria in Pregnancy. The study was focused on the pregnant women attending ANC at Dangamvura and Sakubva.

The purpose of this study was to examine the relationship between knowledge of women of child bearing age on the utilisation of IPTp. A sample of 80 participants was selected and data was collected using face to face interviews guided by a structured interview schedule. Analysis of data was done to answer the following research questions:

1. What is the knowledge level of mothers attending ANC at Dangamvura and Sakubva Mutare clinics on IPTp?
2. What is the nature of IPTp utilisation by pregnant women attending ANC at Dangamvura and Sakubva Mutare clinics?
3. What is the relationship between knowledge and utilisation of IPTp?

The study was conducted at Dangamvura and Sakubva Clinics, which are urban health centers in Mutare, Manicaland Province in March 2013. The health promotion model was used to guide the study. A sample of eighty (n=80) pregnant women coming for repeat visits was selected into the study using systematic sampling. The response rate was 100%. The study variables were categorized into three sections. The first section addressed the demographic variables. The second addressed women’s utilisation of IPTp services and the third section
knowledge on malaria prophylaxis and practices and factors affecting provision of IPTp. Analysis of the data was done using Statistical Packages of Social Sciences (SPSS) version 20. Descriptive and Inferential statistics that is frequencies, percentages and mean were used to analyse the relationship between knowledge on IPTp services and their utilisation amongst child bearing women. Pearson’s correlation coefficient was used to determine the relationship between knowledge and utilisation of IPTp services. Regression analysis was done to examine the knowledge of pregnant women on intermittent preventive treatment of Malaria in pregnancy in relation to utilisation of the services.
Sample Demographics

The demographic section of the interview schedule consisted of 6 questions that addressed the following, age of participant, marital status, place of residency, religion, educational level and occupation. The sample consisted of 80 pregnant women who were coming for ANC repeat visits. Results of the demographic characteristics are presented in table 1. In terms of the participants’ age, minimum age was 17 years and the maximum age was 35 years. Mean age was about 23 years with a median age of 23 years and modal age of 24 years. Fifty-one (63.75%) were in the 17 to 24 years age group, twenty one (26.3%) were in the 25 to 30 years age group, while 7 (8.75%) were between 31 and 35 years. Marital status showed that, 75 (93.75%) were married, 5 were either single divorced separated or widowed. Regarding place of residence 69 (86.3%) resided in the high density areas, 6 (7.5%) had travelled from low density areas to high density areas, and 4 (5%) resided in nearby commercial farms. Seventy eight (97.5%) of the participants were Christians, 1 (1.25) Buddhist and 1 (1.25) atheistic.

The majority 58 (72.5%) of the, participants attained secondary education, 14 (17.5%), participants had attained tertiary education, 7 (8.8%) participants attained primary education and only one did not go to school. Employment status showed 45 (56.3%) as unemployed, 11 (13.8%) as self employed and 9 (11.3%) as formally employed 8(19%) were students and 7 (8.8%) were informal traders.
Table 1
Sample demographics (n = 80)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age in years</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-19</td>
<td>17</td>
<td>21.25</td>
</tr>
<tr>
<td>20-24</td>
<td>34</td>
<td>42.50</td>
</tr>
<tr>
<td>25-29</td>
<td>15</td>
<td>18.75</td>
</tr>
<tr>
<td>30-34</td>
<td>12</td>
<td>15.00</td>
</tr>
<tr>
<td>35-44</td>
<td>2</td>
<td>2.50</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>Married</td>
<td>75</td>
<td>93.75</td>
</tr>
<tr>
<td>Separated</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>Divorced</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>Cohabitating</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td><strong>Place of Residence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural or resettlement</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>Small scale farms</td>
<td>4</td>
<td>5.00</td>
</tr>
<tr>
<td>High density suburbs</td>
<td>69</td>
<td>86.25</td>
</tr>
<tr>
<td>Low density suburbs</td>
<td>6</td>
<td>7.50</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christianity</td>
<td>78</td>
<td>97.50</td>
</tr>
<tr>
<td>Buddhism</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>Atheisms</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td><strong>Educational Level</strong></td>
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<td></td>
</tr>
<tr>
<td>Nil</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>Primary Level</td>
<td>7</td>
<td>1.25</td>
</tr>
<tr>
<td>Secondary Level</td>
<td>58</td>
<td>8.75</td>
</tr>
<tr>
<td>Tertiary level</td>
<td>14</td>
<td>72.50</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>45</td>
<td>56.25</td>
</tr>
<tr>
<td>Student</td>
<td>8</td>
<td>10.0</td>
</tr>
<tr>
<td>Trader</td>
<td>7</td>
<td>8.75</td>
</tr>
<tr>
<td>Self employed</td>
<td>11</td>
<td>13.75</td>
</tr>
<tr>
<td>employed</td>
<td>9</td>
<td>11.25</td>
</tr>
</tbody>
</table>
Utilisation of Intermittent preventive treatment of malaria in pregnancy (IPTp)

Table 2 depicts information on when the first dose of IPTp was taken, how the drug was obtained and taken, whether the participant utilized IPTp during the previous pregnancy, and the outcome of the previous pregnancy. Scores range on when the first dose was taken was between 0 and 34 points. Forty six percent (37) of the participants took their first dose during the 16-27 weeks gestational age, 33 (41.3%) at 4-15 weeks, 5 (6.3%) at 28 weeks and above and 5 (6.3%) did not take. Regarding when the second dose was taken 38 (47.5%) took the second 4 weeks after the first dose, 30 (36.3%) did not take the second dose, 5 (6.3%) took the 2\textsuperscript{nd} dose 1 week after first dose, 5 (6.25), 2 weeks after first dose and 2 (2.5) took 2\textsuperscript{nd} dose 3 weeks after. Sixty (75%) participants obtained the drug freely from the clinic and took the drug under observation, 13 (16.3%) bought the drug from the pharmacy, 5 participants did not take fansidar and 2 (2.5%) did not specify how they got the drug but they took the drug. Nearly twelve percent of the participants took the drug at home without observation. About 29 (36.3%) of the participants took fansidar during their previous pregnancy, 23 (28.8%) did not take and 28 (35%) of the participants were primigravid. Eleven (13.8%) participants took 1 dose, 10 (12.5%) took 2 doses and 8 (10%) took 3 doses. On the outcome of previous pregnancy, 29 (36.3%) of the participants had live babies, 12 (15.0 %) had preterm babies, 6 (7.5%) had still births.
Table 2

Utilisation of Intermittent preventive treatment of malaria in pregnancy (n = 80)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>When the first dose was taken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-15 weeks</td>
<td>5</td>
<td>6.25</td>
</tr>
<tr>
<td>16-27 weeks</td>
<td>37</td>
<td>46.25</td>
</tr>
<tr>
<td>28 weeks and above</td>
<td>33</td>
<td>41.25</td>
</tr>
<tr>
<td>Did not take</td>
<td>5</td>
<td>6.25</td>
</tr>
<tr>
<td>When the 2\textsuperscript{nd} dose was taken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 week after 1\textsuperscript{st} dose</td>
<td>5</td>
<td>6.25</td>
</tr>
<tr>
<td>2 weeks after 1\textsuperscript{st} dose</td>
<td>5</td>
<td>6.25</td>
</tr>
<tr>
<td>3 weeks after 1\textsuperscript{st} dose</td>
<td>2</td>
<td>2.50</td>
</tr>
<tr>
<td>4\textsuperscript{th} week after 1\textsuperscript{st} dose</td>
<td>38</td>
<td>47.50</td>
</tr>
<tr>
<td>Did not take</td>
<td>30</td>
<td>37.50</td>
</tr>
<tr>
<td>How the drug was obtained</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offered freely at the health facility</td>
<td>60</td>
<td>75</td>
</tr>
<tr>
<td>Bought from a chemist</td>
<td>13</td>
<td>16.3</td>
</tr>
<tr>
<td>Bought from somewhere else</td>
<td>2</td>
<td>5.0</td>
</tr>
<tr>
<td>Not applicable</td>
<td>5</td>
<td>6.3</td>
</tr>
<tr>
<td>How the drug was taken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a health facility under observation</td>
<td>60</td>
<td>75</td>
</tr>
<tr>
<td>In a facility without observation</td>
<td>9</td>
<td>11.25</td>
</tr>
<tr>
<td>At home</td>
<td>6</td>
<td>7.5</td>
</tr>
<tr>
<td>Not applicable</td>
<td>5</td>
<td>6.25</td>
</tr>
<tr>
<td>Previous IPTp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>29</td>
<td>36.25</td>
</tr>
<tr>
<td>No</td>
<td>23</td>
<td>28.75</td>
</tr>
<tr>
<td>Did not taken</td>
<td>28</td>
<td>35.0</td>
</tr>
<tr>
<td>Doses taken during the previous pregnancy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>11</td>
<td>13.75</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>12.50</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>10.0</td>
</tr>
<tr>
<td>Not applicable</td>
<td>51</td>
<td>63.25</td>
</tr>
<tr>
<td>Outcome of the previous pregnancy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Live baby</td>
<td>29</td>
<td>36.25</td>
</tr>
<tr>
<td>Preterm baby</td>
<td>12</td>
<td>15.0</td>
</tr>
<tr>
<td>Abortion</td>
<td>5</td>
<td>6.25</td>
</tr>
<tr>
<td>Still birth</td>
<td>6</td>
<td>7.5</td>
</tr>
<tr>
<td>Primigravid</td>
<td>28</td>
<td>35.0</td>
</tr>
</tbody>
</table>
Timing of IPTp

Table 3 presents frequency of ANC visits, gestational age at booking and parity. About 29 (36.3%) participants were coming for the 2\textsuperscript{nd} ANC visit, 25 (31.3%) for the third visit and 26 (32.5%) for the fourth and above visit. Forty two (52.5%) booked their pregnancy within 16-27 weeks gestational age, 24 (29.5%) booked after 28 weeks gestational age and 14 (17.5%) booked within 4-15 weeks. Out of 80 participants 28 (35%) were primigravid 33 (41.3%) had one child, and 19 (24.75%) had at least 2 children.
Table 3

Timing of IPTp (n=80)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANC Attendances</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once</td>
<td>0</td>
<td>00</td>
</tr>
<tr>
<td>Twice</td>
<td>29</td>
<td>36.25</td>
</tr>
<tr>
<td>Thrice</td>
<td>27</td>
<td>33.75</td>
</tr>
<tr>
<td>Fourth and above</td>
<td>24</td>
<td>30.0</td>
</tr>
<tr>
<td>Gestational age at booking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-15 weeks</td>
<td>14</td>
<td>17.5</td>
</tr>
<tr>
<td>16-27 weeks</td>
<td>42</td>
<td>52.5</td>
</tr>
<tr>
<td>28 weeks and above</td>
<td>24</td>
<td>30.0</td>
</tr>
<tr>
<td>Parity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>32</td>
<td>40.0</td>
</tr>
<tr>
<td>2</td>
<td>33</td>
<td>41.25</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>16.25</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>2.5</td>
</tr>
</tbody>
</table>
Scores on IPTp utilisation

Table 4 presents scores on IPTp utilisation. Scores ranged from 1-25 out of a possible score of 28. Four (5%) of participants scored 7-10, 54 (67%) scored 11-20 points and 22 (27.5%) scored 21-25 points. Thirty four (42.5%) had low utilisation levels as they scored below the mean score of 17.96%. Forty six (57.5%) scored above mean score.
Table 4

Total IPTp use scores (n=80)

<table>
<thead>
<tr>
<th>Scores out of 28</th>
<th>Frequency (n)</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>1.25</td>
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<tr>
<td>9</td>
<td>1</td>
<td>1.25</td>
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<td>10</td>
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<td>11</td>
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<td>1.25</td>
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<td>10</td>
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<td>21</td>
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<td>12.5</td>
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<td>22</td>
<td>4</td>
<td>5.0</td>
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<tr>
<td>23</td>
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<td>24</td>
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<tr>
<td>25</td>
<td>3</td>
<td>3.75</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Knowledge of Women on Malaria Prevention Practices

Table 5 presents women who believed that malaria can be prevented, drug used in IPTp, women who had ever heard about IPTp, and from where they got the information. Seventy seven (96.25%) believed and only 3 (3.8%) participants did not believe that malaria can be prevented. Forty one (51.3%) mentioned the correct drug (SP), 18 (22.5%) women mentioned that chloroquine can be used for malaria prevention, 4 (5.0%) mentioned athemisinin, while 2 (2.5%) mentioned native medication. Fifteen (18.75%) were not sure of which drug is used. More than ninety-eight percent of the participants had heard about IPTp and only one participant had not. Of those who had the information, 76 (98.8%) got the information from the clinic either by the doctor or nurse and three got it somewhere else. With regards to the ways of preventing malaria, 53 (66.3) mentioned less than 3 out of 8 ways of preventing malaria, 11(13.75%) managed to mentioned more than 4 ways of preventing malaria, and 16 (20%) participants did not respond, 10 (8%) were from Dangamvura and 6 (7.5%) from Sakubva.
Table 5

Knowledge on Malaria Prevention Practices (n= 80)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Believe malaria can be prevented</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>77</td>
<td>96.25</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
<td>3.75</td>
</tr>
<tr>
<td>Drug used for IPTp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chloroquine</td>
<td>18</td>
<td>22.50</td>
</tr>
<tr>
<td>Sulphadoxine pyrimethamine (fansidar)</td>
<td>41</td>
<td>51.25</td>
</tr>
<tr>
<td>Athermisin</td>
<td>4</td>
<td>5.00</td>
</tr>
<tr>
<td>Traditional medication</td>
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<td>2.50</td>
</tr>
<tr>
<td>Camoquine</td>
<td>15</td>
<td>18.75</td>
</tr>
<tr>
<td>Ever heard about IPTp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>79</td>
<td>98.75</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>Source of information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>72</td>
<td>9.0</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Doctor</td>
<td>5</td>
<td>6.25</td>
</tr>
<tr>
<td>Someone else</td>
<td>3</td>
<td>3.75</td>
</tr>
<tr>
<td>Place where information was obtained</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinic</td>
<td>76</td>
<td>95.0</td>
</tr>
<tr>
<td>Church</td>
<td>3</td>
<td>3.75</td>
</tr>
<tr>
<td>Somewhere else</td>
<td>1</td>
<td>1.25</td>
</tr>
</tbody>
</table>
Knowledge of women on the effects of Malaria on Pregnancy

Table 6 presents information on causes of malaria, malaria transmission to the unborn, and effects of malaria on pregnancy. Seventy three (92.75%) participants mentioned that mosquito bites can cause malaria and 7 (87.5%) said malaria can be caused by poor hygiene. Regarding whether malaria can be transmitted to the unborn baby, 45 (56.25%) participants agreed, 22 (27.5%) disagreed and 13 (16.25%) were not sure.

Table 6

Knowledge of mothers on the effects of Malaria on Pregnancy

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What causes malaria</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mosquito bites</td>
<td>73</td>
<td>91.25</td>
</tr>
<tr>
<td>Poor hygiene</td>
<td>7</td>
<td>8.75</td>
</tr>
<tr>
<td><strong>Can malaria be transmitted to the unborn baby</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>45</td>
<td>56.25</td>
</tr>
<tr>
<td>No</td>
<td>22</td>
<td>27.5</td>
</tr>
<tr>
<td>Not sure</td>
<td>13</td>
<td>16.25</td>
</tr>
<tr>
<td><strong>What are the effects of malaria on pregnancy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>death of pregnant woman</td>
<td>52</td>
<td>65.0</td>
</tr>
<tr>
<td>abortion</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>preterm labour</td>
<td>9</td>
<td>11.25</td>
</tr>
<tr>
<td>all of the above</td>
<td>7</td>
<td>8.75</td>
</tr>
<tr>
<td>none of the above</td>
<td>2</td>
<td>2.50</td>
</tr>
</tbody>
</table>
Scores on Knowledge on IPTp

Table 7 depicts scores on knowledge women have on IPTp. Four (5%) participants scored 10 points, 66 (82.5%) scored 11-20 points and 10 (12.5%) participants scored 21-25 points. Forty three (53.75%) had high levels of knowledge on malaria prevention as they scored above mean score of 16.78. Thirty seven (46.25%) scored below mean.

Table 7

Total score on knowledge on IPTp. (n=80)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scores out of 36</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>13</td>
<td>6</td>
<td>7.75</td>
</tr>
<tr>
<td>14</td>
<td>8</td>
<td>10.0</td>
</tr>
<tr>
<td>15</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>16</td>
<td>6</td>
<td>7.75</td>
</tr>
<tr>
<td>17</td>
<td>11</td>
<td>14.75</td>
</tr>
<tr>
<td>18</td>
<td>8</td>
<td>10.0</td>
</tr>
<tr>
<td>19</td>
<td>5</td>
<td>6.25</td>
</tr>
<tr>
<td>20</td>
<td>9</td>
<td>11.25</td>
</tr>
<tr>
<td>21</td>
<td>3</td>
<td>3.75</td>
</tr>
<tr>
<td>22</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>23</td>
<td>3</td>
<td>3.75</td>
</tr>
<tr>
<td>24</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>25</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

Mean score  - 16.78
Factors affecting provision of IPTp

Table 8 presents participants’ responses to factors that might affect provision of IPTp. Eighty five percent of the participant (68) were from within 10km radius and 12 (15%) came from a distance more than 10 kilometers from the clinic. Fifty five (68.8%) of the clients walked to the clinic, 17 (21.3%) used public transport, 1 participant from commercial farms used an animal driven cart, and seven used their own vehicles. On usefulness of the program 76 (95%) thought it was useful where as 4 (5%) thought it was not. Participants mentioned varied reasons for not completing IPTp course. Regarding participants who suffered from malaria, 74(92.75%) had not suffered from this disease while only 6 (97,25%) had suffered.
Factors that might affect provision of IPTp (n = 80)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distance from the clinic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 10 kilometers</td>
<td>68</td>
<td>85.0</td>
</tr>
<tr>
<td>More than 10 kilometers</td>
<td>12</td>
<td>15.0</td>
</tr>
<tr>
<td><strong>Means of transport used to come to the clinic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On foot</td>
<td>55</td>
<td>68.75</td>
</tr>
<tr>
<td>Animal driven cart</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>Public transport</td>
<td>17</td>
<td>21.25</td>
</tr>
<tr>
<td>Private car</td>
<td>5</td>
<td>6.25</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Usefulness of IPTp</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>76</td>
<td>95.0</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Reasons for program failure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>waiting too long</td>
<td>6</td>
<td>7.5</td>
</tr>
<tr>
<td>health workers not friendly</td>
<td>6</td>
<td>7.5</td>
</tr>
<tr>
<td>frequent stock outs</td>
<td>21</td>
<td>26.5</td>
</tr>
<tr>
<td>waiting area uncomfortable</td>
<td>5</td>
<td>6.25</td>
</tr>
<tr>
<td>not offered the drug</td>
<td>11</td>
<td>13.75</td>
</tr>
<tr>
<td>fear of side effects</td>
<td>21</td>
<td>26.25</td>
</tr>
<tr>
<td>believe that drugs are not useful</td>
<td>10</td>
<td>12.50</td>
</tr>
<tr>
<td><strong>Participants who suffered from malaria</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6</td>
<td>7.25</td>
</tr>
<tr>
<td>No</td>
<td>74</td>
<td>92.75</td>
</tr>
</tbody>
</table>
Qualitative Data

Two focused group discussions were held one at Dangamvura and the other at Sakubva clinic. Each group had 10 participants. Their responses were almost similar though participants from Dangamvura were reluctant to give information. Most common response on reason for program failure was late booking. Nine (45%) participants mentioned that most women book but ending up not completing the course. Six (30%) mentioned frequent stock outs, of these 4 were from Dangamvura and 2 were from Sakubva clinic. Ten percent of the participants in the FGDs mentioned fear of drug side effects and only 3(15%) mentioned they were waiting for too long and not offered the drug.

Age of participant and initiation of IPTp

Table 9 shows age of participant when she took first dose. Eight (10.0%) participants aged 15 -19 years took first dose of fansidar during the third trimester, 5 (6.25%) took during their 2\textsuperscript{nd} trimester and 2 (2.25%) during first trimester.
Table 9

<table>
<thead>
<tr>
<th>Age</th>
<th>When did you take the first dose</th>
<th></th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4-15 weeks</td>
<td>16-27 weeks</td>
<td>28 and above weeks</td>
<td>Not taken</td>
<td></td>
</tr>
<tr>
<td>15-19 years</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>20-24 years</td>
<td>1</td>
<td>18</td>
<td>15</td>
<td>0</td>
<td>34</td>
</tr>
<tr>
<td>25-34 years</td>
<td>2</td>
<td>13</td>
<td>9</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>35-44 years</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>37</td>
<td>33</td>
<td>5</td>
<td>80</td>
</tr>
</tbody>
</table>

R = -.037     Significance = .744                          SE = .124

Table 10 indicates that 11 (13.75%) participants aged between 15 and 19 years took 2nd dose 4 weeks after first dose, 2 (2.5%), took one week after, one (1.25%) participant took 2 weeks after and the other 2 (2.5%) participants did not take. Sixteen participants (20%) aged between 20 and 24 years did not take the 2nd dose, 14 (17.5%) took second dose 4 weeks after 2nd dose, and the rest, 4(5%), 2 (2.5%) took either 1 week after first dose or 2 weeks after first dose. Regarding those aged 24-30, 12 (15%) did not take 2nd dose, 11 (13.75%) took second dose 4 weeks after first dose, 2(2.5%), two weeks after, one, 1 week after and another 1 (1.25%) participant took 2nd dose 3 weeks after first week. Two participants (2.5%) took 2nd dose 4 weeks after first dose.
Table 10

Age when 2\textsuperscript{nd} dose was taken

<table>
<thead>
<tr>
<th>Age</th>
<th>1st week after 1st dose</th>
<th>2nd week after 1st dose</th>
<th>3rd week after 1st dose</th>
<th>4th week after 1st dose</th>
<th>Not taken</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19 years</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>20-24 years</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>14</td>
<td>16</td>
<td>34</td>
</tr>
<tr>
<td>25-34 years</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>11</td>
<td>12</td>
<td>27</td>
</tr>
<tr>
<td>35-44 years</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>38</td>
<td>30</td>
<td>80</td>
</tr>
</tbody>
</table>

R = .151
Significance = .103
SE = .181
Participant’s educational level and initiation of IPTp

Table 11 shows participants’ educational level and first dose taking. Out of 58 (72.5%) who attained secondary education, 25 (31.25%) took first dose during the 2^{nd} semester, 24 (30.0%); during 3^{rd} semester 5 (6.25%) during 1^{st} semester and 4 (5%) did not take fansidar at all. Fourteen participants (17.5%) had tertiary education, 8 (10%) of them took first dose during the 2^{nd} semester and 6 (7.75%) during the 3^{rd} semester. Out of 7 (8.75%) participants who had primary education level 4 (5%) took 1^{st} dose during 2^{nd} semester, and 3 (3.75%), during third semester. Only one (1.25%) participant who had not gone to school did not take fansidar.
Table 11

Educational level and initiation of IPT (n=80)

<table>
<thead>
<tr>
<th>Education Level</th>
<th>4-15 weeks</th>
<th>16-27 weeks</th>
<th>28 and above</th>
<th>Not taken</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Primary</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Secondary</td>
<td>5</td>
<td>25</td>
<td>24</td>
<td>4</td>
<td>58</td>
</tr>
<tr>
<td>Tertiary</td>
<td>0</td>
<td>8</td>
<td>6</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>37</td>
<td>33</td>
<td>5</td>
<td>80</td>
</tr>
</tbody>
</table>

R = .107  Sig = .114  SE = .343
Table 12 displays information on marital status and first dose taking. Seventy five (93.75%) participants were married and 35 (43.75%) took 1st dose during the 2nd semester, 30 (37.5%) during 3rd semester 5 (6.25%) during 1st semester and 5 (6.25%) did not take fansidar. Two (2.25%) participants either divorced or separated took first dose during third semester. The other 2 (2.25) widowed and cohabitating 2nd trimester and third trimester respectively. One (1.25%) single participant took first dose of fansidar during 3rd trimester.
Marital status and initiation of IPTp

Table 12

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>4-15 weeks</th>
<th>16-27 weeks</th>
<th>28 and above weeks</th>
<th>Not taken</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Married</td>
<td>5</td>
<td>35</td>
<td>30</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>Separated</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Divorced</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Widowed</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cohabiting</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>37</td>
<td>33</td>
<td>5</td>
<td>80</td>
</tr>
</tbody>
</table>

R = .066  SE = .065  Sig. = .562
Occupation of participants and initiation of IPTp

Table 13 presents information on occupation and IPTp utilisation. The 45 (56.25%) unemployed participants took first dose of fansidar as follows; 22 (27.5%) during 2nd semester, 17 (21.25%), 3rd semester and 6 (7.75%) either did not take or took 1st dose during 1st semester. Seven (8.75%) traders took first dose as follows, 4 (5%) during 3rd semester and three during 2nd semester.

Table 13

<table>
<thead>
<tr>
<th>What is your occupation?</th>
<th>When did you take the first dose</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4-15 weeks</td>
<td>16-27 weeks</td>
</tr>
<tr>
<td>Unemployed</td>
<td>3</td>
<td>22</td>
</tr>
<tr>
<td>Student</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Trader</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Self employed</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>White collar job</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>37</td>
</tr>
</tbody>
</table>

R = .033                    SE = .102                        Sig. = .770
Table 14 displays information on parity and when first dose was taken. Out of 32 (40%) primigravid, 16 (20%) had their first dose during 2\textsuperscript{nd} trimester, 13 (16.25%), 3\textsuperscript{rd} trimester, 2 (2.25%), 1\textsuperscript{st} trimester and one did not take. Para 1-2 had 33 (41.25%) participants. 16 (20%) took 1\textsuperscript{st} dose during 2\textsuperscript{nd} trimester where as 13 (16.25%) took it during 3\textsuperscript{rd} trimester and 1(1.25%) did not take. Only 2 (2.5%) participants had parity greater than 5 (6.25%), one took 1\textsuperscript{st} dose during 3\textsuperscript{rd} trimester and the other did not take.

Table 14

<table>
<thead>
<tr>
<th>Parity</th>
<th>When did you take the first dose</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4-15 weeks</td>
<td>16-27 weeks</td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>1-2</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>3-4</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Greater than 5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>37</td>
</tr>
</tbody>
</table>

R = .226                      SE = .111         Sig. .044
Table 15 shows information on parity and 2nd dose. Fifteen (18.75%) participants who were pregnant for the first time did not take 2nd dose, 11 (13.75%) took 2nd dose 4 (5%) weeks after 1st dose, 4 (5%) took 1 week after 1st dose and 2 (2.5%) took 2nd dose 2 (2.5%) weeks after 1st dose. Parity 1-2 had a total of 33 (41.25%) and 21 (26.25%) took 2nd dose 4 weeks after first dose, 7 (8.75%) did not take, 3 (3.75%) took 2nd dose 1-2 weeks after 2nd dose. Out of 13 (16.25%) participants who had a parity of 3-4, 7 (8.75%) did not take 2nd dose, 5 (6.25%), took it 4 weeks after 1st dose and 1 (1.25%) took 2nd dose a week after 2nd dose.

<table>
<thead>
<tr>
<th>Parity</th>
<th>1st week after 1st dose</th>
<th>2nd week after 1st dose</th>
<th>3rd week after dose</th>
<th>4th week after 1st dose</th>
<th>Not taken</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>11</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>1-2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>21</td>
<td>7</td>
<td>31</td>
</tr>
<tr>
<td>3-4</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>&gt; 5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>38</td>
<td>30</td>
<td>80</td>
</tr>
</tbody>
</table>

R = .102        SE = .102        Sig. = .278
Table 16 displays information religion and first dose taking. Thirty eight (10%) participants took 2\textsuperscript{nd} dose 4 weeks after first dose, 30 (37.5%) did not take, 8 (10%), took 1-2 weeks after first dose and 2 (1.25%) took 3 weeks after 1\textsuperscript{st} dose. Two (2.5%) participants, one Buddhist and aesthetic took 2\textsuperscript{nd} dose 1-2 weeks after.

Table 16

Religion and IPTp use (n=80)

<table>
<thead>
<tr>
<th>What is your religion?</th>
<th>When did you take the second dose</th>
<th>1st week after 1st dose</th>
<th>2nd week after 1st dose</th>
<th>3rd week after 1st dose</th>
<th>4th week after 1st dose</th>
<th>Not taken</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christianity</td>
<td></td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>38</td>
<td>30</td>
<td>78</td>
</tr>
<tr>
<td>Buddhism</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Atheistic</td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>38</td>
<td>30</td>
<td>80</td>
</tr>
</tbody>
</table>
Table 17 presents information on obstetric history and IPTp use. Out of 43 (53.75%) participants who booked their pregnancy during the 2\textsuperscript{nd} semester, 26 (32\%) took first and second dose. 16 (20\%) took first dose only and one (1.25\%) did not take any fansidar. Twenty four participants booked their pregnancy during the third trimester, 13 (16.25\%) took both first and second dose, 8 (10\%) took first dose only and three (3.75\%) did not take any fansidar. Eleven (13.75\%) participants booked their pregnancy during the first trimester, 5 (6.25\%) of them took both first and second doses where as 6 (7.75\%) took only first dose. Regarding previous outcome of pregnancy, out of twenty eight (35\%) participants who had live babies, 13 (16.25\%) only took first and did not take 2\textsuperscript{nd} dose, and ten (12.5\%) took both first and second dose 5 (6.75\%) did not take any fansidar. Six (7.75\%) participants had sill births, out of these 5 (6.2\%) did not take fansidar during pregnancy, and one (1.25\%) first dose only. Twelve (15\%) participants had preterm deliveries that is 11 (13.75\%) had not taken fansidar and one too first dose only. Out of 28 (35\%) participants who had pregnancy for the first time 13 (16.25\%) took 1st and 2\textsuperscript{nd} doses, 14 (17.5\%) took only first pregnancy and 1 (1.25\%) did not take. Thirty eight (10\%) were para 1, and 28 (35\%) took both doses, eight (10\%) took only first dose and 2 (2.5\%) did not take any fansidar. Out of 12 (15\%) who were in their 2\textsuperscript{nd} parity, 6 (7.75\%) took both doses, 4 (5\%) took only first dose and 2 (2.5\%) did not take any fansidar. Participants who were in para 3 were two (3.75\%), one did not take fansidar and the other took only first dose.
Table 17

Obstetrics history and IPTp use (n=80)

<table>
<thead>
<tr>
<th></th>
<th>non users [%]</th>
<th>use [%]</th>
<th>no 2\textsuperscript{nd} dose [%]</th>
<th>Total [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Booking age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1\textsuperscript{st} trimester</td>
<td>0</td>
<td>5</td>
<td>6.25</td>
<td>11</td>
</tr>
<tr>
<td>2\textsuperscript{nd} trimester</td>
<td>1</td>
<td>26</td>
<td>32.5</td>
<td>43</td>
</tr>
<tr>
<td>3\textsuperscript{rd} trimester</td>
<td>3</td>
<td>13</td>
<td>16.25</td>
<td>24</td>
</tr>
<tr>
<td><strong>Last Pregnancy Outcome</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Live Birth</td>
<td>5</td>
<td>10</td>
<td>12.5</td>
<td>28</td>
</tr>
<tr>
<td>Still Birth</td>
<td>5</td>
<td>1</td>
<td>1.25</td>
<td>6</td>
</tr>
<tr>
<td>Preterm</td>
<td>11</td>
<td>1</td>
<td>1.25</td>
<td>12</td>
</tr>
<tr>
<td>abortion</td>
<td>4</td>
<td>0</td>
<td>00</td>
<td>10</td>
</tr>
<tr>
<td><strong>Parity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>13</td>
<td>16.25</td>
<td>28</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>28</td>
<td>35.0</td>
<td>38</td>
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<td>2</td>
<td>2</td>
<td>6</td>
<td>7.75</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1.25</td>
<td>2</td>
</tr>
</tbody>
</table>
Knowledge and utilisation

Diagram 1 presents the relationship between knowledge and utilisation of IPTp services by women of child bearing age attending ANC at Dangamvura and Sakubva health centres.

Diagram 4.1

Scatter diagram for relationship between knowledge and utilisation. (n=80)
Pearson’s Correlation Analysis.

Table 18 displays a weak linear correlation coefficient (r=.393, p< .05) between IPTp services knowledge (Independent Variable) and utilisation of the services (Dependent Variable) by child bearing women attending ANC at Dangamvura and Sakubva clinics. Knowledge of IPTp is responsible for 0.97% of utilisation. For every unit change in Knowledge levels utilisation will change by 0.97%.

Table 18

Pearson Correlation (n=80)

<table>
<thead>
<tr>
<th></th>
<th>Y</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.00</td>
<td>0.393</td>
</tr>
<tr>
<td>P&lt; .05</td>
<td>p&lt; 0.1</td>
<td>p&lt; .001</td>
</tr>
</tbody>
</table>

X= Knowledge of women on IPTp

Y = Women’s utilisation of IPTp
Regression analysis was used to further estimating the linear relationship between IPTp knowledge and utilisation of the program and the results are shown on Table. The effect of the independent variable—IPTp knowledge, is indicated by $R^2 = .009$. The regression coefficient $R^2 = .009$ (9%) is the amount of variability in the data explained or accounted for by the regression model. This means that IPTp knowledge explains 0.9% of the variation on malaria prevention practices. The Unstandardized regression coefficient B (16.115, $p = <.01$) which represents a change or increase in utilisation of the services, for a unit change or increase in IPTp knowledge level was also significant. From the Unstandardized regression coefficient, moderate importance of IPTp knowledge was revealed. In the study, the importance of IPTp knowledge therefore was 0.97 in terms of its contribution to utilisation of the program. An increase in IPT knowledge levels caused improved utilisation of IPTp program. To test the significance of $R^2$, the F statistic was done. The significant F test ($F = 0.739, p = <.01$) indicates a linear relationship and that the $R^2$ is significant, which means that the model is good.

Table 19

Regression Analysis (n=80)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>.115</td>
<td>.097</td>
<td>.393</td>
</tr>
<tr>
<td>Constant</td>
<td>.110</td>
<td>.128</td>
<td></td>
</tr>
<tr>
<td>$R^2 = .009$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F = .739$</td>
<td></td>
<td></td>
<td>$p = .01$</td>
</tr>
<tr>
<td>$p &lt; .05$</td>
<td></td>
<td>$p &lt; .01$</td>
<td>$p &lt; .005$</td>
</tr>
</tbody>
</table>

$X = .097$ (knowledge on IPTp)
CHAPTER 5
DISCUSSIONS, IMPLICATIONS AND RECOMMENDATIONS

Introduction

This chapter presents a summary of the results and discusses the findings, focusing on the specific study questions addressed in the study, on the knowledge and utilisation of intermittent preventive treatment of malaria in pregnancy by pregnant women attending ANC at Dangamvura and Sakubva health centers. The implications of the study are discussed in relation to mother and child health/midwifery practice, midwifery education and midwifery research. Recommendations and limitations of the study are outlined and the summary of the study presented. The purpose of this study was to examine if there was any relationship between knowledge and use of SP for IPTp by women of child bearing age attending ANC at Dangamvura and Sakubva clinics.

The study was conducted in Mutare City, eastern Zimbabwe from March 2013 to May 2013. Eighty pregnant women, 40 from Dangamvura and 40 from Sakubva clinics, in their second and third trimesters were interviewed while attending antenatal clinics. The investigator used systematic random sampling, which is a probability sampling method where every 3rd case from the pregnant women who would be attending ANC was selected. FGDs were also done with 20 pregnant women, 10 from Dangamvura and 10 from Sakubva clinics. Selected pregnant women were a mixture of different socio-demographic characteristics that were regarded to be important determinants of pregnant women’s knowledge and utilisation of SP for IPTp. These included age, level of education, marital status, religion and occupation. The main themes for FGDs were on the importance of early antenatal attendance, the use of SP for IPTp, reasons for programme failure, timing for IPTp and other pregnant women.
related factors that are likely to affect implementation of IPT policy using SP for prevention of malaria in pregnancy.

Findings showed that at least 63% of the participants attended ANC and had three or more visits. Overall IPTp coverage for the first and second doses was 93.7% and 63.7% respectively. Amongst women who could have received IPTp based on the timing of their attendance, only 46.3% and 47.5% were offered the first dose based on the national and WHO (2010) guidelines, while 47.3% and 16.2% were offered the second dose respectively giving significant missed opportunities. Amongst ANC attendees offered first and second doses, 75% of the participants reported taking the drug under direct observation. The FGDs revealed that women just take drugs given to them by health workers because they are asked to do so. They do not understand why they should take fansidar when they had not tested positive for malaria. The majority felt that nurses should continue health educating women for them to understand why they should take the drug from their liking not to be ordered to do so. Three participants, one from Dangamvura and two from Sakubva Health centers mentioned late booking as the reason for women not to complete their SP doses.

Inferential statistics of Pearson’s correlation and regression analysis were computed to examine the relationship between knowledge of child bearing women and on the utilisation of intermittent preventive treatment of malaria in pregnancy. It was showed that there was an insignificant correlation (r = .097). The regression analysis also showed little significant positive effect of knowledge of women on IPTp services and utilisation of the services. The R² of 0.009 supported that IPTp knowledge explains 9.7% of the variation on malaria prevention practices. The assumption was that as knowledge increases utilisation of IPTp services will improve. The result did not support the assumption. This shows that knowledge does not
always translate into positive behavior and in this study it is not the only factor influencing the utilisation of the program.

Sample demographics

The mean age was 23 years as compared to Mbonye and friends who had a mean age of 23.6 years when they carried out a study on malaria prevention in Uganda, this year. A higher percentage (63.75%) of participants were observed among the ages of 17-24 years. This was also observed by Mbonye et al, (2008) when they suggested that the reason might be that such people visit health centers for explanation and care in case of complications because they have no experience with pregnancy. Although the majority of the participants (93.8 %), were married, a few 12.5% were either single, separated, divorced, cohabitating or divorced. The marital status has implications on maternal and child health issues as the majority of participants had financial, moral and psychological support from their spouses.

Sangare et al (2010) discovered that women with lower education level were more likely to receive full course. Majority of the participant (90%) were well educated. They had secondary to tertiary education but however, only 40.5% of them took first dose only showing that education level does not determine how women receive malaria prevention. In the FGDs some participants indicated that they were just given some white tablets to take under observation without explanation regardless of level of education. The level of client’s education should be taken into consideration by midwives should for the program to be a success. The majority of the participants (86.3%) resided in the high density area, and most of them could walk to the clinics since the health resources were within reach. Seventy (97.5%) of the participants were Christians, and the rest, (2.5%), were either Buddhist or atheistic. The participants indicated that their religions were not interfering with maternal health. In this
study more than half of the participants (56.3%) were unemployed and were of had a low socio income status. The rest (43.7%) either were self employed informal traders or students. These participants lacked adequate financial resources which has implications on completion of the IPTp course as many will either book late for ANC, initiate IPTp late or do not book at all.

Utilisation of IPTp

Utilisation of SP (the drug recommended by 2011 National Malaria prevention policy and guidelines) for preventive treatment of malaria revealed that 46.25% of the participants who took the first dose at the appropriate time was low among the study population. Out of 50 (62.5%) who took the second dose, only 38 (47.5%) took it within WHO recommended time that is 4 weeks after 1st dose. The results also showed that 36 (45%) women used Insect treated nets. This observation has been made by several other studies in Nigeria and other part of Africa. (Nigeria Demographic survey, 2008). Only 22 (27.5%) pregnant women had taken the recommended two doses of SP during pregnancy out of 45 (56.25%) women who had taken first and second doses. At Dangamvura health centre this observation has been attributed to unavailability of the drugs at the facility due to stock out and late booking. This is contrary to what Mbonye et al 2008 discovered in the malaria journal where the women cited drug side effects as the reason for not taking drugs.

The findings in this study revealed that more women from Sakubva (38.75%) had accessed SP for the first dose as compared to those from Dangamvura (36.25%). Out of 37 (46.25%) participants who took first dose of fansidar 31(38.75%) were primigravid, 15 (18.75%) from Sakubva and 16 (20%) from Dangamvura clinics. Out of these 31(38.75%)
only 16 (20%) took first dose within WHO recommended period that is 9 (11.25%) and 7 (8.75%) from Sakubva and Dangamvura respectively.

The reported prevalence of malaria among the study population was about 5 (12.5%) 3 women from Sakubva and 2 (2.5%) from Dangamvura clinics. This might be due to most of the women (52.5%) not benefit from proper IPTp as they took second dose of fansidar at various times after the initial dose. Only 38 (47.5%) of them took it as recommended at 4th week following the initial dose. This is supported by Maiga et al, (2010) who reported in their study that addition of 3rd dose halved placental parasitaemia. The same author stated that reasons given for not taking SP included not been informed by health workers, afraid of safety of drug, drug stock out, did not remember to buy, lack of funds etc. Findings from some studies in sub Saharan Africa show that pregnant women and the society associated SP with severe adverse outcomes such as abortion, skin reaction and lack of anti-fever effect, SP can cause side effects such as Stevens-Johnson syndrome in people who are allergic to sulfa with possible dramatic and potentially fatal effects. (Mbonye, 2006). In this study there were few abortions and still births, which is consistent with previous studies on malaria in pregnancy that have shown that in high transmission areas malaria leads to anaemia and low birth weight. Outcomes of pregnancies were documented at the end of the study showed that at the health centers, 37.5% of the woman had live births, 12 (15.0%) were preterm babies, 5 (6.25%) and 6 (7.5%) were stillbirths. These women were among those who did not take fansidar during their previous pregnancies and this study revealed that most of these women had bad pregnancy outcome.

The majority of the women 52 (65%) were multiparous while about 28 (35%) of them were expecting their first babies. Less than one-tenth of the respondents were grand-multiparous. Majority of the mothers (77.6%) booked between the gestational ages of 3(4-15
weeks) and 7 (28 weeks) months with 4 (16-27 weeks) months being the most frequently preferred month for booking. Only 14 (17.5%) women booked early as recommended by WHO (2010). This pattern of booking has good implications on completion of the IPT course. Fifty two (65%) women had experienced previous deliveries. Twenty four 24 (29.5%) of the women booked their pregnancy late after 28 weeks gestational age. This affects utilisation of IPTp as the woman will not be able to complete recommended doses. This is supported by Mbyazi (2009) who reported that in Sub-Saharan Africa women’s late presentation at ANC is common, with nearly 25% of them presenting for the first time in the second trimester and for the second time during the third trimester, which it is alleged has contributed to lowering the effectiveness of ANC and IPTp related services.

Knowledge on malaria preventive practices

Women from both clinics believed that malaria can be prevented but only 41 (51.25%) could mention the name of the drug used for IPTp. In the focused group discussion some women mentioned that they were given white tablets without being told what for. Smith et al. (2010) had the same observation in their malaria journal. They reported that women could not mentioned the drug used in IPTp because they either do not know what the different drugs are for or they know but are not concerned about mentioning. This could be a challenge to those who obtained the drug from unspecified places as there was no evidence of potency of the drug. All the 80 women had heard about IPTp but from various sources (clinic, pharmacy or elsewhere) with 72 (90%) women obtaining the information from the nurses at the clinic. More than 90% of the participants knew that malaria was caused by mosquito bites and this prompted them to use insecticide-treated nets. They were likely to get effective case
management of malaria, information on benefits of insecticide-treated nets and other malaria prevention interventions. This probably explains why women from the two health centers had lower episodes of malaria during this study.

Sixty 60 (75%) of the clients obtained the drug freely from the health centers and took it under observation by a qualified health worker to ensure compliance. Successful deployment of IPTp is dependent on the utilisation rates of ANC services amongst pregnant women. Attendance at ANC is high in most sub-Saharan African countries, but up to 25% of pregnant women pay the first visit in the 3rd trimester (Onoka et al 2012). In this study 29.5% of the participants booked their pregnancy after 28 weeks gestational age, which is probable in the 3rd trimester. This may affect the impact of ANC and IPTp related services as delivery of the second dose of SP is substantially reduced and envisaged protection for mother and foetus is lost (Onoka, Hanson and Onwujekwe, 2012)

Knowledge on effects of malaria on pregnancy

The majority of the participants (65%) mentioned that malaria can cause maternal death meaning that they are aware of effects of malaria on pregnancy. Mubyazi, (2008) and Mbonye (2008), concluded that knowledge of malaria risks during pregnancy was high among pregnant women although some women did not associate coma and convulsions with malaria. More than half of the participants (56.25%) knew that malaria could be transmitted from the mother to the unborn baby whilst the remaining 35 (43.75%) did not know, giving rise to a situation whereby they may end up not using IPTp services. Although only 45 (56.25%) women knew that malaria can be transmitted to the unborn baby, 8 (10%) could mention at least one bad pregnant outcome caused by malaria. Only two (2.5%) participants denied that
malaria can cause abortion, preterm labour and maternal death. Such participants perceive the program as a waste of time and resources.

Factors that affect provision of IPTp

This study revealed that the majority of the participants were residing within the 10 km radius and transport was not a problem as 55 (68.75%) of them could walk to the clinics. Only 4 (5%) out of 80 participants had a negative attitude towards the program as they indicated that it was not useful. One (1.25%) of them mentioned that she had never seen anyone suffering from malaria in pregnancy since the program started. Mutagonda et. al 2008 cited a similar study that was conducted in Uganda in 2010 which reported that some participants had a negative attitude towards antenatal clinics. These women attend antenatal clinics late and on irregular basis thereby disrupting antenatal schedules for proper delivery of IPTp.

Women in the ages between 15 and 24 years of age were the most ANC attendees in this study and adhered to the recommended period of taking the drug. At the same time a large number of these women (37.5%) did not take second dose despite taking first dose. This was also observed by Mbonye and friends in 2008 when they said adolescence and women in their first pregnancy were more likely to visit health centres and access care with new programs because they have no experience with pregnancies. This study reveals that education does not matter as participants delayed in initiating the course. About 30 (37.5%) women who had attained secondary to tertiary education had their first dose during the third semester. Most married women (43.75%) took their first dose as recommended. These women had support from their spouses as the maternal health policy in Zimbabwe encourages men involvement. Most participants were unemployed (56.25%) and they took fansidar early implying that economic status does not interfere with utilisation of IPTp. More primigravid in this study
loankedfansidarastransformedthatisthirstydooseduringthesecondtrimesterandleaddosefour
weeksafterfirstdose.

TwofocusgroupdiscussionswereheldoneatDangamvuraandtheotherfrom
Sakubvaclinic.Eachgrouphad10participants.Theirresponseswerealmostsimilarthough
participantsfromDangamvurawerereluctanttogiveinformation.Mostcommonresponseon
reasonforprogramfailurewastelatebooking.Nine(45%)participantsmentionedthatmost
womenbooklatelyendingupnotcompletingthecourse.Six(30%)mentionedfrequentstock
outs,ofthese4(5%)werefromDangamvuraand2(10%)fromSakubvaclinic.Tenpercent
oftheparticipantsinthefGDmentionedfearofdrugsideeffectsandthree(15%)mentioned
thattheywaitedfortoolongandnotofferedthedrug.

RelationshipbetweenknowledgeandutilisationofIPTp

Generallywomenscoredmoreonknowledgeonmalariapreventionthannonutilisation.
ThisindicatesthatwomenhaveknowledgeonIPTpbuttheyarenotfullyputtingthis
knowledgeintouse.ThisstudyalsorevealedthatwomenfromSakubvahealthcenterhad
moreknowledgeonIPTpastheyscoredmorethanthosefromDangamvurACLINICbutscored
lowutilisation.MostwomeninSakubvabookedlateandthiscouldhaveaffectedcompletion
ofthecourse.WomenfromDangamvuraknowthatmalariacouldbetransmittedtotheunborn
baby.Thiscouldhaveimplicationsonutilisationoftheprogramhencelesshabadpregnancy
outcomes.AtSakubvaclinic12(16.25%)womenhadfansidarduringtheirprevious
pregnancyand10(12.5%)completedthe3doseswhereasatDangamvura17(21.25%)
womenhadfansidarandonly3(3.75%)completedthecourse.Womenhaveknowledgeon
IPTpbutthereareotherfactorsondrugavailabilityandlatebookingthataffectutilisationof
IPTp. Most pregnant women were aware that SP is given for IPTp purpose that is more than 50% mentioned the correct drug. As an indication that pregnant women did not know why they were given SP, one of the participants in the focus group discussion at Sakubva health centre said that they were given three tablets and told to swallow them in front of the nurse, not knowing why they were given those tablets.

More than 50% of the participants had high levels of knowledge on IPTp and more utilisation even though they could not reach the WHO target of 85% IPTp coverage. The results of this study also indicated a weak positive correlation (r=.393, *p< .05) between knowledge and utilisation of IPTp by women attending ANC at Dangamvura and Sakubva Health centers. The results indicate that as knowledge increase utilisation improves slightly but not to the level of expectations of WHO. This was contrary to Arulogun and Okereke, (2002)’s findings in a study done in Nigeria on knowledge and practice in IPTp, where knowledge had a significant association with practice. The scatter plots diagram shows scattered points with a slight concentration of points on the centre. This indicates a very weak relationship or no relationship at all.

Theoretical framework

Pender’s theoretical framework of health promotion model (HPM) was used to guide the study and enable the investigator to explain the findings on the relationship between knowledge and utilization of IPTp by pregnant mothers attending Antenatal Clinic services at Dangamvura and Sakubva, Mutare maternity clinics.

In the past, nurse educators have taught their patients how to manage illness; in the future, the focus is directed towards teaching people how to remain healthy. Nurses must have
an evidence-based understanding of the significant effect that can be made through health promotion interventions and communicate this knowledge to the public at large. As more people grow in their awareness of activities and actions that lead to good health and become knowledgeable about their own health status and the health of their families, the overall health of the population will improve significantly, (Pender, 1996). Pregnant women have to be aware of benefits of IPTp to their health the unborn baby so as to improve pregnancy outcome.

The Health Promotion Model (HPM) proposed by Pender (1982; revised, 1996), defines health as a positive dynamic state not merely the absence of disease. Health promotion is directed at increasing a client’s level of well-being. This model (HPM), describes the multi-dimensional nature of persons as they interact within their environment to pursue health. The model focuses on following three areas: Individual characteristics and experiences, Behavior specific cognitions and affect, and behavioral outcomes.

This model (HPM), notes that each person has unique personal characteristics and experiences that affect subsequent actions. The set of variables for behavioral specific, knowledge and affect have important motivational significance and they can be modified through nursing actions. Health promoting behavior is the desired behavioral outcome should result in improved health, enhanced functional ability and improved quality of life at all stages of development. All women by nature wish to have a live babies therefore, if they given knowledge on how to remain health by preventing malaria during pregnancy, they are bound to use that and improve pregnancy outcome.

Pender’s health promotion model was used to examine the effects of the independent variable of knowledge on intermittent preventive treatment of malaria in pregnancy on the
dependent variable, utilisation of IPTp. Knowledge of women of child bearing age on the benefits of IPTp should improve Utilisation of the programme.

The HPM addresses four major components for compliance with recommended health action of which three were used which were, perceived susceptibility of the condition, perceived benefits of recommended health action, and perceived barriers of recommended health action. In addition, there are modifying factors that can affect behavior compliance which include past experience, health professionals, motivation, personal relationships; and self-efficacy of recommended health action. Self-efficacy is the confidence in one’s ability to take action

Perceived susceptibility is one’s opinion of chances of getting a condition which could mean that pregnant women were most likely to make health behavior changes if they perceived that the fetuses were susceptible to a problem if they suffer malaria during pregnancy. They were less likely to practice health behaviors if they believed that the problem was not severe. Not every pregnant woman suffers from malaria even if she stays in malaria endemic area or not every woman who suffers from malaria has a bad pregnancy outcome but the woman is given information to reduce risks has if she suffers from malaria.

Perceived benefits are one’s belief in the efficacy of the advised action to reduce the risk or seriousness of impact. Information, education, and support should therefore be given to pregnant women for them to appreciate the positive effects to be expected. Perceived barriers are one’s opinion of the tangible and psychological costs of the advised action. This study sought to explore the possible barriers which could deter pregnant women from utilizing IPTp.

Implications to MCH/Midwifery practice
Findings from this study are of public-health importance for use in routine monitoring of malaria treatment and prevention interventions. This will help policy-makers and programme managers make adjustments in the decisions regarding treatment and prevention policies. Data on pregnancy outcomes could be used by health workers to improve quality of care, which can be a source of motivation. Further study in which midwives are taught to analyse data and calculate mean haemoglobin levels, anaemia and low birth weight, and assess how this can influence them to encourage pregnant women to access and to adhere to malaria prevention interventions. In order to scale up provision of IPTp and maintenance this approach has policy implications on that the resource people will have to be trained, facilitated and linked to the health units to get SP and effective supervision. The results of this study need to be disseminated to policy-makers and programme managers at the Ministry of Health and child welfare, the district and Mutare City health Department so as gain consensus on these results.

Implications to MCH/Midwifery Research

The research findings revealed that only 9.7% of the change or variation in utilisation of IPTp services was explained by the change in knowledge of women malaria preventive practices, so there could be other factors besides knowledge which could affect utilisation of IPTp by women of child bearing age attending ANC at Dangamvura and Sakubva Clinics. This implies the need for further research regarding these other factors.

Implications to Midwifery Education

Midwives need to be equipped with current malaria prevention policy and guidelines so that they can be able to motivate, support and promote women to make use of the IPTp
program so as to reduce complications brought about by malaria in pregnancy. this will enable them to address fears of drug side effects, and reduce late booking status so that pregnant women finish their IPTp courses. Midwives should be linked to evidence based research knowledge so that they are in a position to give relevant and accurate information on the importance of IPTp to the mother and unborn baby to reduce maternal and infant morbidity and mortality.

Recommendations

1. Midwives should improve the utilisation of IPTp by pregnant mothers by intensifying education on malaria prevention as per the WHO 2011 guidelines. They should provide current health education including use of drugs pregnant mothers receive, monitoring and support of pregnant women who are willing to utilize IPTp for them to finish the course.

2. It is important to encourage pregnant women to regularly attend antenatal clinics for effective implementation of IPTp policy. This was also recommended by Mutagonda and friends in 2010 when they carried out a similar research in Rufiji district, southern Tanzania. The midwives at the antenatal clinics should provide adequate information about the use and benefits of SP for IPTp. Pregnant women should therefore be informed about the standard dosage of SP and the need to complete the prescribed courses. Pregnant women need to be counseled on unnecessary fear of SP-induced side effects

3. Midwifery curricula should incorporate current international and national guidelines on malaria prevention to promote utilisation of fansidar, since the guidelines are dynamic.
In addition, in-service courses which include updates on current information, should be organized for health personnel who are already practicing to ensure that midwives are kept up to date with correct malaria prevention practices. This would further strengthen the midwives’ skills for motivating pregnant women to utilize IPTp program.

4. Efforts should be made by the MOHCW and partners to continue providing written literature or information about IPTp in the major languages spoken in Zimbabwe which include English and local languages to assist pregnant women and the community in general in understanding and comprehending malaria prevention programme. This could go a long way in reinforcing and strengthening the current malaria prevention policy and guidelines.

5. It is suggested that the MOHCW and partners accord midwives the chance to participate in conferences and workshops on MCH/Midwifery issues for a continuous update with current issues and research findings. This could ensure midwifery practice that is relevant to current recommendations.

Limitations

The instrument used in this study was developed by the investigator and used for the first time, so it may not have captured some variables or may have introduced bias. However, to minimize the bias the instrument was reviewed by the supervisor and pretesting was done. It was given to the midwives in Sakubva to go over it and make necessary adjustments before use.

The participants could have given socially desirable responses since the method of data collection was face to face interviews, and also pretesting of the instrument was done in same locality so infiltration could have occurred, which could be a source of bias.
Conclusion

In conclusion that most women who attend ANC at Dangamvura and Sakubva clinics do not receive IPTp as expected. Most women took first dose of fansidar and a few take the second dose. Knowledge of prophylaxis for malaria prevention was a major determinant of utilization of IPTp among the study population. Uptake of IPTp can be significantly improved in these clinics if backed up with appropriate health education intervention and improvement availability of the drug. This study has highlighted the importance of tailor made health education in the delivery of health services in general, especial preventive health measures in particular. There is a need to continuously sensitize and educate pregnant women about the use and benefits of antimalarial drugs. Sensitization programs should be designed to target different groups of pregnant women at the antenatal clinics including Dangamvura and Sakubva health Centers.
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APPENDIX A

INFORMED CONSENT FORM

Principal Investigator: Sibongile Chituku, [RGN, Midwife, Opthalmic Nurse, Bsc.]

Phone number(s) 0712761353/0777009567

What you should know about this research study:

- We give you this consent so that you may read about the purpose, risks, and benefits of this research study.

- Routine care is based upon the best known treatment and is provided with the main goal of helping the individual patient. The main goal of research studies is to gain knowledge that may help future patients.

- We cannot promise that this research will benefit you. Just like regular care, this research can have side effects that can be minor.

- You have the right to refuse to take part, or agree to take part now and change your mind later.

- Whatever you decide, it will not affect your regular care.

- Please review this consent form carefully. Ask any questions before you make a decision.

- Your participation is voluntary.

PURPOSE

You are being asked to participate in a research study of Knowledge of women of child bearing age on the utilization of Intermittent Preventive Treatment of Malaria In Pregnancy
(IPTp) at Dangamvura and Sakubva health Centres. The purpose of the study is to determine if there is an association between knowledge and utilization of IPTp. You were selected as a possible participant in this study because.

PROCEDURES AND DURATION

If you decide to participate, you will be interviewed once in less than 30 minutes with the purpose of getting your level of awareness on IPT and utilization. Knowledge on IPT shows high levels of awareness and many will utilize the program. The research may inconvenience you by taking approximately 30 minutes precious time and wishes to apologize in advance for any inconvenience caused.

RISKS AND DISCOMFORTS

There are no reasonably foreseeable risks or discomforts to your participation

BENEFITS

We cannot and do not guarantee or promise that you will receive any benefits from this study. There will be no monetary benefits for participating in this study. Please note that you will all receive standard care or treatment irrespective of your participation in this study.

CONFIDENTIALITY

If you indicate your willingness to participate in this study by signing this document we plan to disclose this information to the supervisors of this research in the department of Nursing Science University of Zimbabwe, so that further research may be done if necessarily recommended. Any information that is obtained in connection with this study that can be
identified with you will remain confidential and will be disclosed only with your permission. Participation in this is voluntary. If you decide not to participate in the study your decision will not affect your future relations with the University of Zimbabwe, College of Health Sciences, department of Nursing Science and its personnel and Mutare City Health Services and staff. If you decide to participate you are free to withdraw your consent and to discontinue participation at any time without any penalty.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary. If you decide not to participate in the study your decision will not affect your future relations with the University of Zimbabwe, College of Health Sciences, department of Nursing Science and its personnel and Mutare City Health Services and staff. If you decide to participate you are free to withdraw your consent and to discontinue participation at any time without any penalty.

OFFER TO ANSWER QUESTIONS

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

AUTHORIZATION

You are making a decision whether or not to participate in this study. Your signature indicates that you have read and understood the information provided above, have had all your questions answered, and have decided to participate. The date you sign this document to enroll in this study, that is, today’s date, MUST fall between the dates indicated on the approval stamp affixed to each page. These dates indicate that this form is valid when you enroll in the
study but do not reflect how long you may participate in the study. Each page of this Informed Consent Form is stamped to indicate the form’s validity as approved by the MRCZ.

___   ___

Name of Research Participant (please print)  Date

_________________________________________  __________ AM

Signature of Participant    Time   PM

_________________________________________  _____________________________________________

Signature of Witness    Signature of Staff Obtaining Consent

(Optional)

YOU WILL BE GIVEN A COPY OF THIS CONSENT FORM TO KEEP.

If you have any questions concerning this study or consent form beyond those answered by the investigator, including questions about the research, your rights as a research subject or research-related injuries; or if you feel that you have been treated unfairly and would like to talk to someone other than a member of the research team, please feel free to contact the Medical Research Council of Zimbabwe on telephone 791792 or 791193
APPENDIX B

Gwaro rekubvuma kupinda mutsvagurudzo.

Muongorori : Sibongile Chituku

Bsc Nursing Science (RGN, Midwife, Ophthalmic Nurse, Bsc ) and Masters of Sciences
Student (UZ)

Cell Numbers: 0712 761 353/0777 009 567

Zita rangu ndinonzi Sibongile Chituku.Ndiri mudzidzi mukuru wepa University ye Zimbabwe.
Ndiri kuita tsvakurudzo yeukama huri pakati peruzivo rwuna madzimai achiri kubereka pamusoro pekudzivirirwa kwechirwere cheMalaria nekushandisa ruzivorwacho.
Ndinokumbira kuti mundibatsire neumbaiwo hunoratidza kuti pane kudyidzana kuri pakati peruzivo nekushandiswa kwechirongwa chekudzivirira malaria kumadzimai akazvitakura.

ZVAMUNOFANIRA KUZIVA PAMUSORO PETSVAKURUDZO IYI


Kunyangwe hazvo tsvagurudzo iyi isingakubatsiri chiriporipocho, iripokutsvaga umbovo hunoedza kubatsira vakoti vaone kudyidzana kuri pakati peruzivo nekushandiswa kwechirongwa chekudzivirira malaria.

**CHINANGWA CHETSVAGURUDZO**

Chinangwa chetsvagurudzo iyi ndechekuona kana paine kudyidzana pakati peruzivo runana mai vachiri kubereka nekushandiswa kwechirongwa chekudzivirira malaria tichishandisa mapiritsi anonzi fansidar. Maka sarudzwa kuti mupinde muchirongwa nokuti muno shandisa clinic ino kana makazitaura.

**ZVICHAITIKA**

Muongorori achakutorerai nguva yenyu yakakosha yekubvunza mibvunzo saka ari kukumbirawo ruregerero pamusoro paizvozvo. Nguva ichapambadzwa haizopfuuri maminitsi makumi matatu.

**KUBHADHARWA**

Hapana mubhadharo wamunowana pakupinda kwenyu mutsvagurudzo iyi. Ndapota cherechedzai kuti muchangobatwa zvakangofanana nevamwe mukapinda kana kusapinda mutsvagurudzo iyi.

**PFIMBIDZO**

Mukaratidza chidiso chenyu kupinda mutsvagurudzo iyi nekuisa runyoro rwenyu vachaziva izvi vakuru vetsvagurudzo iyiveku University yeZimbabwe kuitira kuti kana paine dzimwe ongororo dziri kudakuitwa dziitwe. Ruzivo rwese ruchawanikwa patsvagurudzo iyi rune

**KUSARUDZA KUBUDA MUTSVAGURUDZO**

Mukabvuma kupinda muongororo iyi makasununguka kubuda panguva yamunenge mafunga pasina mhosva yamunopomerwa. Sarudzo yenyu haikanganisi kudyidzana kwenyu ne University ye Zimbabwe, College yehealth Sciences, vakuru ve zveutano vemuguta remaMutare nevashandi varo.

**MIBVUNZO**


**CHIBVUMIRANO**

Ndaverenga bepa iri uye ndanzwisisa zvingona kundibatsira kana kundivhiringa mukupinda kwangu mutsvakurudzo iyi. Ndinoziva kuti isarudzo yangu kupinda mutsvakurudzo, uye ndinoziva ndinokwanisa kubuda mutsvakurudzo pandinodira zvisingazo kukanganisi marapirwo angu nanamukoti.
Zita rekapinda mutsvagurdzo                     Zuva

........................................................................................................................................

Runyoro rwembovo                               Zuva

........................................................................................................................................

Runyoro rweeari kutoraumbovo                    Zuva

MUCHAPIWA RUMWE RUGWARO RWAKADAI KUTI MUCHENGETE

Kana muine mibvunzo pamusoro petsvakurudzo iyi kana rugwaro urwu rwebvumirano
yakasiyana neyabvunzwa nemunhu arikuita tsvakurudzo, inosanganisira mibvunzo pamusoro
petsvakurudzo, ikodzore yako semunhu ari mutsvakurodzou kana kuti urikufunga kuti hauna
kubatwa zvakanaka. Uye uchid kutaura nemumwe munhu asiri muchikwata chevari kuita
ongororo inzwa wakasununguka vanhu vezve tsvakurudzo yemuZimbabwe panhare dzinoti 04
791792 kana kuti 791 193

Ndinitenda nekubvuma kwenyu kupinda mutsvakurudzo
My name is Mrs Sibongile Chituku. I am a Masters Degree in Nursing Sciences student carrying out a study on knowledge of women of child bearing age on IPTp program at Dangamvura and Sakubva Clinics. I seek your assistance with some information about the subject, if you are willing to participate in the study. I assure you that the information you provide will be treated confidential. No one will have access to the information except me. Your name will not appear anywhere in the questionnaire but numbers only will be used. If you choose to participate in this study you will be asked some questions for about 20-25 minutes. You are free to withdraw from participating any time you wish to do so without any penalty or prejudice to your treatment.

INDICATE THE APPROPRIATE RESPONSE WITH AN X

Section A

Socio-demographic characteristic

1. How old are you?

Indicate your actual age in front of your age range.

i) 15–19 yrs

ii) 20–24 yrs

iii) 25–34 yrs

v) 35-44 yrs


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2. What is your marital status?
   i) Single
   ii) Married
   iii) Separated
   iv) Divorced
   v) Widowed
   vi) Cohabiting

3. Where do you live?
   i) Communal/Resettlement
   ii) Small scale farm
   iii) Commercial farm
   iv) High density
   v) Low density

4. What is your religion?
   i) Christianity
   ii) Hinduism/Bhuddism/Islam
   iii) Pentecostal
   iv) Atheistic
   v) Apostolic

5. What is your educational level?
   i) Nil
   ii) Primary
   iii) Secondary
   iv) Tertiary
6. What is your occupation?
   i) Employed
   ii) Unemployed
   iii) Self employed
   iv) Student

Timing of IPTp

Frequency of attendance to the antenatal clinics.

7. Parity
   i) 0
   ii) 1-2
   iii) 3–4
   i) >5

8. What was the gestation age (weeks) when attending ANC for the first time?
   i) 4 – 15
   ii) 16 – 27
   iii) 28 and above

9. How many times have you visited ANC with this current pregnancy?
   i) First
   ii) Second
   iii) Third
   iv) Fourth and more
Section B

Women’s utilization of IPTp

10. When did you take your 1st dose of IPTp?
   i) 4-15 weeks gestational period
   ii) 16-27 weeks gestational period
   iii) 28 and above weeks gestational period
   iv) Not taken

11. When did you take your second dose?
   i) 1st week after 1st dose
   ii) 2nd week after 1st dose
   iii) 3rd week after dose
   iv) 4th week after 1st dose
   v) Not taken

12. How did you obtain the drug?
   i) Received free at the health facility.
   ii) Bought drug at health facility.
   iii) Bought drug pharmacy or privatw practitioner
   iv) Not applicable

13. How did you take the drug?
   i) In facility under observation
   ii) In facility without observation
iii) At home
iv) Not applicable

14. During your last pregnancy did you receive any fansidar for IPTp program purpose?
   i) Yes
   ii) No
   iii) N/A

15. If yes how many doses?
   i) 1
   ii) 2
   iii) 3

16. What was the outcome of the last pregnancy?
   i) Live birth
   ii) Preterm delivery
   iii) Abortion
   iv) Still birth

Section C

Knowledge on Malaria prevention practices

17. Do you believe malaria can be prevented?
   i) yes
   ii) No
18. If yes how can you prevent malaria?
   i)  use of ITNs
   ii) use of repellents and coils
   iii) use of cow dung
   iv) use of herbs
   v)  keeping the environment clean
   vi) drinking clean water
   vii) Spraying
   viii) all of the above
   ix)  none of the above

19. Which of these drugs is taken for the prevention of Malaria in Pregnancy?
   i)  Chloroquine
   ii) Sulphadoxine-pyrimethamine (fansidar)
   iii) Arthemisinin
   iv) Native medication
   v)  Not sure

20. Where did you get the information on IPTp?
   i)  Clinic/Hospital
   ii) Church
   iii) Elsewhere
   iv) Not application
21. Have you ever heard about malaria using fansidar (IPTp)?
   i) Yes □
   ii) No □

22. If yes what was the source of information about Malaria Prevention in Pregnancy?
   i) Nurse □
   ii) Chemist □
   iii) Doctor □

23. What are the causes of malaria?
   i) Mosquito bites □
   ii) Poor hygiene □
   x) Gastritis □
   xi) Not sure □

24. Can malaria be transmitted to the unborn baby?
   i) Yes □
   ii) No □
   v) not sure □

25. What are the effects of malaria on pregnancy?
   i) Can kill the pregnant woman □
   ii) Cause abortion □
   ii) preterm delivery □
   vi) all of the above □
SECTION D

Factors affecting provision of IPTp

26. How far do you stay away from the health centre?

   i) Less than 10km
   □

   ii) More than 10km
   □

27. What means of transport do you use to come to the health centre?

   i) On foot
   □

   ii) Animal driven cart
   □

   iii) Public transport
   □

   iv) Private car
   □

   v) Other (specify)_____________________

28. Do you think the IPTp program is useful?

   i) Yes
   □

   ii) No
   □

29. If no why______________________________________________________________

________________________________________________________________________
30. In your own opinion what do you think are the reasons why mothers do not receive drugs for IPTp program?

i. Waiting too long
ii. Health workers not friendly
iii. Frequent stock outs of supplies
iv. Waiting area uncomfortable
v. not offered the drugs
vi. fear of side effects
vii. believe that drugs are not useful
viii. Other

(specify)_________________________________________________

31. Have you ever suffered from malaria during this pregnancy?

i) Yes
ii) No

32. If yes what did you do?---------------------------------------------------------------------------

33. What do you think should be done to improve the IPTp program in future?______________________________________________________________________

____________________________________________________________________________

TOTAL SCORE

Thank you for participating.
APPENDIX D

Shona questionnaire

Nhamba


RATIDZAI MHINDURO NEKUNYORA X MUBHOKISI RAMASARUDZA

Chikamu chekutanga: Zveupenyu hwenyu munokumbirwa mupindure pamunogona napo.

1. Mune makore mangani?

   Nyorai makore enyu chaiwo akanangana neanoenderana neenyu.

   i) 15-19yrs
   ii) 20-24yrs
   iii) 25-34yrs
   iv) 35-44yrs

2. Makaroorwa here?
i) Handina kuroorwa

ii) Ndakaroorwa

iii) Takapesana

iv) Takarambana

v) Ndakafirwa

vi) Tirikugarisana tisina kuroorana

3. Munogara nzvimbo ipi?
   i) Muruwa kana minda mirefu
   ii) Mumapurazi makuru
   iii) Mumapurazi maduku
   iv) Murukisheni
   v) Kusabhabha

4. Muri vechitendero chipi?
   i) ChiKristo
   ii) chiHindu/Bhudha/Moslem
   iii) chipendekosita
   iv) chivanhu
   v) chipositori
   vi) zvimwewo (tsanangura)

5. Makaenda kuchikoro kusvika pagwaro ripi?
   i) Handina kudzidza
   ii) Ndakaita primary chete
   iii) Ndasvika secondary
6. Munosevenza here?

i) Handisevenzi

ii) Ndinoshanda

iii) Ndinozvishanda

iv) Ndinozvishanda

v) Ndiri Mudzidzi

7. Kavakechengani muchione kwa pano pakiriniki makatakura nhumbu iyeyi?

i) Kekutanga

ii) Kechipiri

iii) Kechitatu

iv) Kechina kana kupfuura

8. Nhumbu yenyu yakanga ine mavhiki mangani pamakainyoresa?

i) 4-15

ii) 16-27

iii) 28 and above

9. Nhumbu iyi ndeyechingani, uye makaita vana vangani

i) yekutanga

ii) yechipiri

iv) Yechitatu-yechina
v) Yechishnu kana kupfuura

Chikamu chechipiri –kushandisa chirongwa chekudzivirira Malaria

10. Makatora mapiritsi ekutanga, ekudzivirira malaria nhumbu yenyu inemavhiki mangani?

v) 4-15
vi) 16-27
vii) 28 and above
viii) Handina kumwa

11. Mapiritsi echipiri makaatora kwapera mavhiki mangani mabva kutora ekutanga

i) Vhiki rimwe
ii) Mavhiki maviri
iii) Mavhiki matatu
iv) Mavhiki mana
v) Handina kunwa

12. Mapiritsi echirongwa chekudzivirira malaria makaawana sei?

i) Ndakaapiwa pachena kukiriniki
ii) Ndakatenga pachitoro chinoita zveutano
iii) Pane kwandakaatenga

13. Makamwa sei mapiritsi

i) Ndakapiwa namukoti ndikanwa vakatarisa
ii) Ndakangopiwa ndikanwa pasina aindiona  

iii) Ndakanwa ndava kumba  

iv) Zvimwewo zvakaitika (tsanangura)  

14. Pamakanga makazvitakura mushure meiyi nhumbu makambopiwa mapiritsi ekudzivirira malaria here?

i) Hongu  

ii) Kwete  

15. Kana makapiwa, makapiwa kangani?

i) Kamwe  

ii) Kaviri  

i) Katatu  

16. Zvakafamba sei panhumbu yenyu yemumashure meiyi?

i) ndakazvara mwana akasvika  

ii) Ndakazvara gavamwedzi  

ii) Pamuiri pakabva  

iii) Mwana akabuda akafara  

Chikamu chechitatu

Ruzivo pane nzira dzekudzivirira malaria.
17. Munodaira here kuti malaria ingona kudzivirirwa?

i) hongu

ii) kwete

18. Kana mati kwete, tinogona kudzivirira sei?

i) Kushandisa mosikito net inemushonga

ii) Kuzora marepellents kana kupisa coil

iii) Kupisa ndove

iv) Kushandisa mishonga yechivanhu

v) Kuchenesa panharaunda

vi) Kumwa mvura yakachena

vii) Kupfapfaidza mishonga inouraya umhutu

viii) Zvese zvekanyorwa pamusoro zvakanaka

ix) Hapana chakanaka pane zvakanyorwa pamusoro

19. Ndeapi mapiritsi anomwiwa naamai vakazvtakura pakuedza kudzivirira malaria?

v) Chloroquine

vi) Sulphadoxine-pyrimethamine (fansidar)

vii) Arthemisinin

viii) Native medication

ix) Camoquine

20. Makazvinzwira kupi?

i) Kukiriniki
21. Makambonzwa here nezve kudzivirirwa kwemalaria muchandisa mapiritsi anonzi Fansidar?

   iv) hongu
   v) kwete

22. Kana mati hongu makazvinzwa nani?

   i) Mukoti
   ii) Vanotengesa mapiritsi muchemistry
   iii) Chiremba
   iv) Vamwewo

23. Chii chinokonzera malaria?

   i) kurumwa neumhutu
   ii) kusashambidzika
   iii) nyongo
   iv) hameno

   Kuteedzera ngu vendzekumwa nadzo mapiritsi

24. Malaria inogona kutapukira kubva kuna mai kuenda kumwa asati azvarwa here?
i) Hongu

ii) Kwete

viii) Handizivi

25. Chii chingakanganisike kana mai vakarwara malaria vakazvitakura?

i) mai vanogona kufa vakazvitakura

ii) pamuiri panogona kubva

ix) mai vanogona kuzvara gava mwedzi

x) zvese zvakanyorwa pamusoro zvinogona kuitika

xi) hapana chakanyorwa pamusoro chinoitika

CHIKAMU CHECHINA

Zvinovhiringa kufamba kwechirongwa.

26. Munogara kure zvakadii nekiriniki?

i) hapapfuuri makiromita gumi

ii) panopfuura makiromita gumi

27. Munoshandisa chii kuuya kukiriniki?

i) Ndinofamba netsoka

ii) Ndauya nechikochikara
iii Ndakwira kombi

iv Ndauya nemota yangu

v Zvimwewo (tsanangura)

28. Sekuona kwenyu munofunga kuti chirongwa ichi cekudzivirira malaria tichishandisa mapiritsi chakanaka here?

i) Hongu

ii) Kwete

29. Kana mati kwete tsanangurai ngenyi madaro

30. Sekuona kwenyu munofunga kuti chikonzero chingava chei kuti madzimai haasi kutora mapiritsi ekudzivirira malaria?

i) Kumirira kenguva yakareba pamabhenji

ii) Vashandi vepakiriniki havana rudo

vi) mapiritsi anoshayikwa

vii) patino mirira kuti tioneke hapanakidzi kugara.

viii) Kutya zvimwe zvinokuvadza zvemapiritsi

ix) Kungoona sekuti mapiritsi haabatsiri

x) Zvimwewo (tsanangura)

31. Makamborwara nemalaria makatakura nhumbu iyeyi here?
i) hongu

ii) kwete

Kana mati hongu makaita sei?---------------------------------------------

32. Chii chamunofunga kuti chingaitwe kuti madzimai afarire chirongwa ichi---------------------
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-----------------------------------------------.

Mazvita nekubvuma kupinda muongororo
APPROVAL LETTER

Ref: MRCZ/B/506  
31 May, 2013

Sibongile Chituku  
University of Zimbabwe  
College of Health Sciences  
Harare


Thank you for the above titled proposal that you submitted to the Medical Research Council of Zimbabwe (MRCZ) for review. Please be advised that the Medical Research Council of Zimbabwe has reviewed and approved your application to conduct the above titled study. This is based on the following documents that were submitted to the MRCZ for review:

a) Full Study Protocol.
b) English and Shona Informed Consent Forms

• APPROVAL NUMBER : MRCZ/B/506

This number should be used on all correspondence, consent forms and documents as appropriate.

• APPROVAL DATE : 31 May, 2013
• EXPIRATION DATE : 30 May, 2014
• TYPE OF MEETING : Expedited Review

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ Offices should be submitted one month before the expiration date for continuing review.

• SERIOUS ADVERSE EVENT REPORTING: All serious problems having to do with subject safety must be reported to the Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices.

• MODIFICATIONS: Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).

• TERMINATION OF STUDY: On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices.

• QUESTIONS: Please contact the MRCZ on Telephone No. (04) 791792, 791193 or by e-mail on mrcz@mrcz.org.zw

• Other

Please be reminded to send in copies of your research results for our records as well as for Health Research Database.

You’re also encouraged to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study.

Yours Faithfully

MRCZ SECRETARIAT FOR CHAIRPERSON
MEDICAL RESEARCH COUNCIL OF ZIMBABWE

PROMOTING THE ETHICAL CONDUCT OF HEALTH RESEARCH
ALL COMMUNICATIONS TO BE ADDRESSED TO THE MEDICAL OFFICER OF HEALTH
CITY OF MUTARE HEALTH DEPT
P.O. Box 910, Mutare, Zimbabwe
Phone: 64412 Fax: 60271

IF CALLING OR TELEPHONING PLEASE REFER THE MATTER TO:
T. S. MASHABABE EXT. 204

THE MEDICAL OFFICER OF HEALTH
CITY OF MUTARE HEALTH DEPT
P.O. Box 910, Mutare, Zimbabwe
Phone: 64412 Fax: 60271

Our Ref: TSM/acn/research

18 March 2013

Mrs Chituku Sibongile
Mutare Provincial Hospital
PO Box 30

MUTARE

Dear Madam,

Re: REQUEST FOR PERMISSION TO CARRY OUT A RESEARCH ON “KNOWLEDGE OF WOMEN OF CHILD BEARING AGE ON THE INTERMITTENT PREVENTIVE TREATMENT OF MALARIA IN PREGNANCY AT DANGAMVURA AND SAKUBVA MATERNITY CLINICS

The above matter refers.

I have no objection to your carrying out the above-mentioned research on the following conditions:

1) You will be able to share your findings with us.
2) The study is purely for education purposes and the results will therefore not be published for public use without the permission of council.

Yours faithfully,

T. S. Mashababe

ACTING DIRECTOR OF HEALTH SERVICES
11TH March, 2013

Provincial Medical Director
P. O. Box 323
MUTARE

Dear Sir/Madam

RE: CLEARANCE FOR MRS CHITUKE SIBONGILE (R128716J) MASTER OF SCIENCE IN NURSING SCIENCE (MScNS) PART II STUDENT TO CARRY OUT A RESEARCH STUDY

Mrs. Chituku, is an MSc NS Part III student who is conducting a study on “Knowledge of women of child bearing age on the utilization of intermittent preventive treatment of malaria in pregnancy in Dangamvura and Sakubva Mutare City Clinics.”

Clearance is being sought for the student to carry out her study at your institution.

Thank you in advance for your assistance.

Mr. A. P. G Charumbira
Chairperson – Department of Nursing Science