

RELATIONSHIP BETWEEN KNOWLEDGE
LEVELS ON MALARIA PREVENTION AND SELF-CARE
ACTIONS IN PRIMIGRAVIDAE AGED 18 TO 35 YEARS
AT HARARE MATERNITY HOSPITAL

BY

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By

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ABSTRACT

Malaria in pregnancy remains an obstetric, social and medical problem despite national control programmes in Zimbabwe. An increase in the number of episodes of malaria is witnessed year after year in Zimbabwe, particularly at Harare Maternity Hospital (H.M.H). Mudambo and SADC Military Malaria Technical Committee, 2009 reported an import of malaria by military into Malaria Free Zones, south of the Zambezi River, which is a threat to malaria elimination in the SADC region. The purpose of this study was to examine the relationship between malaria prevention self-care knowledge and malaria episodes, among primigravidae at H.M.H. self-care model guided this study as a conceptual framework. A descriptive correlational study design was used. Quantitative Data were collected from a systematic sample of 80 participants using face to face interviews. Three questionnaires were developed by the investigator, namely the Demographic Data Questionnaire (DDQ), Malaria Episodes Questionnaire (MEQ) and Malaria Prevention Self-Care Knowledge Questionnaire (MPSCCKQ) were used as research instruments. Descriptive inferential statistics were used to analyse data, using the statistical package for Social Sciences. Pearson correlation coefficient was used to determine the self-care actions taken by primigravidae aged 18 to 35 years, if they were related to their knowledge. The findings revealed a positive borderline relationship between knowledge levels and self care actions, ($r = .045$, $p = <.693$). The findings showed that the higher the knowledge levels the more the primigravidae exhibited self-care actions in preventing malaria. The study ended with recommendations to empower primigravidae on skills to prevent malaria.

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DEDICATION

I dedicate this dissertation to my husband Dr. P.K. Muchena for the support he gave me during the difficult times of carrying out this dissertation. Dedication also goes to my two daughters, Andrea & Annette. Lastly my dedication goes to my parents, Mr. T.W. and Mrs K. Jeranyama.

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CHAPTER 1

BACKGROUND AND ORGANIZING FRAMEWORK

Introduction

This chapter addresses the following, Problem Statement, Purpose, Theoretical Framework, Conceptual Definition of Terms, Research Objectives, Research Questions, Significance to Nursing and Summary.

Problem Statement

Malaria episodes are on the increase worldwide, regionally and locally despite widespread programmes on malaria prevention, (WHO, 2008). Malaria in pregnancy remains an obstetric, social and medical problem that requires multidisciplinary and multidimensional solutions (W.H.O., 2003). Malaria in pregnancy is one of the major causes of maternal morbidity, mortality and infant mortality globally, regionally and in Zimbabwe (W.H.O., 2008). Malaria and pregnancy are mutually aggravating conditions (W.H.O., 2003). *Plasmodium falciparum* malaria can run a turbulent and dramatic course in pregnant women (W.H.O., 2003). The non-immune *primigravidae*, *para 1* and *para 2* and HIV positive pregnant women are usually the most affected (W.H.O., 2003). In pregnancy, malaria tends to be more atypical in presentation (W.H.O., 2003). This could be due to the hormonal and immunological changes of pregnancy (Google, 2008). Pregnant women are particularly vulnerable to malaria as pregnancy reduces a woman's immunity to malaria, making her more susceptible to malaria infection and increasing the risk of illness, severe anaemia, puerperal sepsis and death. For the unborn child, maternal malaria increases the risk of spontaneous abortion, stillbirth, premature delivery and low birth weight which is a leading

cause of child mortality (W.H.O., 2003). Pregnant women in malarious areas may experience a variety of adverse consequences from malaria infection including maternal anaemia, placental accumulation of parasites, low birth weight (LBW) from prematurity and intrauterine growth retardation (IUGR), fetal parasite exposure and congenital infection, and infant mortality (IM) linked to preterm-LBW and IUGR-LBW (Steketee et. al., 2001). Each year more than 30 million women in Africa become pregnant in malaria – endemic areas; for these women, malaria is a threat both to themselves and to their babies, with up to 200 000 newborn deaths as a result of malaria in pregnancy (W.H.O., 2003). Malaria is one of the leading causes of death in Zimbabwe (Measure DHS Preliminary reports ZDHS, 2005-2006). The reason why this investigator chose the selected topic was because there was some knowledge deficit on malaria during pregnancy, and malaria during pregnancy in malaria-endemic settings of Zimbabwe accounted for: 2-15% of maternal anaemia, 5-14% of low birth weight in newborns, 30% of preventable low birth weight newborns', 3-5% of newborn deaths (Teveredzi, 2000). Roughly one in every three people lives in a malaria risk area in Zimbabwe (Stamps, 1997). Many studies have been done regionally and internationally, but malaria still remains a major threat both to pregnant women and their unborn babies (Zimbabwe Demographic and Health Survey, 2005-2006).

Pregnant women constitute the main adult risk group for malaria because pregnancy reduces immunity to malaria (Google, 2008). Deaths due to malaria in Africa constitute 80% and most of the deaths occur in pregnant women and children below 5 years (Google, 2008). The non-immune *primigravidae*, the *para 1* and *para 2* and pregnant women who are HIV positive are usually the most affected Roll Back Malaria Strategy, (W.H.O., 2003). The causative organisms of

malaria are the parasites *Plasmodium falciparum*, *Plasmodium malariae*, *Plasmodium ovale* and *Plasmodium vivax*. The *Anopheles* mosquito carries the malarial parasite, which are released in blood vessels after human beings are bitten and exposed to the disease. The parasites later multiply and cause parasitemia that develop into the disease/malaria (Measure DHS preliminary reports, ZDHS, 2006). In Zimbabwe, the *Plasmodium falciparum* has a high prevalence rate of malaria especially in the *primigravidae* (Measure DHS preliminary reports ZDHS, 2006). The morbidity due to malaria includes anaemia, cerebral malaria, fever, hypoglycaemia, pulmonary oedema and puerperal sepsis. Mortality could occur from severe malaria and haemorrhage (Google, 2008). In Zimbabwe malaria is endemic in some districts. The disease is worse following excessive rains and floods (Zimbabwe National Health Strategy for 1997-2007). Malaria is a preventable disease but it continues to kill millions of people in Africa, and world wide (W.H.O., 2008). It is well documented that malaria kills between 1.7 million to 2 million people each year globally (W.H.O., 2002). In Africa, 30 million women living in malaria – endemic areas become pregnant each year (W.H.O., 2003). For these women, malaria is a threat both to themselves and to their babies, with up to 200 000 newborn deaths each year as a result of malaria in pregnancy (W.H.O., 2003). In Zimbabwe, the National Health strategy for 1997 – 2007, reported that 57 districts in the country were most affected, with incidence rate of 900/1000 malaria cases. The greatly affected districts were Binga, Chipinge, Chiredzi, Gokwe, Honde Valley, Hurungwe, Hwange, Kariba, Masvingo province, Mutasa North and South and Tsholotsho, (Senga, 2006). Harare is the capital city of Zimbabwe where most people with malaria visit. Malaria affected

pregnant women that complicate are referred to the obstetrical referral centres in Harare for further management.

Purpose

The purpose of the study is to examine the relationship between knowledge levels on malaria prevention and self-care actions to prevent malaria in primigravidae aged 18 to 35 years at Harare maternity Hospital.

Theoretical Framework

Orem's self-care Model guided the study. The rationale for selecting Orem's Model is that it relates to self-care in the prevention of malaria among primigravida.

Orem identifies three types of systems wholly compensatory occurs when self-care deficits override self-care demands. Partially compensatory exists when the midwife partially compensates for the partially inability to perform self-care activities by the patient. In supportive educative system the midwife assists the *primigravida* in malaria decisions and acquiring skills and knowledge to perform self-care activities.

The investigator used the supportive educative nursing system to guide the study. In this system the *primigravida* should be able to perform all self-care actions with a midwife's assistance, knowledge and skills. The proposed relationships among variables are indicated in Figure 1.

The person was an adult *primigravida*, aged 18 years to 35 years. The *primigravida* was the self-care agent with self-care actions and possessed some malaria prevention, self-care knowledge. The Environment was both the external

and internal environments. The internal environment was the physiological component that was affected by the *Plasmodium falciparum* parasite that resulted in malaria. In *primigravida* the internal environment comprised of the foetus and the placenta, which were also affected by *parasitemial*/malaria. The external environment comprised of the home or residence of the *primigravida* and the hospital environment. The external environment addressed basic conditioning factors like, availability of nurse midwives' with information that equipped the *primigravidae* with malaria prevention knowledge and what self-care actions they took.

The nursing component addressed the supportive educative nursing system on malaria, as well as health education on malaria prevention strategies; the administration of drugs that prevented malaria and that treated malaria, so that the *primigravida* became healthy. The health component addressed the millennium Goals, (UNDP, 2004) (Modified). Reduction of poverty by providing good nutrition to alleviate hunger against the *primigravidae* and their infants and protection against malaria would achieve universal primary education especially in malaria. Promote gender and empower women on malaria issues. Reduce child mortality caused by malaria. Reduction of maternal morbidity and mortality by providing focused ante natal care and care of the new born and providing family planning services and prevent puerperal sepsis during the puerperium. Reducing malaria and HIV and other diseases by detecting them during the focussed antenatal services. Provision of quality care through chemoprophylaxis using drugs such as sulphadoxine/pyrimethamine and treating malaria using Coartemether and Quinine or Chloroquine. Implementation of the Roll Back malaria strategy by providing

insecticide treated nets to all pregnant women at antenatal clinics so as to reduce episodes of malaria.

Theoretical Framework

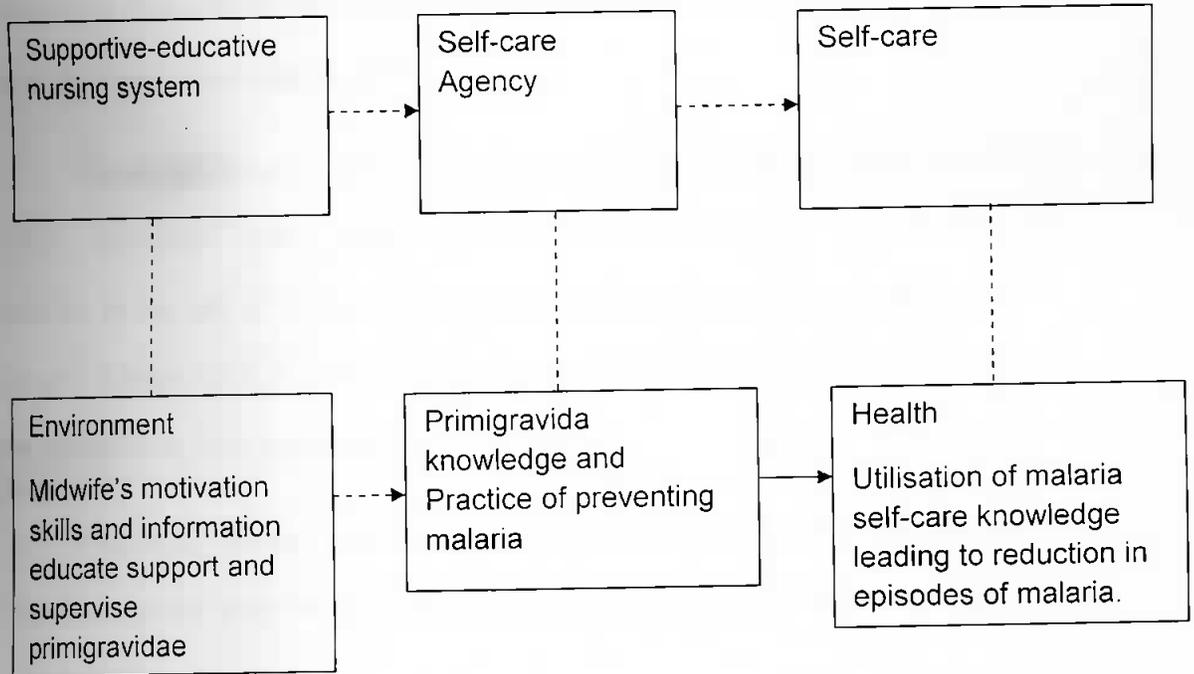


Figure 1: Orem's Self-care Model: Adapted from Dorothea Orem's self-care model. (1991) (Modified).

Conceptual Definition of Terms

Malaria: Serious infection, sometimes fatal disease caused by an infected *Anopheles* mosquito which was protozoa and was characterised by periodic chills and high fever (Miller-Keane, 2003).

Knowledge: Understanding that which is known (British English Dictionary, 1992). Knowledge levels, according to (2005-2006 ZDHS), are reported as different in the use of mosquito nets in urban areas and in rural areas, as 34 percent of households in urban areas were in possession of at least one mosquito net compared to 13% in rural areas.

Pregnancy: Every woman who has been menstruating and misses a menstrual period after having sex is pregnant until proven otherwise (Miller – Keane, 2003).

Primigravidae: Pregnant for the first time.

Parasite: A plant or animal that lives on or within another living organism or whose expense it obtains some advantage (Miller-Keane, 2003). (W.H.O., 2008) reports different types of parasites in malaria infecting pregnant women in different parts of Africa and Latin America.

Plasmodium falciparum: endemic in Zimbabwe, South Africa, Zambia and Nigeria.

Plasmodium malariae: endemic in Malawi, Guinea, Gambia and Mozambique. ***Plasmodium ovale*** (Latin America).

Plasmodium vivax (Latin America).

Parasitemia: Presence of parasites especially malaria forms in the blood (Miller- Keane, 2003). This was identified by (Nnaji et. al., 2006), who reported a higher prevalence of malaria infection (peripheral or placental blood) in the *primigravidae* and *secondgravidae* when compared with *multigravidae*.

Mortality: Death condition of being mortal, pertaining to the death rate as stated by (Tevedzi, 2000). In Zimbabwe, major causes of maternal mortality eight other African countries being malaria, post partum haemorrhage, anaemia and Pregnancy Induced Hypertension and Acquired Immunodeficiency Syndrome.

Morbidity: A diseased condition or state, disability (Miller –Keane, 2003).

Self-care: The action taken by an individual to promote health, prevent disease and for disease detection and treatment of self (Orem, 1991). The individual takes the initiative in being responsible for her own health care for example in the prevention of malaria.

Self-care agency: The ability to perform self care actions (Orem, 1991). Self-care agency may also be viewed as the capabilities of individuals to look after themselves.

Self-care agent: The provider of self care for "one self" (Orem, 1995)

Self-care deficit: The term self-care deficit refers to the relationship between self-care agents and therapeutic self-care demands of individuals in which capabilities for self- care, because of existent limitations, are not equal to meeting some or all of the components of their therapeutic self-care demands (Orem, 1995). Limitations in malaria preventions self-care knowledge, therefore present a form of self-care deficit.

Supportive educative nursing system: A nursing approach in which the nurse provides the education and support for the pregnant woman/*primigravida* will be able to successfully meet her self-care requirements (Fitzpatrick and Whall, 1996)

Therapeutic self-care demand: A specification of the kind and number of care measures that are known or presumed to be regulatory of an individual's human functioning and development within some time frame (Orem, 1995). In this study such care measures take the form of the *primigravida* malaria prevention strategies.

Research Objectives

1. To determine the knowledge levels on malaria prevention by *primigravidae*, aged 18 to 35 years at HMH.
2. To establish self-care actions taken by *primigravidae* aged 18 to 35 years to prevent malaria at HMH.
3. To examine the relationship between knowledge levels on malaria prevention and self care actions taken by the *primigravidae* aged 18 to 35 years at HMH.

Research Questions

The study addressed components of malaria prevention, self-care actions and knowledge levels as follows:

1. What is the level of knowledge on malaria prevention of the *primigravidae* aged 18 to 35 years at HMH?
2. What actions are taken by *primigravidae* aged 18 to 35 years to prevent malaria at HMH?

3. What is the relationship between knowledge level on malaria prevention and self-care actions in *primigravidae* aged 18 to 35 years to prevent malaria at HMH?

Significance to Nursing

The study might add knowledge that nurse midwives and health personnel can utilize to care for pregnant women, especially the *primigravidae* infected with malaria. In addition, the study might provide simple messages pregnant women might use to improve on current technologies in combating malaria. The findings of the study will provide information to fill in the knowledge gaps in preventing malaria among pregnant women especially *primigravida*. The study might generate researchable areas on the topic.

Summary

Malaria in pregnancy remains an obstetric, social and medical problem requiring multidisciplinary and multidimensional solution (W.H.O., 2008). Malaria in pregnancy is one of the major causes of maternal morbidity and mortality and infant mortality in Zimbabwe (Tevedzi, 2000). The morbidity due to malaria includes anaemia, cerebral malaria, fever, hypoglycaemia, pulmonary oedema and puerperal sepsis (W.H.O., 2008). Mortality can occur from severe malaria and haemorrhage (W.H.O., 2008). It is well documented that malaria kills between 1.7 million to 2 million people each year globally and sadly mainly pregnant women and children under the age of 5 years are more vulnerable (W.H.O., 2008). Between 350 million and 500 million people experience malaria episodes each year, while 3 000 people die from malaria each day (W.H.O., 2008).

This study should therefore shade light on the impact of health education on malaria prophylaxis and pregnancy.

CHAPTER 2

LITERATURE REVIEW

This chapter will focus on a review of literature related to the study variables. The study variables are knowledge levels on prevention of malaria as the dependent variable, self-care actions in *primigravidae* as the independent variable and the relationship between knowledge levels on prevention of malaria and self care actions taken by *primigravidae* to prevent malaria as the interdependent variable.

For this study the assumption is that increasing knowledge levels on malaria prevention will decrease episodes of malaria in Zimbabwe. Although the disease has been eradicated in most temperate zones, it continues to be endemic in Zimbabwe, and throughout most of the tropics and subtropics (W.H.O., 2008). Approximately 40% of the world's population lives in endemic areas of malaria (W.H.O., 2003).

Globally pregnant women in malarious areas may experience a variety of adverse consequences from malaria infection including maternal anaemia, placental accumulation of parasites, low birth weight (LBW) from prematurity and intrauterine growth retardation (IUGR), fetal parasite exposure and congenital infection, and infant mortality (IM) linked to preterm-LBW and IUGR-LBW (Steketee et. al., 2001).

Malaria in pregnancy remains an obstetric, social and medical problem requiring multidisciplinary, multidimensional solutions (W.H.O., 2008). Malaria in pregnancy is one of the major causes of maternal morbidity, maternal mortality and infant mortality globally, regionally and in Zimbabwe (W.H.O., 2008). Pregnant

women constitute the main adult risk group for malaria because pregnancy reduces immunity to malaria (W.H.O., 2008). Deaths due to malaria in Africa constitute 80% and most of the deaths occur in pregnant women and children below 5 years (W.H.O., 2008). The non immune *primigravidae*, the *para 1* and *para 2* and pregnant women who are HIV positive are usually the most affected (Roll Back Malaria, 2008). According to (Burns & Grove, 1993) a review of literature helps the researcher to gain essential information from existing studies and themes. Literature review generates information about the topic and this widens the base of knowledge about the subject being researched. According to (Gill & Johnson, 1991) an Investigator gains awareness of the current state of knowledge to the subject, its limitations and how one's research fits in this wider context of literature review. (Jenkins, 1995) expressed that knowledge does not exist in a vacuum and one's work only has value in relation to other people's work. (Polit & Hungler, 1999) stated that a Review of Literature is essential in discerning what is already known about the topic under study. This means that one's work and findings will be significant only to the extent that they are the same as or different from other people's work.

In Uganda, low knowledge levels on malaria prevention have also been reported among communities (Nyamongo, 1999). In 1996, Minnesota International Health Volunteers reported that mothers' knowledge of bed nets as a preventive measure against malaria was found to be 8% (Curtis et. al., 1999). Even after health education interventions, the knowledge levels only improved to 41% in 2000. Similarly knowledge of appropriate dosages for prophylactic anti-malaria medications was 6% in 1996 and only improved 41% in 2000. Knowledge on

malaria prevention and self-care actions is therefore a problem worldwide, (Curtis et. al., 1999).

In Nigeria and most of the tropical countries, malaria and anaemia in pregnancy unarguably remain the greatest cause of morbidity and mortality in pregnancy, labour and puerperium (NNaji et. al., 2006). Maternal mortality attributed to malaria has been estimated at 15.5% of the deaths in Nigeria (NNaji et. al., 2006). This study should therefore shade light on the impact of health education on malaria prophylaxis and pregnancy.

Epidemics have devastated large populations and malaria poses a serious barrier to economic progress on many developing countries (W.H.O., 2003). There are an estimated 300-500 million cases of clinical malaria per year with 1.7 to 2.0 million deaths, (WHO, 2008).

Episodes of Malaria (Self-Care Actions)

In most occasions diagnosis of malaria is based on clinical symptoms of headache, fever with a temperature of 39°C to 40°C, general body malaise, joint pain, fatigue, nausea, vomiting and diarrhoea (Mharakurwa et. al., 1997). In the laboratory the diagnosis of malaria is through a malaria parasite blood slide for microscopic examination and parasites are identified (Mharakurwa et. al., 1997). Statistics at HMM laboratories reveal that in 2008, 300 cases of *Plasmodium falciparum* were identified, 1 *Plasmodium ovale* and 2 *Plasmodium malariae*. In 2009, 104 cases of *Plasmodium falciparum*, 5 *Plasmodium malariae* and 1 *Plasmodium ovale* and 1 *primigravida* died. In 2010, in the months of January and February 104 *Plasmodium falciparum* and 1 *Plasmodium vivax* were identified.

Susceptibility to Infection, knowledge levels on malaria

The absence of the duffy factor found in dark skinned people is protective against *Plasmodium vivax* malaria (Google, 2008). People with sickle cell trait (*heterozygotes*) show relatively low *parasitaemia* when infected with *Plasmodium falciparum* and thus are relatively protected from severe disease. Homozygotes suffering from sickle cell disease are at increased risk of severe *P. falciparum* malaria especially anaemia (Africa Fighting Malaria, 2005).

Malaria in pregnancy: Double Trouble, Knowledge levels on malaria.

P. falciparum malaria can run a turbulent and dramatic course in pregnant women (W.H.O., 2008). The non-immune *primigravidae* are usually the most affected. In pregnant women the morbidity due to malaria includes anaemia, fever illness, hypoglycaemia, cerebral malaria, pulmonary oedema, puerperal sepsis and mortality can occur from severe malaria and haemorrhage (W.H.O., 2008). The problems in the new born include low birth weight, prematurity, Intra Uterine Growth Retardation, malaria illness and mortality (W.H.O., 2008). Immune suppression and loss of acquired immunity to malaria in pregnancy can be the cause of double trouble. In pregnancy, malaria tends to be more atypical in presentation. This could be due to hormonal immunological and haematological changes of pregnancy (W.H.O., 2008). Due to the hormonal and immunological changes, the *parasitemia* tends to be 10 times higher and as a result, all the complications of *P. falciparum* malaria are more common in pregnancy compared to the non-pregnant population. *Plasmodium falciparum* malaria in pregnancy being more severe, the mortality is also double 13% compared to the non-pregnant population 6.5% (Google, 2008).

People who live in endemic areas eventually develop immunity but this immunity is lost when individuals move from the area (Google 2008). Acquired immunity is dependent upon the presence of circulating malaria anti bodies. Malaria mortality is concentrated in the younger age groups (Africa Fighting Malaria, 2005). Pregnant women in malarious areas may experience a variety of adverse consequences from malaria infection including maternal anaemia, placental accumulation of parasites, low birth weight (LBW) from prematurity and intrauterine growth retardation (IUGR), fetal parasite exposure and congenital infection, and infant mortality (IM) linked to preterm-LBW and IUGR-LBW (Steketee et.al., 2001).

In Kenya and Nigeria malaria accounted for 20% to 30% of Infant mortality in 1970 to 1975 (Africa Fighting Malaria, 2005). (Saeed & Ahmed, 2003) in a study of displaced people and Refugees in Sudan found that the major cause of death was malaria. This may be attributed to the fact that refugees live in poor shelter and generally their socio-economic status is low. The same authors found that malaria contributed 15.9% of total deaths. Abstracts on malaria mortality state that malaria contributes 10 000 maternal deaths per year, 5-14% low birth weight and 3.8% infant deaths per year (W.H.O., 2008). The parasite prevalence is higher in poor children who have little protection against mosquitoes and have no money to pay for transportation to health centres (W.H.O., 2008).

(Isaacson, 1987) in South Africa, states that malaria occurrence is endemic in Transvaal, Natal, Durban and Rustenburg. It can also occur as epidemic in some areas due to immigrants in South Africa. It is seasonal and it occurs in summer due to rainfall. In winter the incidence is very low. (Mukotami et. al., 2009) report that severe malaria is a life threatening condition in Zimbabwe and this is

supported by (Mudambo & SADC Military Malaria Technical Committee 2009), who reported the import of malaria by the military into Malaria Free Zones, South of the Zambezi River. This is a threat to malaria elimination in the SADC Region. Import of malaria in particular of the *P. vivax* and *P. ovale* malaria species by the SADC military into malaria free zones is on the increase in Zimbabwe and could reverse the gains made and derail the SADC malaria elimination initiative (Mudambo & SADC Military Malaria Technical Committee, 2009).

A study conducted in Zimbabwe demonstrated that people's knowledge on malaria prevention was still not up to the standards expected by the National Malaria Control programme (Curtis et. al, 1999). Use of plants/herbs was frequently mentioned as a self-care preventive measure for malaria. The study concluded that despite widespread availability of information on prevention of malaria, the community's understanding of the prevention of malaria was generally low and this has negative implications on integration of the control of malaria episodes (Curtis et. al., 1999).

In addition, in Zimbabwe ordinary people in malaria affected regions, due to limited malaria prevention self-care knowledge, frequently rely on incorrect information from friends and relatives on malaria treatment instead of focusing on the recommended effective preventive strategies (Nyamongo, 1999). The result would be an increase in the episodes of malaria as well as, an increase on the complications of malaria.

Malaria has been and still is the cause of much human morbidity and mortality in Zimbabwe (Teveredzi, 2000). Malaria complications are influenced by factors like, age, sex, pregnancy, nutritional status and socio-economic status, and

how quickly a malaria patient receives appropriate treatment in Zimbabwe (Ndlovu, 2006).

Theoretical Model/Framework

These are the conceptual underpinnings of a study; often referred to as a theoretical framework in studies based on a theory or as a conceptual framework in studies that have roots in a specific conceptual model (Polit & Hungler, 1999). Orem's self care model will be used as the theoretical framework to guide this study and to enable the researcher to explain the study findings on knowledge levels on malaria and self care actions taken by *primigravidae* in preventing malaria. Self-care refers to the activities that a person initiates and performs on his own behalf to maintain life, health and well-being (Orem, 1991).

In this study such activities are, the actions taken by *primigravidae* to prevent malaria, knowledge on medications for malaria, use of physical barriers to prevent mosquito bites, self-care of the environment to reduce mosquito breeding places, self-use of chemical methods that prevent mosquitoes from biting human beings. Self-care equates to one of the central concept in nursing, that of health. An imbalance between self-care agency and self-care demand creates self-care deficit (Orem, 1991). In this study, any identified knowledge deficits among the *primigravidae* with regards to prevention of malaria will symbolise self-care deficit, and will be interpreted or be explained as such. The second nursing central concept in (Orem's model, 1991) is that of a person. A person is depicted as the individual who is able to appraise situations, reflect upon them and understand them. Orem refers to a person as a self-care agent.

In this study, the *primigravida* is considered to be the self-care agent or the person with self-care agency. The *primigravida* is called person and has the ability to learn about the malaria prevention strategies and ultimately possess the requisite knowledge levels on prevention of malaria. The environment forms the third central concept represented in Orem's Model 1991. Basic, conditioning factors in (Orem's model, 1991) apply directly to the environment. Basic conditioning factors are human and environmental properties that affect the person's self-care agency and therapeutic self-care demands. Some of the components of the basic conditioning factors (environment factors) are health care system, and resources availability and adequacy. According to (Orem, 1991), Nursing is the fourth central concept. There are three types of Nursing systems, that vary in terms of the degree to which the patient is able to accomplish self-care requirement.

Orem's conceptual model has been used in several nursing research studies. (Chani, 2006) used this model to examine the relationship between antenatal women's HIV and AIDS reproductive health knowledge and participation in voluntary counselling and testing (VCT) for HIV infection. He found that women lacked HIV and AIDS knowledge on prevention strategies and recommended couple participation in voluntary counselling and testing for HIV infection. (Nkhoma, 2002) also used this model to examine mother's perception of self-care practices and maladaptive behaviours among the moderately mentally handicapped clients aged ten to seventeen years. The results indicated that mothers' self-care practices explained 98% of the variance in occurrence of maladaptive behaviours amongst moderately mentally handicapped clients aged ten to seventeen years. Charumbira, (1999) used Orem's conceptual model to

examine the relationship between asthma self-care knowledge and asthmatic attacks in adults with asthma. The results did not support that asthma self-care knowledge reduces asthmatic attacks. Fawcett, (1995) used it for analysing and designing nursing care for clients of various ages and with a variety of self-care requisites. (Conn,1991) used this model to develop an instrument on older adults with influenza and colds. (Harper, 1984) used Orem's model to demonstrate the relationship between greater knowledge on medication and higher levels of self-care behaviours about medication in elderly black women. For the purpose of this study, *primigravidae* with malaria prevention knowledge deficit will require the supportive educative nursing system in which the nurse-midwife provides education and support for the *primigravida* so that she will be able to successfully meet her self-care requirements. The study will be based on the premise that as knowledge levels on malaria prevention increases episodes of malaria would decrease.

Summary

Malaria in pregnancy remains an obstetric social and medical problem requiring multidisciplinary, multidimensional solutions (W.H.O., 2008). Malaria in pregnancy is one of the major causes of maternal morbidity, maternal mortality, and infant mortality in Zimbabwe, regionally and globally (W.H.O., 2008).

The non immune *primigravidae* the *para 1*, *para 2* and pregnant women who are HIV positive usually are the most affected (W.H.O., 2008). This chapter addressed literature, review done locally, regionally and globally on malaria in pregnancy. All Investigators seem to agree that *Plasmodium falciparum* malaria can run a turbulent and dramatic course in pregnant women. The non-immune

primigravidae are usually the most affected. The morbidity due to malaria include, anaemia, fever, hypoglycaemia, cerebral malaria, pulmonary oedema, puerperal sepsis and mortality can occur from severe malaria and haemorrhage (W.H.O., 2008). The Theoretical model selected for this study is that of (Orem, 1991), Self-Care Model.

CHAPTER 3

METHODOLOGY

Introduction

In this chapter the research design, site, sampling plan, sample, sampling procedure, conceptual and operational definitions, significance level, validity and reliability, pilot study, data collection plan, human rights considerations, data collection procedure, instruments, data analysis and management were discussed. Research design was the researcher's plan to answer questions (Burns & Grove, 2005). The purpose of this study was to examine knowledge levels on malaria and self-care actions to prevent malaria, taken by *primigravidae*, aged 18 years to 35 years at Harare Maternity Hospital.

Research Design

Research design is the blue print for conducting a study that maximises control over factors that could interfere with the validity of the findings (Polit & Hungler, 1999). According to (Leedy, 2005), research design is the strategy, the plan and the structure of conducting a research project. A research design stipulates the procedural framework in an effort to answer the research questions (Treece & Treece, 1999). A research design guides the investigator in planning and implementing the study in a way that would achieve the intended goals. Each investigator needs to choose the research design that is most useful for her/his particular research purpose, whether to observe in order to know, in order to predict or to predict in order to control or prescribe (Seaman, 2001). As a result different designs are appropriate for different kinds of studies.

The descriptive correlational research design was used for this study. It was the appropriate research design because new facts were gained in the natural setting (Treece & Treece, 1999). A correlational research design is an interrelationship among variables of interest without any active intervention on the part of the researcher (Polit & Hungler, 1999). The correlational research design facilitates the identification of many interrelationships that occur in a situation and facilitates the development of a hypothesis for later studies (Polit & Hungler, 1999). Correlation means a tendency for variation in one variable to be related to variation in another variable (Polit & Hungler, 1999).

The investigator intended to find the relationship between malaria knowledge in *primigravidae*, aged 18 years to 35 years, and self-care actions they took to prevent malaria. (Polit & Hungler, 1999), state that some of the advantages of using a descriptive correlational research design are that there is flexibility when investigating complex relationships among variables. It facilitates collection of large amounts of data. In this study, extraneous variables or factors that could interfere with validity and reliability needed to be controlled either in the research design or through statistical procedures. For this study the extraneous variables were going to be controlled by using a homogenous sample that is *primigravidae*.

Sampling Plan

A sampling plan was a layout of the steps to be followed to obtain a sample for the study (Agyepong, et. al., 2001). The design of a sampling plan included the selection of a sampling plan, sampling method, specification of the sample size, and the selection of procedures for recruiting the participants (Polit & Hungler, 1999).

For this study, the researcher utilized the probability sampling. Probability sampling is a sampling procedure in which random selection of participants is done to select participants (Polit & Hungler, 1999). This gave every participant a chance of being selected. Probability sampling has a greater confidence in the representation of the sample selected. The systematic sampling was used for this study. Systematic sampling is the selection of respondents such that every K^{th} respondent is selected from a group of *primigravidae* attending the antenatal clinic, for example every fourth respondent in a group of respondents is selected (Polit & Hungler, 1999). The process involved the selection of participants such that every k^{th} participant was selected from a group of *primigravidae* attending the antenatal clinic, using a starting point selected randomly. The investigator knew the number of *primigravidae* in the population that attended antenatal clinic each day and the size of the sample desired was sixty-five. The population size was one hundred and thirty (130) and this was divided by 65, giving 'K' value of 2. Therefore every second participant was selected for this study.

Study Site

The *primigravidae* were attending antenatal care at HMH. HMH is a referral and University teaching hospital in the capital city of Zimbabwe. Pregnant women are referred from Municipal Primary Care Clinics of Harare, districts and provincial hospitals and mission hospitals in Zimbabwe. Geographically, Harare Central Hospital is located on a hill, "PaGomo", south of the capital city, in a light industrial area, next to semi-low density suburbs of Southerton and Lochnivar, to the east is a high density suburb of Mbare and to the west are high density suburbs of Rugare, Kambuzuma, Mufakose, Highfield and Budiriro. Harare Central Hospital has a laboratory with separate parasitology department which is well equipped for

carrying out routine haematology and biochemistry services. It also has a blood bank, a well equipped pharmacy with anti-malaria drugs such as quinine and a renal unit is also available for haemodialysis in cases of complicated malaria.

Population

Population is the entire aggregate of people or elements or objects having some common characteristics for example *primigravidae* (Burns & Grove, 2005). According to (Burns & Grove, 2005), there were three levels of population. First level is the aggregate population for example all pregnant women in a country. The second level was the target population which population the investigator wanted to generalize on for example all pregnant women aged 18 years to 35 years. The third level was the accessible population, which was the pool of participants one can get access to and met the entire stated criterion for example *primigravidae*, aged 18 years to 35 years, at an antenatal clinic. Accessible population included being able to get to or allowed to access the respondents (Polit & Hungler, 2006). In this study the accessible population was *primigravidae*, aged 18 years to 35 years at HMH.

Inclusion Criteria

The women were pregnant for the first time, aged 18 years up to 35 years. They were Zimbabwean citizens, residing in Zimbabwe for the past year or more. Their language was Shona or English.

Exclusion Criteria

Pregnant women below 18 years and over 35 years of age, who were *multiparous* or *primigravidae*, were excluded from participating in the study.

Primigravidae not citizens of Zimbabwe were excluded. All *multiparous* women, deaf and dumb, critically ill *primigravidae* and mentally disturbed *primigravidae* were excluded. *Primigravidae*, whose language was not Shona or English were excluded.

Sample Size

A sample was part of or fraction of a whole or part of the larger set selected to participate in a research study (Burns & Grove, 2005). Sample size meant the number of participants in a particular study. Polit & Beck, (2006), states that in calculating the sample size the researcher should consider the significance level, power and effect size. For this study sixty five (65) *primigravidae* were recruited using the Cohen Table formula.

Significance level, is the probability that an observed relationship could be caused by chance (i.e., as a result of sampling error); significance at the point five (0.5) level indicates the probability that a relationship of the observed magnitude would be found by chance only 5 times out of 100 (Polit & Hungler, 2005). This then is the probability of committing Type error, which occurred when the investigator wrongly rejected a true, null hypothesis.

Power is the capacity to detect relationships that actually exist in the population, (Burns & Grove, 2005). A conventional standard of power is point eight (0.8). This means that the risk of committing a Type II error is point two (0.2). A Type II error is failing to detect existing relationships (Burns & Grove, 2005).

The Effect Size was the extent to which a phenomenon was present in the population being studied (Wood & Catanzaro, 1998). If the effect size is small, detecting it will be more difficult and requires large samples (Burns & Grove,

2005). Effect size effects power. Effect size is a measure of how wrong the null hypothesis is (Polit & Sherman, 1999). Effect size was a strong Index of how strong the effect of knowledge on malaria was among *primigravidae* so as to take actions to prevent malaria, which were the independent and dependent variables.

With everything else equal, as the value of effect size increased, power also increased, and the required sample size decreased. Point five (.5) was adopted as the standard effect size, as the standard for the alpha criterion, a conventional standard power ($1 - \beta$) was point eight (.8) (Polit & Sherman, 1999).

Through the utilization of these values, the Cohen table illustrated the sample size that could be required for power of point eight (.8) the effect size of point five (.5), the sample size was sixty five (65). Therefore this study used the sample size of sixty five (65) plus (15). It was also more practical and less costly to collect data from a sample than from the aggregate population. The limitations were that the selected sample did not reflect the behaviours, traits, symptoms, beliefs and knowledge levels of the entire population (Burns & Grove, 2005).

The limitations were controlled by sampling criterion. Sampling criterion referred to the inclusion and exclusion criterion which controlled extraneous variables, and ensured homogeneity of the sample and provided guidelines for sample recruitment (Polit & Beck, 2006).

Sampling Procedure

This was the strategy used to obtain a sample for a study. The sampling procedure reduced sampling bias. Sampling bias were distortions that arose from the selection of a sample that was not representative of the population from which

it had been drawn (Polit & Hungler, 1999). This was overcome by selecting a homogenous sample such as the *primigravidae*.

Instruments

The investigator used structured interview format, namely the Questionnaire. The instruments were adapted from the universal and health deviation self-care requisites used by (Orem, 1985).

The instruments used addressed the following, part one: Demographic information, part two: The relational statement, outlining the specific questions about self-care actions used for prevention of malaria, part three: addressed the relationship between the independent and dependent variables. The questions were phrased to permit free recall. Data was collected using two instruments, the malaria prevention self-care knowledge questionnaire and the demographic data questionnaire. The instruments were developed based on available literature (W.H.O., 2008). The demographic data questionnaire examined dimensions such as age, marital status, education, occupation, religion, and residence.

Validity

Validity of an instrument is its ability to measure what it is actually set out to measure. Content validity was assessed through use of literature, currently available on malaria.

Reliability

Reliability is the degree of consistence with which an instrument measures the variables of interest (Burns & Grove, 1993). Reliability is concerned with such characteristics as dependability, consistency, accuracy and comparability. In this

study, the reliability of the instrument was checked by the test – retest method for suitability in which the instrument was tested over twice at HMH. The investigator administered all the questionnaires herself to eliminate problems associated with interrater reliability.

Pilot Study

A pilot study is a small version or trial run, done in preparation for a major study (Polit & Hungler, 1999). A pilot study was conducted to determine feasibility of the study. Its purpose was to test the instrument for anomalies, identify potential problems in data collection for correction before the major study and gained experience with methodology and the instrument.

A pilot study was done to examine the reliability and validity of the instrument and determined as far as possible whether the instrument was clearly worded, free from bias and able to solicit the type of information envisioned. It also gave an idea of the length of time it took to administer each questionnaire. The pilot study was done on five *primigravidae* at HMH a week before the major study in March. In the pilot study, the procedure was explained to the participants and a voluntary consent was obtained from the participants. Face to Face interviews were conducted in a private setting. A pilot study indicated the extent to which questions asked answered the study questions. It also gave an idea of the length of time it took to administer each questionnaire. The pilot study helped to determine clarity of questions. Some of the questions were re-phrased and questions that did not yield usable data were discarded.

Conceptual and Operational Definitions

A conceptual definition states the meaning of a concept. It denotes how a concept is operationalised or measured. This study's variables were conceptually and operationally defined. Conceptually, demographic variables referred to the personal and individual attributes or characteristics of the participants such as age, educational level, occupation, marital status and religion. Operational demographic variables were measured using demographic data questionnaire.

Data Collection Plan

Data collection were done between March to May 2010. The investigator sought permission first to conduct the research from the Research Review Board of Zimbabwe and Harare Central Hospital Management Board. Permission was granted. The investigator physically introduced herself to the Chief Executive Officer, the Clinical Director, the Principal Nursing Officer, Principal Tutor of the School of Midwifery, the Senior Nursing Officer of Maternity Hospital, the respective Wards Sisters in Charge of ANC and ANW. The objectives of the study were explained in English to the members of staff and in Shona and English to the participants. Collection of data was in the mornings from 09.00 hours to 13.00 hours, from Monday to Thursday. Participants were approached after they had been seen by the Consultant in the waiting area. A verbal consent was sought before interviewing in a quiet consultation room. Both the investigator and the participant were seated on chairs during collection of data. The Interviews were conducted in both Shona and English languages depending on the language the participant was comfortable with. The participants' responses were recorded on the questionnaire. Only those who voluntarily gave consent were interviewed.

Human Rights Considerations

Permission to conduct the study was sought from the Research Review Board of Zimbabwe and Hospital Management Board at Harare Central Hospital, the Hospital's Chief Executive Officer and the Hospital Clinical Director. All members of staff in Maternity Hospital were briefed about the study to gain their co-operation so as to facilitate the conduct of the study.

Participation in the study by the participant was voluntary after the necessary information had been explained without coercion or any undue influence. Confidentiality was observed. The potential participants who met the criteria were informed about the study, purpose and type of data to be collected, the nature of commitment, as well as the participants' selection criteria. The participants were informed about the right to withdraw from the study at any time and were assured of confidentiality. The benefits of the study were explained to the participants and questions were allowed.

Privacy was maintained by conducting the interview in one of the consulting rooms. For further questions, a contact address and telephone number was issued to the participants for information they needed to be elaborated. A standard informed consent form was issued for each prospective participant. Anonymity was achieved by wording the questionnaire without using study participants' names.

Data Analysis

Data analysis is the systematic organization and synthesis of research data and the testing of the research hypothesis (Polit & Hungler, 1999). Raw data were edited for clarity and completeness. The raw data were categorized and grouped.

The responses were coded and entered into a code book, which the investigator developed. The coded data were directly entered into the computer file in SPSS/pc and were stored on a hard diskette for analysis. Tables were used to arrange and summarise data. The research objectives and questions determined the analysing techniques. The analysis data included descriptive statistics that described the characteristics of the sample, the variables on knowledge levels and actions taken by *primigravidae* aged 18 years to 35 years on malaria prevention. The inferential statistics like the Pearson correlation co-efficient (r) was used to determine the relationship between the independent and dependent variables. The relationship between the Independent and dependent variables was compared.

CHAPTER 4

RESULTS

Introduction

This chapter presents results of the study carried out at Harare Maternity Hospital (HMH). The purpose of the study was to examine the relationship between knowledge levels on malaria prevention and self-care actions among *primigravidae* aged 18 to 35 years at HMH. The questions answered were:

1. What is the level of knowledge on malaria prevention of the *primigravidae* aged 18 to 35 years at HMH?
2. What actions are taken by *primigravidae* aged 18 to 35 years to prevent malaria at HMH?
3. What is the relationship between knowledge level on malaria prevention and self-care actions in *primigravidae* aged 18 to 35 years to prevent malaria at HMH?

The data on knowledge levels on malaria were analysed using the Statistical Package for Social Sciences (SPSS), (Hedderson, Fisher, 1993). Descriptive and inferential statistics were used to analyse demographic data on episodes of malaria and self-care knowledge on malaria prevention among *primigravidae* aged 18 to 35 years at HMH. Pearson Correlation Co-efficient was used to analyse data in order to determine the relationship between dependent variable and independent variable. A significance level of $p < 0.05$, power of 0.80 and effect size of 0.50 to determine the sample size was considered appropriate for correlation studies, (Cohen, 1988) tables, (Burns & Grove, 2005). A sample size of 80 participants who met the inclusion and exclusion criteria was utilized for the study using (Lipsey, 1990) tables, (Brink, 1998).

Demographics Characteristics

Table 4.1 shows demographic characteristics of participants, which are age, parity, *gravida*, marital status, residence, level of education, religion, occupation, source of income, and salary. The ages ranged from eighteen to thirty five years (18 to 35 years). The mean was 26, median was 25, mode was 23, Standard Deviation was 5.12. Forty two (52.8%) participants were aged between 18 to 25 years. Twenty one (26.3%) participants were aged 26-30 years and 17 (20.9%) participants were aged between 31-35 years. Marital status, 66 (82.4%) participants were married, 7 (8.8%) participants were single and 7 (8.8%) participants were cohabiting. The majority had strong social support and could afford to seek medical treatment whenever they contracted malaria.

Residential place, 35 (43.8%) participants were from urban, 21 (26.2%) participants were from rural, 12 (15%) participants were from mines and 12 (15%) participants were from farms. Level of education, 9 (11.2%) participants had been educated up to primary level, 63 (78.8%) participants had attained secondary education, 8 (10%) participants had attained tertiary education. Occupation, 21 (26.1%) participants were skilled-professionals, 4 (5%) participants were unskilled workers, 9 (11.3%) participants were self-employed and 46 (57.6%) participants were not employed.

Religion, 34 (42.5%) participants were Christians, 24 (30%) participants were Pentecostal and 22 (27.5%) participants were others like Johane Masowe. Source of income, 32 (40%) participants had a monthly self sustaining income. Forty eight (60%) participants relied on husbands and other relatives.

Salary in US dollars (US\$), 4 (5%) participants earned below US\$50 a month, 14 (17.5%) participants earned between US\$51-100, 42 (52,5%) participants earned between US\$101-200, 20 (25%) participants earned over US\$200.

Table 4.1 Demographic Characteristics – Questions 1-8.

(N=80)

Variable	Frequency	Percentage (%)
<u>Age</u>		
18-25 years	42	52.8
26-30 years	21	26.3
31-35 years	17	20.9
Total	80	100.0
<u>Marital Status</u>		
Single	7	8.8
Married	66	82.4
Cohabiting	7	8.8
Total	80	100.0
<u>Residence</u>		
Urban	35	43.8
Rural	21	26.2
Mine	12	15.0
Farm	12	15.0
Total	80	100

Table 4.2 Demographic Characteristics – Questions 1-8.

(N=80)

Variable	Frequency	Percentage
<u>Religion</u>		
Christians	34	42.5
Pentecostal	24	30.0
Others (Johane Masowe)	22	27.5
Total	80	100.0
<u>Level of Education</u>		
Primary	9	11.2
Secondary	63	78.8
Tertiary	8	10.0
Total	80	100.0
<u>Occupation</u>		
Skilled	21	26.1
Unskilled	4	5.0
Self employed	9	11.3
Unemployed	46	57.6
Total	80	100

Table 4.3 Demographic Characteristics – Questions 1-8.

(N=80)

Variable	Frequency	Percentage (%)
<u>Source of Income</u>		
Self sustaining	32	40.0
Husband & other relatives	48	60.0
<u>Salary in US\$</u>		
< 50	4	5.0
51-100	14	17.5
101-200	42	52.5
> 200	20	25.0
Total	80	100.0

Gestation

Table 4.4, shows the parity, *gravida* and gestation in weeks of pregnancy. All (100%) participants were para 0 and *gravida* 1. Ten (12,6%) participants were between 20-25 weeks, 21 (26.5%) participants were between 26-32 weeks and 49 (60.9%) participants were between 33-42 weeks of pregnancy.

Table 4.4 Gestation

(N = 80)

Gestation in weeks	Frequency	Percentage (%)
20-25	10	12.6
26-32	21	26.5
33-42	49	60.9
Total	80	100.0

Self Care Knowledge on Malaria Prevention

Table 4.5 revealed that 66 (82.4%) participants reported that they had received information on prevention of malaria from health care providers, 7 (8.8%) participants had received information from village health workers (VHW), 1 (1.2%) participants had received information from politician/councillor, 6 (7.6%) participants had received information from others, such as faith healers and traditional healers. Acknowledgement of having received information/instruction on malaria prevention, 77 (96.2%) participants had received some information on how to prevent malaria, 3 (3.8%) participants had not received the information. Information source, 24(30%) participants got their information from health care provider, 7 (8.8%) participants got their information from village health workers, 20(25%) participants got their information from radios/television, 1 (1.2%) participants got her information from politician/councillor, 28 (35%) participants got their information from others (faith & traditional healers).

Malaria information covered indicated that, 27 (33.8%) participants confirmed that prevention methods were taught, 35 (43.6%) participants were taught on where to get treatment when ill, 13 (15.4%) participants were taught on the types of drugs, 4 (6%) participants were taught on how to take treatment and 1 (1.2%) participant reported knowledge on signs and symptoms of malaria. Forty two (47.5%) participants indicated that health care providers gave the most useful information, 22 (33%) participants indicated that teachers provided most useful information, 10 (12%) participants indicated that they had obtained most useful information from radio/television, 5 (6.3%) participants indicated that they got useful information from VHW and only 1 (1.2%) participant thought the politician/councillor provided her with the most useful information. Women's

response to malaria prevention, 52 (65%) participants were confident in preventing malaria after instructions/information. Twenty eight (35%) participants were not confident enough to prevent malaria following information/instructions, due to knowledge deficit. Area of information deficit, 34 (42.5%) participants wanted more information on the prevention of malaria, 46 (57.5%) participants wanted to have more information on the treatment of types of malaria caused by different types of mosquitoes. History of malaria, 57 (71.2%) participants had history of malaria, 23 (28.8%) participants had never suffered from malaria. Frequency of hospital admission, 38 (47.5%) participants had been hospitalised for more than once with malaria indicating knowledge deficit on prevention, 12 (15%) participants had been hospitalised once and 30 (37.5%) participants had never been hospitalised. The study findings were, knowledge on signs and symptoms of malaria, 26 (32.5%) participants confirmed having had headache, fatigue and general body weakness, 22 (27.5%) participants reported having had fever and joint pains, and 32 (40%) participants confirmed having had nausea, vomiting and diarrhoea.

Table 4.5 Self Care Knowledge Levels on Malaria Prevention - Questions 9 to 18

(N = 80)

Variable	Frequency	Percentage (%)
<u>Health Care Service Provider</u>		
Health Care Provider	66	82.4
Village Health Worker	7	8.8
Political/Councillors	1	1.2
Others (Faith & Traditional Healers)	6	7.6
Total	80	100.0

Acknowledgement of Having Received Information/Instructions on

Malaria Prevention

Yes	77	96.2
No	3	3.8
Total	80	100

Information Source

Health Care Provider	24	30.0
Village Health Worker	7	8.8
Radio/Television	20	25.0
Politician/Councillor	1	1.2
Others (Faith & Traditional Healers)	28	35.0
Total	80	100

Table 4.6 Self Care Knowledge Levels on Malaria Prevention - Questions 9 to 18

(N = 80).

Variable	Frequency	Percentage (%)
<u>Malaria Information Covered</u>		
Prevention methods	27	33.8
Where to get treatment	35	43.6
How to take treatment	4	6.0
Signs and symptoms	1	1.2
Types of drugs	13	15.4
Total	80	100.0
<u>Provider of Most Useful Information</u>		
Health Care Provider	42	47.5
Teacher	22	33.0
Village Health Worker	5	6.3
Radio/Television	10	12.0
Politician/Councillor	1	1.2
Others	0	0.0
Total	80	100.0
<u>Women's Response to Malaria Prevention</u>		
Yes	52	65.0
No	28	35.0
Total	80	100.0

Table 4.7 Self Care Knowledge Levels on Malaria Prevention - Questions 9 to 18

(N = 80).

Areas of Information Deficit

Prevention	34	42.5
Treatment	46	57.5
Total	80	100.0

History of Malaria Suffering

Yes	57	71.2
No	23	28.8
Total	80	100.0

Frequency of Hospital Admission

Never	30	37.5
Once	12	15.0
More than once	38	47.5
Total	80	100.0

Symptoms of Malaria

Headache, Fatigue	26	32.5
Fever, joint pains	22	27.5
Nausea, vomiting, diarrhoea	32	40.0
Total	80	100.0

Self Care Actions on Chemical Methods

Table 4.8 shows 24 (30%) participants had used repellents to prevent mosquito bites, 8 (10%) participants were burning indigenous leaves or fire wood in round huts to repel mosquitoes, 40 (50%) participants had self-care knowledge on use of treated nets as chemical methods to prevent malaria, and 8 (10%) participants did not know. Knowledge on malaria chemoprophylaxis, 22 (27.5%) participants reported use of Coartemether, 24 (30%) participants used Chloroquine/Norolone, 34 (42.5%) participants confirmed being given Fansidar at their local clinics during second and third trimester. Self Care Knowledge on Barrier Methods, 47 (53.8%) participants used treated mosquito nets, 15 (21.2%) participants used mesh wire on windows, 14 (20%) participants wore clothes to cover heads and all limbs at night, 4 (5%) participants used plain mosquito nets. Self Care Knowledge on Environmental Prevention, 23 (28.8%) participants cut grass around homes to prevent mosquitoes from breeding there, 12 (15%) participants covered potholes with bricks and sand to prevent breeding places for mosquitoes, and 45 (56.2%) participants reported that personnel from the environmental health sector destroyed mosquito larvae using oil on swampy areas.

Table 4.8 Self Care Actions on Chemical Methods for the Prevention of Malaria

Questions 19 to 23:

(N = 80)

Variable	Frequency	Percentage %
<u>Chemical Methods to Prevent Mosquitoes Bites</u>		
Repellents	24	30.0
Burning Indigenous leaves	8	10.0
Treated Nets	40	50.0
Did not know	8	10.0
Total	80	100.0
<u>Medications</u>		
Coatemether	22	27.5
Chloroquine/Norolone	24	30.0
Fansidar	34	42.5
Total	80	100.0
<u>Recommended Guidelines</u>		
Women that did not take malaria prevention medication	5	6.3
Women that sort treatment early	24	30.0
Women that used 2 doses of Fansidar during 2 nd & 3 rd trimester	45	56.2
Women who did not follow guidelines	6	7.5
Total	80	100.0

Table 4.9 Self Care Actions on Chemical Methods for the Prevention of Malaria

Questions 19 to 23:

(N = 80)

Variable	Frequency	Percentage %
<u>Barrier Methods Used</u>		
Plain mosquito nets	4	5.0
Treated mosquito nets	47	53.8
Mesh wire on windows	15	21.2
Clothes to cover all limbs	14	20.0
Total	80	100.0
<u>Environmental Prevention Methods Used</u>		
Cut grass around homes	23	28.8
Cover potholes with sand	12	15.0
Destroy mosquito larvae	45	56.2
Total	80	100.0

Self- Care Actions in Preventing Malaria

Table 4.10, showed the Instrument revealing self-care actions in preventing malaria among *primigravidae* aged 18 to 35 years at HMH. The instrument graded the knowledge levels according to the comprehensiveness of the participants' responses. The minimum score was 6, and the maximum score was 22. One (1.3%) participant scored 6, 4 (5%) participants scored 10, 5 (6.3%) participants scored 11, 10 (12.5%) scored 12, 8 (10%) participants scored 13, 8 (10%) participants scored 14, 5 (6.3%) participants scored 15, 13 (16.3%) participants scored 16, 10 (12.5%) participants scored 17, 6 (7.5%) participants scored 18, 6 (7.5%) participants scored 19, 1 (1.3%) participants scored 20, 2 (2.5%) participants scored 21, 1 (1%) participant scored 22.

Table 4.10 Self-care Actions in Preventing Malaria

(N = 80)

Scores out of 22	Frequency	Percentage %
6	1	1.3
10	4	5.0
11	5	6.3
12	10	12.5
13	8	10.0
14	8	10.0
15	5	6.3
16	13	16.3
17	10	12.5
18	6	7.5
19	6	7.5
20	1	1.3
21	2	2.5
22	1	1.0
Total	80	100

Knowledge Level on Preventing Malaria

Table 4.11, showed the instrument revealing knowledge levels on preventing malaria among *primigravidae* aged 18 to 35 years at HMH. The minimum score was 4, the maximum score was 11. Two (2.5%) participants scored 4. Thirteen (16.3%) participants scored 5. Twenty one (26.2%) participants scored 6. Twenty four (30%) participants scored 7. Eight (10%) participants scored 8. Four (5%) participants scored 9. Six (7.5%) participants scored 10, and 2 (2.5%) participants scored 11. The results therefore show that 56 (70%) participants had a high knowledge on self-care action in preventing malaria.

Table 4.11 Knowledge Levels on Preventing Malaria

(N = 80).

Scores out of 11	Frequency	Percentage
4	2	2.5
5	13	16.3
6	21	26.2
7	24	30.0
8	8	10.0
9	4	5.0
10	6	7.5
11	2	2.5
Total	80	100

Relationships between Knowledge Levels and Self-Care Actions

Table 4.12, shows the relationship between knowledge levels on malaria prevention and self care actions in *primigravidae* aged 18 to 35 years at HMH.

The relationship was analysed using Pearson's Correlation test. The correlation between knowledge levels on malaria prevention and self care actions taken by *primigravidae* aged 18 to 35 years at HMH was borderline. The results indicated that total (DV) Y Pearson's Correlation r was 1.000, and total r was .045, p was .693. The findings showed that the higher the knowledge levels the more the *primigravidae* exhibited self-care actions in preventing malaria.

Table 4.12 Pearson Correlation Matrix

		Y
		1.000
X		0.045
<hr/>		
*p < .05	**p < .01	***p < .001
<hr/>		

N = 80.

Y = Self-Care Actions.

X = Knowledge Levels .

CHAPTER 5

DISCUSSION, IMPLICATIONS, LIMITATIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to examine the relationship between knowledge levels on malaria prevention and self care actions among *primigravidae* aged 18 to 35 years at Harare Maternity Hospital (HMH). Orem's self-care model was used to guide the study. A descriptive correlational study design was used in this study. Systematic sampling technique was used to select participants who met the inclusion criteria. The dependent variable (DV) was self-care actions taken by *primigravidae* aged 18 to 35 years at HMH. The mean score of the dependent variable was 22.94, the median was 23.00, the mode was 26 and standard deviation was 3.36, minimum score 10 and maximum score 29. The independent variable (IV) was knowledge levels among *primigravidae* aged 18 to 35 years on malaria prevention. Results were mean was 6.89, median 7.00, mode 7 standard deviation 1.55, minimum score 4 and maximum score 11. The relationship of the Independent variable and Dependent variable results were as follows $r = 1.000$ for Total (DV)Y, and $r = .045$ for Total (IV) X, $p = .693$. Pearson's Correlation Matrix, $*p < .05$, $**p < .01$, $***p < .001$. As knowledge levels increased self care actions increased in the prevention of malaria. Data were collected from sample of eighty participants using structured interviews. Instrument for data collection were adapted from the universal and health deviation self-care requisites by (Orem, 1995). The instruments addressed demographic data, malaria episodes and malaria prevention self-care knowledge. Descriptive and inferential statistics were used to analyse data using (SPSS packages, 1993). Study findings revealed that

the mean score of age was 26 years, maximum age was 35 years, the range was 18 to 35 years. This implied that the participants were mature to process malaria prevention self-care knowledge. All (100%) primigravidae were mature enough to give and sign a consent form.

The instrument revealed a highest score of 22 for malaria prevention self-care knowledge. The lowest score was 6. Inferential statistics were computed to find the relationship between malaria prevention and self-care knowledge and episodes of malaria. The result was borderline but a positive Pearson correlation coefficient of $r=0.045$, $p<0.696$ was recorded. This implied that as knowledge levels increased self-care actions increased as well, (Senga, 2006, unpublished).

Discussion

Sample Demographics

The sample size was eighty (80). All (100%) participants were *primigravidae* aged 18 to 35 years and were the most active age group who were likely to stay out doors at night, hence exposure to mosquito bites and getting malaria, (Curtis et al, 1999). All (100%) participants were educated, having attained primary or secondary or tertiary level. This meant that their level of comprehension of questions on malaria prevention was good. Religion, 34 (42.5%) participants were Christians, 22 (27.5%) participants were of Johane Masowe and were prone to mosquito bites as they prayed under trees and grass, (Curtis, et al, 1999). Twenty-four (30%) participants were of the Pentecostal, from this percentage some consulted faith healers first before going to hospital. The danger was that they would report to hospital late resulting in complicated malaria, (Nyanongo, 2002). Another concern was that traditionally a woman needed

husbands concern to go to hospital and the danger was of delaying in seeking treatment resulting in complicated malaria. (Saeed & Ahmed, 2003). Forty-five (56.2%) participants were from rural areas farms and mines who lived in poor shelter and were of low socio- economic status, (Nyamongo, 1999). They reported of burning indigenous leaves and repelled mosquitoes, plus burning of fire wood in round huts so as not to be bitten by mosquitoes, but at night when they went outdoors mosquitoes bite them, resulting in contracting malaria (Nyamongo, 1999).

Sixty-six (82.4%) participants were married and got social support from their husbands for buying malaria drugs or treatment in hospitals. Seven (8.8%) participants were single, 7 (8.8%) participants were cohabiting. Forty-six (57.6%) participants were not employed and relied on husband's salaries, (Senga, 2006, unpublished). The danger was that husbands might not give them the consultation fees then they would seek low cost treatment from over the counter drugs or faith healers or traditional healers, (Senga, 2006, unpublished). Twenty one (26.1%) participants were skilled and self-sustaining, 4 (5%) participants were unskilled labourers, 9 (11.3%) participants were self-employed and could afford consultation fees, (Curtis et al, 1999). Eighteen (22.5%) participants earned less than US\$100 and could not afford purchasing repellents, anti-malaria drugs, treated mosquito nets nor hospital fees and therefore resorted to traditional medicines and home remedies to protect themselves from mosquitoes, (Curtis et al., 1999).

Study findings revealed that 66 (82.4%) participants reported getting information from health care providers and that they received the most useful information on prevention of malaria from them. Fourteen (17.6%) participants got their information from village health workers, traditional healers, faith healers and

councillors. These were the *primigravidae* who lacked confidence in the prevention of malaria.

All (100%) participants needed more information on prevention and treatment. Fifty-seven (71.2%) participants had suffered from malaria and had been hospitalised once. Twenty-six (32.5%) participants reported that headache, fatigue and general body malaise were the symptoms of malaria, 22 (27.5%) participants stated that fever and joint pains were the symptoms of malaria and 32 (40.0%) participants reported that nausea, vomiting and diarrhoea were the symptoms of malaria.

In this study malaria prevention, self-care knowledge on chemoprophylaxis, barrier methods and environmental prevention, the findings were, 40 (50%) participants reported using treated nets, 32 (40%) participants reported using repellents whilst 8 (10%) participants burnt indigenous leaves. Forty-five (56.2%) participants destroyed mosquito larvae with the support of environmental health officers, 23 (28.8%) participants cut grass around the house and 12 (15%) participants covered potholes with sand to prevent mosquito breeding places. Twenty-four (42.5%) participants used Fansidar as prophylaxis when visiting malaria areas as recommended in guidelines for pregnant women, (Curtis et al, 1999). Reinforcement on timing of malaria chemoprophylaxis was expected at each visit, by midwives. This revealed high knowledge levels on the prevention of malaria, (Gill & Johnson, 1991).

The mean for dependent variable was 22.94, the median was 23, the mode was 26 standard deviations was 3.36, minimum score of comprehension was 4, maximum score of comprehension was 11. The mean for the independent variable

was 6.89, the median 7.00, the mode 7, standard deviation 1.55, minimum comprehension score was 4 and maximum comprehension score was 11. The relationship of the independent and dependent variables was $r=.045$, $p<.693$.

The result was borderline, but positively correlated. This meant that as knowledge levels increased, self-care actions on prevention of malaria increased, and it was expected that frequency of hospital admission would decrease. This was not the case, therefore there are other factors which should be investigated which cause an increase in the malaria episodes among pregnant women, (Ndlovu, 2006).

Theoretical Framework

Orem self-care model, (1991) was the theoretical framework that guided this study and the analysis. Self-care referred to activities that a *primigravida* initiated and performed on her own behalf to maintain life, health and well being, (Orem, 1991). In this study such activities were the actions taken by *primigravidae* to prevent mosquito bites, self-care of the environment to reduce mosquito breeding places and self-care of chemical methods that prevented mosquitoes from biting the *primigravidae*. Prevention of malaria required partnership between health care providers and the *primigravidae* themselves. An imbalance between self-care agency the midwife, and self-care demand by the *primigravidae* created self-care deficit, (Orem, 1991). In this study the identified knowledge deficits among the *primigravidae* with regards to prevention of malaria was symbolised as self-care deficit that resulted in *primigravidae* contracting malaria. (Orem, 1991) viewed nursing systems were of three types. The supportive-educative nursing system was designed to increase self-care knowledge in skills needed by

primigravidae in preventing mosquito bites. (Orem's self-care model, 1991) was therefore an applicable model to guide this study since it has been used successfully by several other investigators, (Charumbira, 1999, unpublished).

Implications to Midwifery

The instrument rated high knowledge levels on malaria prevention by all (100%) *primigravidae* who participated in this study. Malaria is a preventable disease whose cycles should be broken through use of appropriate skills. The *primigravidae* needed to be educated on prevention methods before symptoms occurred, because educating a sick pregnant woman would not help. The study findings were borderline and hence there is need to carry out further studies on this subject so as to establish other factors associated with high maternal mortality due to malaria. Preventing malaria would reduce anaemia and puerperal sepsis, among *primigravidae*, (Teveredzi, 2000).

Recommendations

1. *Primigravidae* to be empowered on malaria prevention skills.
2. *Primigravidae* to be educated using radio or television on malaria prevention.
3. Bloods for malaria parasites to be collected from all pregnant women who are anaemic and following delivery with *puerperal sepsis*, to exclude malaria.
4. Malaria testing kits for different strains to be distributed to all laboratories of Health care facilities in the country.

5. In-service training on malaria prevention to be continued for all health care providers.

Limitations

The study was carried out on 80 participants who managed to attend antenatal care (ANC) at Harare Maternity Hospital. Those who attended ANC at other health facilities and those who failed to attend were excluded from the study. These primigravida could have had some knowledge on self-care actions to prevent malaria. Therefore results cannot be generalised. The other potential limitation comes from the instrument that was used. It is difficult to check the reliability and validity of that instrument, as the pilot study was conducted on five (5) participants at Harare Maternity Hospital, (HMH) where the study was later conducted. However the five (5) participants were not included in the study.

Summary

Malaria episodes are on the increase worldwide, regionally and locally despite widespread programs on malaria prevention. Malaria in pregnancy remains an obstetric, social and medical problem that requires multidisciplinary and multidimensional solution. Malaria kills between 1.7 million to 2 million pregnant women and children each year globally, (W.H.O., 2008). The morbidity due to malaria includes anaemia, pulmonary oedema and puerperal sepsis, (W.H.O., 2008). Mortality can occur from severe malaria and haemorrhage (W.H.O., 2008). The purpose of this study was to examine the relationship between knowledge levels on malaria prevention and self-care actions to prevent malaria among primigravidae aged 18 to 35 years at HMH. (Orem's self-care model, 1991) was used for this study. The model facilitated the development of

instrument for collecting data from the 80 participants. Concepts such as person/*primigravida*, environment health and nursing were used. The environment was both internal and external environments, the person/*primigravida* was the self-care agent and nurse was the self-care agency who provided education to *the primigravida* on the prevention of malaria. Health explained the degree of self-care actions that the *primigravida* took to reduce malaria episodes. The combination of demographic factors had some bearing on the cognitive perceptual factors according to (Orem's theoretical framework, 1991).

A descriptive correlational study was used. Quantitative Data was collected from a systematic sample of 80 participants who met the inclusion criteria. Face to face interviews were used. The design examined the relationship between variables and described the variables under study. The variables under study were knowledge levels on malaria prevention, as the independent variable and self-care action to prevent malaria was the dependent variable. The study included 80 participants aged 18 to 35 years *primigravidae*. Three questionnaires were used to collect data namely Demographic Data Questionnaire, Malaria Episodes Questionnaire and Malaria Prevention Self-Care Knowledge Questionnaire. Data analysis was performed in two stages. The first stage involved analysis of data using descriptive statistics and the second used inferential statistics. Pearson correlation coefficient was borderline and was positive indicating that as knowledge levels increased self-care actions also increased on prevention of malaria among *primigravidae* aged 18 to 35 years at HMMH. The expected result was that frequency of hospital admissions would decrease. This was not the case, therefore there are other factors that should be investigated on, which caused high frequency rate of hospital admissions from malaria.

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Appendix A
Informed Consent English

Dear Participant

My name is Lillian Muchena. I am a student at the University of Zimbabwe and am currently undertaking a Master of Science in Nursing Science degree. As a partial fulfilment of this nursing science degree, I am required to undertake a research study in the area of my speciality. I am therefore carrying out a study to examine the relationship between malaria self-care knowledge and self-care actions taken by primigravidae aged 18 years to 35 years attending antenatal care.

I am kindly requesting you to participate in my study, the information obtained will be treated in confidentiality and the findings of the study will be used to improve the management of malaria patients. I will personally conduct the interview in privacy and it will take 25 to 30 minutes. You are assured that your identity will not be revealed at any time during the study or when the study is reported or published. The data collected will be coded.

Please feel free to make your decision for participation or none participation since this decision will not affect the care given to you or your family as well as the relationship with the health providers. Your participation is voluntary and you are free to withdraw from the study at any time.

If you agree to participate please sign below. All the signed forms will be kept in locked cabinet only accessible to the Investigator and will be destroyed at the completion of the study. If you feel you need to communicate with me my address is:

The Department of Nursing Science

College of Health Sciences

P.O. Box A178

Avondale

Harare

My contact phone number is 0733 290465

Participants Consent

I have read this consent Form and I voluntarily want to participate in this study.

Participant's Signature..... Date.....

Investigators Signature..... Date.....

Thank you for your participation.

Appendix B

Questionnaire

Section A

Demographic Data

Please answer the following questions to the best of your ability.

1. Age (in years) _____ Date of Birth _____ Parity _____

Gravida _____ Gestation by dates _____

Reason of transfer/booking _____

2. Marital Status

a) Single

b) Married

c) Divorced

d) Widowed

e) Cohabiting

f) Others specify _____

3. Where do you usually stay?

a) Urban

b) Rural

c) Mine

d) Farm

e) Others specify _____

4. Religion

a) Christians

b) Pentecostal

Other Specify _____

5. Level of Education

a) Primary

b) Secondary

c) Tertiary

d) Not educated

e) Other Specify _____

6. Occupation

a) Skilled worker

b) Unskilled worker

c) Self employed

d) Unemployed

7. If not employed what is your source of income?

a) Self

b) Others

8. Monthly Income in US dollars _____

- a) < US\$ 50
- b) US\$ 51 – 100
- c) US\$ 101 – 200
- d) > US\$ 200

Section B

9) Who is your health services provider?

- a) Health Care Provider 3
- b) Village health worker 2
- c) Politician 1
- d) Others specify _____

10) Have you had information or Instructions on how to prevent malaria?

- a) Yes 1
- b) No 0

11) If yes, who provided the Information or Instruction?

- a) Health Providers 5
- b) Teachers 4
- c) Village Health Worker 3
- d) Radio/Television 2
- e) Politician 1
- f) Others specify _____

12) What did the information cover?

- | | 1 | 0 |
|----------------------------------|----------------------|----------------------|
| | Yes | No |
| a) Prevention methods | <input type="text"/> | <input type="text"/> |
| b) Signs and symptoms of malaria | <input type="text"/> | <input type="text"/> |
| c) Where to get treatment | <input type="text"/> | <input type="text"/> |
| d) How to take treatment | <input type="text"/> | <input type="text"/> |
| e) The types of malaria drugs | <input type="text"/> | <input type="text"/> |
| f) Others specify _____ | | |

13) According to the way you understood who provided the most useful information?

- | | | |
|----------------------------|----------------------|---|
| a) Health Care Providers | <input type="text"/> | 5 |
| b) Teachers | <input type="text"/> | 4 |
| c) Village Health Workers | <input type="text"/> | 3 |
| d) Radio/Television | <input type="text"/> | 2 |
| e) Politicians/Councillors | <input type="text"/> | 1 |
| f) Others Specify _____ | | |

14) Did the information leave you confident of preventing yourself from malaria?

- | | | |
|--------|----------------------|---|
| a) Yes | <input type="text"/> | 1 |
| b) No | <input type="text"/> | 0 |

15) In which areas would you like more information?

a) Prevention 1

b) Treatment 1

16) Have you suffered from malaria before?

a) Yes 1

b) No 0

17) If yes how many times have you been hospitalized?

a) Never 3

b) Once 2

c) Twice 1

d) > Twice 0

18) What are the symptoms of malaria in pregnancy?

	1	0
	Yes	No
a) Headache, fatigue and general body weakness	<input type="text"/>	<input type="text"/>
b) Fever and joint pains	<input type="text"/>	<input type="text"/>
c) Nausea, vomiting and diarrhoea	<input type="text"/>	<input type="text"/>
d) b, c, d only	<input type="text"/>	<input type="text"/>

15) In which areas would you like more information?

a) Prevention 1

b) Treatment 1

16) Have you suffered from malaria before?

a) Yes 1

b) No 0

17) If yes how many times have you been hospitalized?

a) Never 3

b) Once 2

c) Twice 1

d) > Twice 0

18) What are the symptoms of malaria in pregnancy?

	1	0
	Yes	No
a) Headache, fatigue and general body weakness	<input type="text"/>	<input type="text"/>
b) Fever and joint pains	<input type="text"/>	<input type="text"/>
c) Nausea, vomiting and diarrhoea	<input type="text"/>	<input type="text"/>
d) b, c, d only	<input type="text"/>	<input type="text"/>

Section C

Self care knowledge on chemical methods for the prevention of malaria

19) Which chemical methods prevent mosquitoes from biting people?

	1	0
	Yes	No
a) Use of repellents	<input type="checkbox"/>	<input type="checkbox"/>
b) Burning of indigenous leaves	<input type="checkbox"/>	<input type="checkbox"/>
c) Use of insect treated nets and residual spray of huts and houses	<input type="checkbox"/>	<input type="checkbox"/>
d) b and d only	<input type="checkbox"/>	<input type="checkbox"/>

Self-care knowledge on malaria chemoprophylaxis

20) What medications can be taken to prevent malaria for pregnant women visiting

a

malaria area?

a) Fansidar/Sulfadoxine-pyrimethamine	<input type="checkbox"/>	3
b) Chloroquine/Norolone	<input type="checkbox"/>	2
c) Coatemether	<input type="checkbox"/>	1
d) Do not know	<input type="checkbox"/>	0

21) What are the recommended guidelines for taking malaria prevention medication

for pregnant women living in a malaria area?

- a) Do not take malaria prevention medication
- b) Only seek treatment early if symptoms occur
- c) Take two doses of Fansidar/ Sulfadoxine/Pyrimethamine in the second and third trimester of pregnancy.

1	0
Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Self-care actions on barrier methods

22) Which barrier methods do you know that prevent malaria?

- a) Use of plain mosquito nets
- b) Use of treated mosquito nets
- c) Use of mesh wire screens on all windows
- d) Wearing clothes that cover lower and upper limbs
- e) c,d,e only

1	0
Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

21) What are the recommended guidelines for taking malaria prevention medication

for pregnant women living in a malaria area?

- a) Do not take malaria prevention medication
- b) Only seek treatment early if symptoms occur
- c) Take two doses of Fansidar/ Sulfadoxine/Pyrimethamine in the second and third trimester of pregnancy.

1	0
Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Self-care actions on barrier methods

22) Which barrier methods do you know that prevent malaria?

- a) Use of plain mosquito nets
- b) Use of treated mosquito nets
- c) Use of mesh wire screens on all windows
- d) Wearing clothes that cover lower and upper limbs
- e) c,d,e only

1	0
Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

Self-care actions on environmental prevention strategies for malaria

23) What are the measures you take to prevent malaria at home?

	1	0
	Yes	No
a) Cut grass around the home	<input type="checkbox"/>	<input type="checkbox"/>
b) Fill in pools of water with sand and discard containers that might collect water	<input type="checkbox"/>	<input type="checkbox"/>
c) Destroy mosquito larvae by chemicals	<input type="checkbox"/>	<input type="checkbox"/>
d) b, c, d, only	<input type="checkbox"/>	<input type="checkbox"/>

END

Appendix C

Informed Consent Shona

Gwaro remibvunzo rweshona

Vadiwa

Zita rangu ndinonzi Lillian Muchena. Ndiri mudzidzi paUniversity ye Zimbabwe. Ndiri kuita chidzidzo che Masters of Nursing Science degree. Kuzadzisa chorongwa ichi ndinofanirwa kuita chidzidzo cheongororo pakati peruzivo rwavanhu vakazvitakura kwekutanga nekuzvidzivirira kuchirwere chemalaria, makore avo achive pakati pe 18 years kusvikira 35 years.

Ndiri kukumbirawo kuti mupinde muchorongwa ichi. Zvamuchanditaurira hapana mumwe vatinotaurira. Zvichawanikwa muongororo iyi zvichashandiswa kurapa vamwe vakazvitakura, kuzvidzivirira kuchirwere ichi. Hurukuro iyi tichaitira mumba tirivaviri chete. Hurukuro iyi inotora maminiti makumi maviri nemashanu kana kuti makumi matatu.

Zita renyu hapana parinonyorwa. Ivai makasununguka kupinda muchorongwa ichi sezvo kupinda muchorongwa kwenyu hakushanduri mabatiwe enyu, imi nemhuri yenyu. Munemvumo yekubuda muchorongwa pamunodira.

Kana muchibvumirana nazvo ndinokumbirawo mudiisirewo zita renyu pagwaro iri. Magwaro ese emvumo ndichaachengeta mukabati yakakiwa. Kabati iri rinenge riri mukabati rinokiwa. Ndini ndega ndinovhura makabati aya. Magwaro aya ndichaabvarura kana chorongwa ichi chapera. Kana muchida kuzotaura neni munondiwana pakero iyi:

The Department of Nursing Science

College of Health Sciences

P.O. Box A178

Avondale

Harare

Pa Telephone Number 0733 290 465

Gwaro rwekubvuma

Ndanzwisisa chironywa, ndonobvuma kupinda machiri

Zita rangu..... Zuva.....

Muongorori..... Zuva.....

Mazvita nokupinda mune ichi chironywa

Appendix D

Nhorondo yemurwere

Chikamu Chekutanga

Gwaro remibvunzo inoongorora munhu abvuma kupinda muchirongwa.

Ndichakubvunzai mibvunzo yakanangana nemi, edzai kupindura mibvunzo yese.

1. Mune makore mangani? _____

Gore ramakazvarwa? _____ Nhumbu/Mimba iyi ndeye
chingani? _____

Nhumbu/Mimba iyi ine mwedzi mingani? _____

Sei manyoresa pano? _____

2. Munogara kupi?

a)Mudhorobha

b)Kumusha

c)Pamugodhi

d)Papurazi

e)Kumwewo. tsanangura _____

3. Chitendero chenyu ndechipi?

a)Mukirisito

b)Pentacostal

c)Zvimwewo, tsanangura _____

4. Makaroorwa here?

- a) Handisati ndaroorwa
- b) Ndakaroorwa
- c) Takarambana nemurume
- d) Ndiri shirikadzi

e) Zvimwewo tsanangura _____

5. Makadzidza kusvika papi?

- a) Handina kuenda kuchikoro
- b) Ndakagumira kupuraimari
- c) Kusekondari
- d) Tertiary

e) Zvimwewo, tsanangura _____

6. Munoita basa ripi?

- a) Mushandi akadzidzidzira basa
- b) Mushandi asina kudzidzira basa
- c) Ndinozvishandira
- d) Handisevenzi

7. Kana musingashandi munovana sei mari?

- a) Kuzviitira
- b) Vamwe

8. Munowana marii pamwedzi; muma US dollars?

a) < US\$ 50

b) US\$ 51 – 100

c) US\$ 101 – 200

d) > US\$ 200

Chikamu Chechipiri

9. Ndiani anokubatsirai nezveutano?

a) Vezveutano

3

b) Vadzidzisa vezveutano mumaruva

2

c) Vezvematongerwe enyika

1

d) Zvimwewo, tsanangura _____

10. Mune ruzivo here kuti mungazvichengeta sei kudzivirira chirwere chemalaria?

a) Hongu ndinarwo

1

b) Kwete

0

11. Kana muneruziwo makarupiwa naani?

a) Vezveutano

5

b) Vadzidzisi vechikoro

4

c) Vanodzidzisa zveutano mumaruva

3

d) Radio/television

2

e) Vezvematongerwe enyika

1

f) Zvimwewo, tsanangura _____

12. Ruzivo rwamakapiwa rwaisanganisa zvipi?

	1 Hongu	0 Kwete
a) Nzira dzokudzivirira kuchirwere chemalaria	<input type="text"/>	<input type="text"/>
b) Zvinoratidza chirwere chemalaria	<input type="text"/>	<input type="text"/>
c) Kwokunorapiwa	<input type="text"/>	<input type="text"/>
d) Manwire emushonga wemalaria	<input type="text"/>	<input type="text"/>
e) Mhando dzemushonga wemalaria	<input type="text"/>	<input type="text"/>
f) Zvimwewo, tsanangura _____		

13. Sokunzwisisa kwenyu akakupai ruzivo rwakakubatsirai ndiani?

a) Vezveutano	<input type="text"/>	5
b) Vadzidzisi vechikoro	<input type="text"/>	4
c) Vadzidzisa vezveutano mumaruva	<input type="text"/>	3
d) Radio/Television	<input type="text"/>	2
e) Vezvematongerwe enyika	<input type="text"/>	1
f) Zvimwewo, tsanangura _____		

14. Ruzivo urwu rwakakusiyai mavekukwanisa kuzvidzivirira here kubva kuchirwere chemalaria?

a) Hongu	<input type="text"/>	1
b) Kwete	<input type="text"/>	0

15. Ndorupi ruzivo rwamunofunga kuti rungade kuwedzera maererano nechirwere chemalaria?

a) uzvidziwirira	<input type="text"/>	1
b) Kurapwa	<input type="text"/>	1

16. Makamborwa nechirwere chemalaria here?

a) Hongu

	1
--	---

b) Kwete

	0
--	---

17. Kana makamborwara nemalaria makaradzikwa muchipatara kangani?

1 Hongu	0 Kwete
------------	------------

a) Handina kuradzikwa

--	--

b) Kamwe

--	--

c) Kaviri

--	--

d) Kanopfura kaviri

--	--

18. Chirwere chemalaria chinoratidzika sei?

1 Hongu	0 Kwete
------------	------------

a) Kutemwa nemusoro nekupera samba

--	--

b) Kupisa muviri nekutonhorwa

--	--

nekurwadziwa mumajoini Kusvotwa,

--	--

c) Kusvotwa, kurutsa nemanyoka

--	--

d) b, c, d, chete

Chikamu Chetatu

Ruzivo rwemishonga inodziwirira chirwe chemalaria

19. Ndeipi nzira inoshandiswa mishonga kudziwirira kuti vanhu vasarumwe neutunga?

1 Hongu	0 Kwete
------------	------------

a) Kupisa mashizha anodzinga utunga

--	--

b) Kushandisa mishonga inodzinga utunga

--	--

1	0
---	---

c) Kupisa macoils

--	--

d) b na d chete

--	--

Ruzivo rwemishonga inodziwirira chirwe chemalaria

20. Ndeipi mishonga inotorwa nemudzimai akazvitakura ashanya nzvimbo ine chirwere chemalaria?

a) Fansidar/Sulfadoxine-Pyrimethamine

	3
--	---

b) Chloroquine/Norolone

	2
--	---

c) Coartemether

	1
--	---

d) Handizivi

	0
--	---

21. Ndezvipi zvinokurudzirwa kuti vanhu vakazvitakura vaite maererano nekunwa mapiritsi ekudzvirira chirwere chemalaria munzvimbo ine malaria?

1 0

a) Kusanwa mapiritsi ekudzvirira malaria.

Hongu	Kwete

b) Endai kunorapwa nekuchimbizika kana marwara.

--	--

c) Inwai 2 doses dze Fansidar/Sulfadoxine-Pyrimethamine

mu trimester ye piri kana tatu yekuzvitakura.

--	--

Ruzivo rwokudziwirira malaria uchishandisa zvinhu zvinodziwirira kuti utunga
 usaruma vanhu.

22. Ndedzipi nzira dzamunoziva kuti dzinodzvivirira kuti utunga husaruma munhu.

	1 Hongu	0 Kwete
a) Kushandisa mosquito net	<input type="checkbox"/>	<input type="checkbox"/>
b) Kushandisa mosquito net yakaiswa mushonga	<input type="checkbox"/>	<input type="checkbox"/>
c) Kushandisa mesh wire screen pamafaitira ese	<input type="checkbox"/>	<input type="checkbox"/>
d) Kupfeka nhumbi dzinovhara maoko, makumbo uye musoro	<input type="checkbox"/>	<input type="checkbox"/>
e) b, c, d chete	<input type="checkbox"/>	<input type="checkbox"/>

Ruzivo nezvekudziwirira chirwere chemalaria munharaunda dzatigere

23. Chinyi chamungaita munharaunda dzamugere kudzivirira chirwere chemalaria?

	1 Hongu	0 Kwete
a) Kucheka uswa kupoteredza musha wese	<input type="checkbox"/>	<input type="checkbox"/>
b) Kucheka uswa, kuvhara makomba	<input type="checkbox"/>	<input type="checkbox"/>
c) emvura neivhu, nekurasa magaba anochengeta mvura	<input type="checkbox"/>	<input type="checkbox"/>
d) Kuuraya mazai emalaria nemishonga	<input type="checkbox"/>	<input type="checkbox"/>
e) b, c, d chete	<input type="checkbox"/>	<input type="checkbox"/>

Magumo

Ruzivo rwokudziwirira malaria uchishandisa zvinhu zvinodziwirira kuti utunga
usaruma vanhu.

22. Ndedzipi nzira dzamunoziva kuti dzinodzvivirira kuti utunga husaruma munhu.

	1 Hongu	0 Kwete
a) Kushandisa mosquito net	<input type="checkbox"/>	<input type="checkbox"/>
b) Kushandisa mosquito net yakaiswa mushonga	<input type="checkbox"/>	<input type="checkbox"/>
c) Kushandisa mesh wire screen pamafafitira ese	<input type="checkbox"/>	<input type="checkbox"/>
d) Kupfeka nhumbi dzinovhara maoko, makumbo uye musoro	<input type="checkbox"/>	<input type="checkbox"/>
e) b, c, d chete	<input type="checkbox"/>	<input type="checkbox"/>

Ruzivo nezvekudziwirira chirwere chemalaria munharaunda dzatigere

23. Chinyi chamungaita munharaunda dzamugere kudzivirira chirwere chemalaria?

	1 Hongu	0 Kwete
a) Kucheka uswa kupoterredza musha wese	<input type="checkbox"/>	<input type="checkbox"/>
b) Kucheka uswa, kuvhara makomba	<input type="checkbox"/>	<input type="checkbox"/>
c) emvura neivhu, nekurasa magaba anochengeta mvura	<input type="checkbox"/>	<input type="checkbox"/>
d) Kuuraya mazai emalaria nemishonga	<input type="checkbox"/>	<input type="checkbox"/>
e) b, c, d chete	<input type="checkbox"/>	<input type="checkbox"/>

Magumo

APPROVAL CERTIFICATE

This dissertation of Lillian Muchena is approved for submission for the degree Masters of Science in Nursing Science in the Department of Nursing Science of the University of Zimbabwe

Signed : *H. Gundani*

Date : *May 31, 2010*

Mrs H.V. Gundani
University of Zimbabwe
College of Health Sciences
Department of Nursing Science
P.O. Box A178
Avondale
Harare

KAMFINSA PHARMACY
SHOP No. 8 GEORGE STREET
KAMFINSA SHOPPING CENTRE
GREENDALE TRADING COMPLEX

CC-Sham - PITA RIMACISI



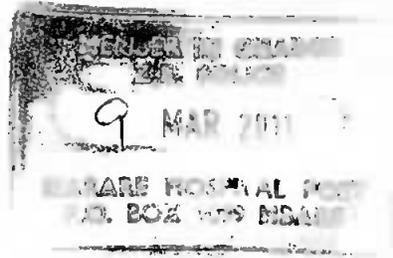
MRCZ APPROVAL LETTER

Ref: MRCZ/B/91

Date: 30 April 2010

Lillian Muchena

University of Zimbabwe
College of Health Sciences
Department of Nursing Sciences
Harare
Zimbabwe



RE: RELATIONSHIP BETWEEN KNOWLEDGE LEVELS ON MALARIA PREVENTION AND SELFCARE ACTIONS IN PRIMIGRAVIDAE AGED 18 TO 35 YEARS AT HARARE MATERNITY HOSPITAL.

Thank you for the Application for Approval to carry out Research Activity that you submitted for review to the Medical Research Council of Zimbabwe (MRCZ). Please be advised that the Medical Research Council of Zimbabwe has **reviewed** and **approved** your application to conduct the above titled study.

Approval number: MRCZ/B/91

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

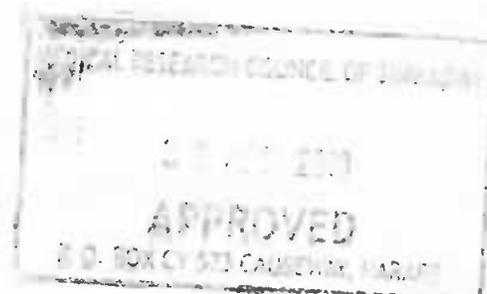
- | | |
|-------------------|--------------------|
| • APPROVAL DATE | : 30 April 2010 |
| • EXPIRY DATE | : 29 April 2011. |
| • DATE OF MEETING | : 30 April 2010 |
| • TYPE OF MEETING | : EXPEDITED REVIEW |

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@mrczimshared.co.zw.

Yours Faithfully

**MRCZ SECRETARIAT
FOR CHAIRPERSON
FOR MEDICAL RESEARCH COUNCIL OF ZIMBABWE**



DEPARTMENT OF NURSING SCIENCE

P. O. Box A 178
Avondale
Harare, Zimbabwe

Telephone: 791631
Telex: 26580 UNIVZ ZW
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Fax: (263) (4) 724912



UNIVERSITY OF ZIMBABWE COLLEGE OF HEALTH SCIENCES

09 March 2010

The Chief executive Officer
Harare Central Hospital
P.O. Box ST. 14
Southerton
HARARE

Dear Sir

RE : MASTER OF NURSING SCIENCE DEGREE IN NURSING SCIENCE STUDENT – LILLIAN MUCHENA (R912263N).

Could you kindly assist the above mentioned student who wants to conduct a pilot study and the main research study at Harare Maternity Hospital. Her study title;- "The relationship between knowledge levels on malaria prevention and self – care actions among primigravidae aged 18 years to 35 years at Harare Maternity Hospital".

Thank you in advance for your assistance.

M. Zvinavashe
Dr. M. Zvinavashe

CHAIRPERSON, DEPARTMENT OF NURSING SCIENCE

KAMFINSA PHARMACY
SHOP No. 8 GEORGE SQUARE
KAMFINSA SHOPPING CENTRE
GREENDALE TEL. 430000

Sham - Pharmacist

HARARE CENTRAL HOSPITAL
CHIEF EXECUTIVE OFFICER
08 APR 2010
P.O. BOX ST. 14, SOUTHERTON
ZIMBABWE

Sham
Acting

Please Assist

Please provide us with copy

DEPARTMENT OF NURSING SCIENCE

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UNIVERSITY OF ZIMBABWE COLLEGE OF HEALTH SCIENCES

14 January 2010

The Chief Executive Officer
Harare Central hospital
P. O. Box S.T. 14
Southerton
HARARE

Dear Sir /Madam

RE : MASTER OF NURSING SCIENCE DEGREE IN NURSING SCIENCE STUDENT - LILLIAN MUCHENA (R912263N).

Could you kindly assist the above mentioned student with information/statistics she needs for her research study. Her study title :- "The relationship between knowledge levels on malaria prevention and self-care actions among primigravidae aged 18 to 35 years at Harare Maternity Hospital".

Thank you in advance for your assistance.

R. Nyamakura (Mrs)
A/CHAIRPERSON, DEPARTMENT OF NURSING SCIENCE

HARARE CENTRAL HOSPITAL
PRINCIPAL NURSING OFFICER
ms Godonger
21 JAN 2010
P.O. BOX ST 14, SOUTHERTON
ZIMBABWE

KAMFINSA PHARMACY
P. No. 8 GEORGE SQUARE
SHOPPING CENTRE
HARARE

HARARE CENTRAL HOSPITAL
PRINCIPAL TUTOR
SCHOOL OF MIDWIFERY
ms Godonger
21 JAN 2010
P.O. BOX ST 14, SOUTHERTON
HARARE

HARARE CENTRAL HOSPITAL
CLINICAL DIRECTOR
ms Godonger
18 JAN 2010
P.O. BOX ST 14, SOUTHERTON
ZIMBABWE

Sham - P Hammar





