CHAPTER 1

Background and Organizing Framework

1.1 Introduction

Today’s generation of young people is the largest in history –nearly half of the world’s population fall into the age group 15 to 24 years (UNAIDS, 2010). This group is twice as likely to die in childbirth compared to older women and comprise half of all new HIV infections (UNAIDS, 2010). Sexual transmitted infections is global public health problem because of its high prevalence for serious complications and predispose to transmission of HIV (Mambolea, 2012). Increased rates of unwanted pregnancies , sexual transmission infections(STIs) and Human Immune Virus (HIV) call for use of dual protection, which combines the condom either male or female with other contraception methods, pill, depo provera jadelle or permanent(sterilization) methods (Mtowo, Kasu and Mufunda, 2014). When used correctly and consistently condoms alone can serve a dual purpose of protecting against unwanted pregnancy and STIs, HIV and AIDS infections (Tyler, at el, 2013).

1.2 Background

Morgenster Mission Hospital is South East and 35 kilometres from Masvingo town in Masvingo Province. Its catchment area has a population of 8905 of which 2155(24.4%) is of women of childbearing age (Catchment area map). Morgenster Hospital statistics showed that, women aged 15 to 24 years had the highest percentages of Antenatal care (ANC) attendance, deliveries, STIs, HIV and abortions (T5 Form). As from January to June 2014 ANC, new bookings were 145, 65(44.8%) were aged 25 years and above, 80(55.2%) were aged 15 to 24 years. ANC repeat visits were 1134; 608(55.6%) were aged 15 to 24 years, 526(39.8%) were aged 25 years and above (ANC Register book, 2014).
This was similar with statistics from Gwanda District Hospital were more than 50% of ANC attendance were from the age group 15 to 24 years (Zimind, 2014). In 2012 total numbers of deliveries were 2352, of which 1428(60.7%) were aged 15 to 24 years and 924(39.3%) were aged 25 years and above (Delivery Register book, 2012). In 2013, 2252 deliveries were performed, of which 1540(68.4%) were women aged 15 to 24 years and 712(31.6%) were women aged 25 years and above (Delivery Register book, 2013). In 2014 as from January to June 864 were deliveries performed of which 492 (56.9%) were aged 15 to 24 years and 372(43.1%) were aged 25 years and above (Delivery Register book, 2014). Darter and Chinyere (2011) cited that, because of early child bearing, this group, 15 to 24 years, have 3 children before their 19th birthday showing lack of planning.

This group of women aged 15 to 24 years was at risk of having unwanted pregnancy, leading to unsafe abortions and contracting of STIs and HIV infections (Gomez, 2011). Morgenster statistics showed that among women who were tested for HIV from January to June 2014, 232 tested positive of whom 150(64.7%) were aged 15 to 24 years (T5Forms, 2014). Out of 116 women who were diagnosed STIs infections 60(51.9%) were aged 15 to 24 years (T5Forms, 2014).

According to statistics from Morgenster female gynaecological ward, a total of 355 abortions were recorded from 2013 to 2014. Seventy percent of these were women aged 15 to 24 years and 30% were women aged 25 years and above (Gynaecological Admission book, 2013 to 2014). Most of these abortions were incomplete and septic. This concurred with World Health Organization (WHO) (2012), which estimated that at least 33% of all women seeking hospital care for complications related to abortions were less than 20 years of age.

A recent study done in Zimbabwe showed that between 60,000 and 80,000 unsafe abortions were performed in Zimbabwe every year mostly between the ages of 15 to 24 years (Zimind,
The Minister of health and child care, Dr. Parirenyatwa also acknowledged that there were high unintended or unwanted pregnancies, particularly between the ages of 17 to 24 year Zimind, 2014). In developing countries two in five unsafe abortions occur among women under the age of 25 years and about one in five occur in the age of 20 years and a total of 40% occur among women 15 to 24 years of age (WHO, 2012). A study done in Ghana showed that many countries in Africa including Ghana, young people aged 15 to 24 years were most at risk of early child bearing, planned pregnancies, unsafe abortions, sexual transmitted and HIV infections (Darteh & Chinyere, 2012). In Africa, 59% of unsafe abortions were performed by young women themselves exposing themselves to possible infections, bleeding, long term fertility problems and even death (SAFAIDS, 2011).

Darteh & Chinyere (2012) cited that young people aged 15 to 24 years, world over experienced risk of unplanned pregnancy and HIV infections because of their inadequate knowledge about sexual reproductive health. Sexual behaviours among youth, if uncontrolled could lead to negative outcomes of unplanned pregnancy and spread of STIs and HIV infections. So knowledge on dual contraceptives and contraceptive use were important indicators of sexual health among youth (Dann, 2010).

Unwanted pregnancy was the major cause of induced abortion, one of the leading maternal mortality and morbidity in the world (Calvert, et al., 2012). An estimation of 6.2 million unsafe abortions are performed in Africa, and about 5.5 million of them are in the Sub-Saharan countries. Worldwide statistics showed that 22 million women have unsafe abortion of which most of them occur in developing countries (Mtowo, Kasu & Mufunda, 2014).

Contraceptives are devices or medications designed to prevent pregnancy. These include oral contraceptive, injectable that is Depo Provera and condoms (Calvert, et al., 2012).
Dual contraception is the use of two family planning methods that’s a condom and another contraceptive method e.g. oral contraceptive, Depo Provera (hormonal injectable), Jadelle (hormonal implant) and sterilization method (Ntumba, Scort&Igumbor, 2012). Dual protection is defined as any strategy that prevents unwanted pregnancy and STIs including HIV infections and has long been promoted as an important preventive approach in reproductive health (Ntumba, Scort&Igumbo, 2012). Winner et al., (2011) cited that, correct and consistent use of dual contraceptive reduces incidents of human papillomavirus (HPV) infections by 70%.

1.3 Problem Statement
Worldwide, twenty million unsafe abortions occur each year and eighty thousand women die because of complication following unsafe abortion (WHO, 2012). Non-use of contraception accounts for the majority of unwanted pregnancy, which may lead to unsafe abortion (Matsheza, 2010). At Morgenstermission hospital there is an increasing number of women presenting with problems related with unplanned pregnancies. This was revealed through a growing number of women aged between 15 to 24 years admitted following illegal abortion irrespective of availability of condoms widely distributed for accessibility and oral contraceptive being issued free. Statistics at Morgenster gynaecological ward showed that 355 abortions were recorded and (70%) of these were from women aged 15 to 24 years.

1.4 Purpose of the Study
The purpose of this study was to examine the relationship between knowledge and practice of dual contraception among the women aged 15 to 24 years
1.5 Study Objectives

1) To determine knowledge levels on dual contraceptive among women of 15 to 24 years at Morgenster Mission hospital.

2) To determine the nature of contraceptive practice among women of 15 to 24 years at Morgenster Mission hospital.

3) To examine the relationship between knowledge level and practice of dual contraceptive among women aged 15 to 24 years enrolled at Morgenster Mission Hospital.

1.6 Research Questions

1) What is the knowledge level on dual contraception among women aged 15 to 24 years at Morgenster Mission hospital?

2) What is the nature of contraception practice among women aged 15 to 24 years at Morgenster Mission?

3) What is the relationship between knowledge levels and practice of dual contraception among women aged 15 to 24 years enrolled at Morgenster Mission?

1.7 Significant of the Study

The role of nursing is to improve the quality of life of clients well sick or dying. The findings of this study might help nurse practitioners and nurse administrators in planning and implementation of family planning programs on dual contraception. The study could add to the existing body of knowledge on dual contraception. Knowledge on dual contraception will provide awareness in the individual to care for self.
1.7.1 Significance to Midwifery

1. As providers of health globally, midwives play an important role in providing services such as empowering women with information on the use of dual contraception.

1.7.2 Midwifery Education

The study findings will provide additional information to the nursing body of knowledge on promoting quality health related outcomes among the women of 15 to 24 years. The midwifery educators may use the findings in structuring programs of learning, developing course content designing teaching methods for schools of midwifery; guide the midwifery practice and improving the existing technique. Knowledge on dual contraception will provide awareness in the individual to care for self.

1.7.3 Nursing Research

The study findings will also create opportunities for further research to generate broader perceptions regarding the use of dual contraception. The research will contribute to knowledge development for the disciple of nursing through education and practice. The general knowledge shall provoke further research in nursing discipline.

1.8 Hypothesis

Null Hypothesis; there is no relationship between knowledge level and contraceptive practice of dual contraception.

Alternate Hypothesis; there is relationship between knowledge level and contraceptive practice of dual contraception.

1.9 Theoretical Framework

The theoretical framework or conceptual model that guided this study was the Health Belief Model (HBM). According to Burns and Groove (2013), a conceptual is a set of highly abstract related constructs whose purpose is to explain a phenomenon of interest, reflects a
philosophical stance. The HBM was developed in 1950s by three United States Public Health psychologists after health administrators were frustrated by the general public’s lack of participation in free disease prevention programs (Brannon & Feist, 2009).

The researcher has chosen Health belief model (HBM) because of its beneficial in assessing health protection or disease protection or disease prevention behaviour (Burke, 2007). Also HBM was considered to be a disease avoidance model best for HIV and sexual transmitted infections (STIs) prevention behaviours (Gallow, 2003). The HBM has been used with great success to promote proper and consistent use of condoms, seat-belts use, disease screening and many more health behaviours (Edberg, 2013). In this study it was used to assess the health seeking practice among women (15 to 24 years), on the use of dual contraception to prevent unplanned pregnancy and STIs including HIV infections.

Components of HBM are perceived severity (seriousness), perceived susceptibility, perceived benefits and perceived barriers (Glanz, Rimmer & Lewis, 2012). In this study the researcher used these components as variables to relate on women’s perception on contraceptive practice on the use of dual contraception.

Perceived severity refers to one’s opinion on how serious a disease individual’s susceptibility to it and to its consequences (Croyle, 2005). HBM predicts that if individuals perceive HIV, or any either disease as a serious health condition, they are more ready to act and prevent that health problem from occurring (Burke, 2007). Perceived severity is influenced by a number of factors. For example perceived severity of HIV/AIDS are influenced by one’s level of knowledge of HIV itself (the disability and pain associated with it and whether it is life threatening or not) and as well as work and social roles (Brannon & Feist, 2009). This study aimed to find out if women are influenced by one’s level of knowledge on dual
contraception’s out comes on protection against unplanned pregnancy, STIs and HIV infections.

Perceived susceptibility refers to the subjective risks of contracting a disease. According to Glanzer, et al., (2010), HBM predicts that if persons believe themselves to be highly susceptible to HIV infection they are to engage in health behaviours that reduces/eliminates the risk of getting it. In this study if women believe that they are highly susceptible to unplanned pregnancy, and STIs including HIV infections. They will be more likely to engage in safe sex practices and advocate for dual contraception as one of the prevention strategies. According to HBM changing perceptions on susceptibility is an important step towards successful behaviour change (Glanz, et al., 2010).

Perceived benefits refer to beliefs and opinions of having effective action on reducing one’s susceptibility to a condition. As well as in reducing the severity and consequences of that problem (Croyle, 2005). Benefits are also weighed against negative outcome of taking action (Burke, 2007). In this study the perceived benefits of dual contraception, were its protection against unplanned pregnancy and STIs including HIV infections.

Benefits were also weighed against barriers; perceived barriers were referred to as beliefs and psychological cost of taking an action (Glanz, et al., 2010). In dual contraception perceived barriers can be lack of access to condoms, stigma which associated with prostitution and ignorance on how to use the condom.

Demographic variables include age, race, level of education. Structural modifying variables include knowledge about the health problem and prior contact with it. Psychological variable include peer pressure, social class, personalities past experiences and motivation (Glanz, et al., 2010). In this study HBM predicts that these modifying factors can influence health related behaviour by directly affecting how the individual perceive susceptibility and severity of
unplanned pregnancy, STIs including HIV, benefits and benefits barriers of engaging in those practice to prevent occurrence of HIV&STIs.

Perceived severity and susceptibility was measured by knowledge level on dual contraception. When women had perceived the severity and susceptibility of unplanned pregnancy and STIs including HIV, they would take action to prevent the occurrence that is they will practice use of dual contraception. This was measured with what is the nature of contraceptive practice among women aged 15 to 24 years?
Figure 1: Diagrammatic illustration of the Health belief model as applied to women aged 15 to 24 years’ knowledge or use of dual contraception. Adapted from: http://currentnursing.com/nursing theory/health belief model html.
### 1.9.2 Conceptual Definitions

Perceived susceptibility- is one’s opinions and beliefs of chances of getting a condition (Croyle, 2005). Perceived severity- is one’s opinions on how serious the disease an individual is susceptible to it and its consequences (Croyle, 2005).

Perceived benefits- these are beliefs and opinions of how effective an action is on reducing one’s susceptibility to a condition and as well as in reducing severity and consequences of that health problem (Croyle, 2005).

Perceived barriers – these are beliefs of material and psychological cost of taking the advised action (Glanz, et al., 2010). Self-efficacy the confidence in one’s ability to successfully take an action (Burke, 2007).

Cues to action – these are the internal and external factors and strategies that activate readiness to change (Croyle, 2005). Dual protection is defined as any strategies that prevent unwanted pregnancy and STIs including HIV infections (Ntumba, Scort., 2012).

Dual contraception is the use of two family planning methods that is a condom and another contraceptive method e.g. oral contraceptive, jadelle and injectable contraceptive (Tyler, et al., 2013).

### Summary

Chapter one looked at the introduction, background to the study, statement of the problem, research objectives, research questions, hypothesis, and significance of the study, theoretical framework using HBM as a guide line and conceptual definition of terms. The next chapter sets out to review the related literature.
CHAPTER 2

2.1 Literature Review

Literature review is a critical summary of the research topic of interest, generally prepared to put a research problem in context or to identify gaps and weakness in prior studies, so as to justify a new investigation (Polit & Hungler, 2013). Cooper & Schindler (2010) further state that literature review section examines recent research studies, data and reports that acts as the basis for the proposed study.

In this chapter literature was reviewed focusing the following area, contraception, intrauterine device, condom, dual contraception, sexual transmission infections/human immune deficiency virus, unplanned pregnancy and abortion.

2.2 Contraception

Contraception is the use of various; devices, pills, agents, sexual practices and surgical procedures to prevent conception (Nordqvist, 2015). Oyefara (2012), states that contraception is a means of controlling fertility by use of various methods to prevent conception. These methods can be modern or traditional.

Types of modern contraception are classified as short term methods, long term methods and permanent methods. Short term method; oral contraceptive which are combined oral contraceptive (COC) control and progestin only pill (POPs) secure.

COC are small pills containing two synthetic hormones, oestrogen and progestin. They are three types which are Monophasic; all 21 active pills contain the same amount of oestrogen and progestin e.g. lofeminal. Biphasic; all 21 active pills contain 2 different amount of oestrogen and progestin combinations. Triphasic; all 21 active pills contain 3 different amount of oestrogen and progestin combinations e.g. Trinordiol. COCs work by inhibiting ovulation, thickening cervical mucus and preventing sperm penetration in the prevention of pregnancy.
but no protection against STIs /HIV/AIDS. Long term methods; injectable; depo provera, Implants; Jadelle, Norplant, implanon and intrauterine device contraception

2.2.1 Injectables
According to UNFPA (2011) injectable are synthetic hormones that are given by deep intramuscular injection. They are two types depo provera which contains depo-mexdroxyprogestrone acetate, given deep intra muscular injection every three months. The other type is noristerat which contains 200milligrams of norethindrone enanthate and is given deep intra-muscular every two months. Injectable prevent pregnancy by thickening the cervical mucus preventing sperm penetration, interfere with implantation and disrupts the normal function of the corpus luteum. Their effectiveness is 99% in the prevention of pregnancy and 0% when it comes to protection against STIs/HIV/AIDS.

2.2.2 Intrauterine Device
According to Blumethall (2013) Intra uterine device contraceptive devices contain copper on a plastic frame or a thread (frameless) that are inserted through the cervix and placed within the uterine cavity. A small thread extends from the device through the cervical canal and into the upper part of the vagina to allow easy removal and regular checking for correct placement (Blumethall, 2013). Several different types of copper containing, are currently available worldwide including T-shaped IUDs are bonded T-shaped and frameless. These devices are approved for various durations of use (5 to 12 years) and differ in structural design and copper content (Blumethall, 2013).

Permanent method; sterilisation which are tubal ligation and vasectomy. Tubal ligation is a permanent method done in females where the fallopian tubes are occluded through a surgical procedure. Vasectomy is a permanent method of contraception done in males in which the vas deferens is occluded through a simple surgical procedure. Mechanism action in these two
methods is by blocking sperms not to reach the ovum either by occluding the vas deferens in males or by occluding the fallopian tubes in females. The effectiveness in prevention of pregnancy is 99.9%, but 0% in the prevention of STIs/HIV/AIDS. The use of a condom as a dual protection will be advisable (UNFPA.MOHCC & USAID, 2011)

2.2.3 Condom
A condom is one of the barrier methods used to prevent both pregnancy and STIs/HIV infections. It is a hollow cylindrical thin sheath made either of latex (synthetic rubber) or polyurethane (plastic) and also can be from lamb skin. (Nordqvist, 2015)

The word “condum” was first used in a poem composed at around 1706. The inventions of condoms are still controversial; several reports suggested that the device is named after Dr Condom who lived during the reign of Charles 11. Condoms made out of animal intestines were available around 1700AD. However, cost concerns limited the wider usability of this simple device (Golzieher, 1993). However, Nordqvist (2015) argued that still now nobody is sure what the origin of the word “condom” is. Nordqvist (2015) agreed that there were rumours that Dr. Condom invented the condom for King Charles 11 of England, but argued that Dr. Condom, otherwise known as, The Earl of condom, never existed (Nordqvist, 2015). Also condoms were around long before that period. Most likely the name comes from Italian word “guantano” which means guanto meaning gloves (Nordqvist, 2015).

The first historical mention of use of condoms (in form of a linen sheath) dates back to as early as 100BC. Painting and ancient writings hint at the possibilities of condoms being used also in Europe, Rome around 100-200AD (Nordqvist, 2015). Perhaps the spread of syphilis a sexual transmitted disease across Europe around 1500 prompted for the invention of condom (Nordqvist, 2015).
There are two types of condoms: female condom and male condom. These are found in different colours, shape, and size, even lubricated with flavour to suit the type of sex and make it more enjoyable, e.g., mint flavour for those engaged in oral sex (Nordqvist, 2015). According to Chitereka & Nduna (2010), condoms are one of the methods of contraception that are effective for use in oral sex.

Condoms made from latex are stronger than those made from polyurethane. Latex condoms can only be used with based lubricant and not with Vaseline or cold creams as these interact with latex causing them to easily break. These latex condoms are also best for those engaging in anal sex, for they are strong (Nordqvist, 2015).

According to Gamma (2010); Nordqvist, (2015), polyurethane condoms are made from a special plastic. They are much thinner than latex condom making them more sensitive, hence offering superior advantage in terms of feelings and appearance to most of the users. They can be lubricated with both water and oil-based lubricants; also, they are best for those who are allergic to latex condoms.

Male condoms are worn by male partners, or the other partner assists to put it on while the penis is erected. Female condoms are worn by females before the act or even 8 hours before sexual act.

### 2.2.3.1 Advantages of Condoms

Proper and consistent use of condom prevents transmission of STIs/HIV/AIDS.

Availability of different colours, size, shape and types that male and female condom, there is always one for everybody. Reliability is high if used appropriately. They are safe because of no hormonal side effects. Condoms may be discontinued at any time without causing any medical side effects. Enables man to take responsibility for preventing unplanned pregnancy.
Female condom empowers women to take free responsibility in prevention of unplanned pregnancy and STIs/HIV/AIDS. Condoms can be acquired without prescription and are obtainable from local clinics, hospitals or bought from pharmacies, supermarkets or any shop.

Easy to carry, can be used during each act of intercourse whereas oral contraceptives, are taken every day even when the partner is away. Easy to keep on hand in case sex occurs unexpectedly, offers occasional contraception with no daily upkeep. They maintain privacy and they are not messy (Nordqvist, 2015).

2.2.3.2 Disadvantages of Condoms

Some men with erectile dysfunction problems find their problem more difficult, if they have to interrupt the sexual act to put the condom on (sustaining the erection) on wearing the condom even during the act (Nordqvist, 2015).

It breaks the sequence of events during foreplay and sex; some people say the enjoyment of sex interrupted because everything has to stop so that the condom is put on (Gamma, 2010).

Condoms can break or tear during the act or when they interact with sharp objects such as rings, fingernails, teeth, piercing and other sharp objects (UNFPA.USAID, 2011).

Unless the woman puts it on as part of foreplay, condom application may interrupt sex.

Male condoms differ in size (both length and width) and using the wrong size (too large or too small) can result in condom slipping off during act (Gamma, 2010). Some clients are allergic to latex (ZFPNC, 2011).

Condoms decrease enjoyment of sex for some couples by causing decreased sensation for either partner (UNFPA.USAID, 2011).
According Nordqvist (2015) a study done in India showed that loss of erection due to condom use may lead to risky sexual behaviour.

A study done in India showed that condoms were the most common contraceptive method amongst married women living with HIV (Somera, 2013). Condoms are widely used throughout the world, in Japan 80% of sexual active people use condoms as their main method of contraception (Somera, 2013). This was in contrast with a study done in United Kingdom that revealed a low use of condoms among people who had sex with a new partner (Nordqvist, 2015).

A study done in Nigeria showed low levels of contraception use also showed that, low contraceptive prevalence correlated with high levels of unplanned pregnancies and abortions leading to increasing maternal mortality and morbidity (Monjok, Smensny, Ekabua & Essien, 2010) According to Pine, et al. (2009) low contraceptive use and showed that contraceptive use on birth intervals was a protective against short intervals between births.

A study done United State showed that contraceptive practice was influenced by many factors for example age –related issues, education level and status, religion, socio-cultural beliefs, values and norms then knowledge about the contraceptive (Pack & Xiamong, 2011).

### 2.2.4 Dual Contraception

Dual contraception is the use of condom alone or by simultaneous use of two methods at once, that is a pill (oral contraceptive) or Depo Provera (injectable), intrauterine cervical device (IUCD) and sterilization (Calvert, et al., 2012). According to Share Care (2010-2014), injectable and implantable hormones, the pill, intrauterine cervical device and sterilization are highly effective for pregnancy prevention, but they all do not provide protection against STIs including HIV/AIDS. Maharaja (2014) cited that hormonal are highly effective in preventing pregnancy but condoms as dual protection if used correctly and consistently are the only
known method that protect sexually active individuals against twin risk of pregnancy and sexual HIV infections. This was inline with (Pazol, Kramer & Hogue (2012), that in addition dual-contraception method use, when used consistently can prevent pregnancy and STIs. Winner, et al., (2012) their study revealed that consistent use reduced incidence of human papilloma virus (HPV) infections by 70%.

There is limited literature on dual contraception and a few studies looked on how individuals perceived their own risk and the need for dual protection (Mtowo, Kasu & Mufunda, 2014). According to Tyler et al., (2013) dual method use may be a reflection of perceived risk or of motivation to prevent both unplanned pregnancies and STIs but may not be necessary for all adolescents and young women, giving example of a hormonal method IUCD among cohabitating young women may reflect a stable monogamous relationship, where she and her partner desire pregnant prevention, but are less concerned about STIs and HIV infections. A study done in United State showed that women aged 15 to 24 years who employed dual methods endorsed different attitudinal motivators to type and level of protection(Pack & Xiamoning, 2011).

According to Gomez, (2011) the study showed that women who have experienced sexual violence may face difficulties in negotiating condom and contraceptive use and thus be at increased risk for unplanned pregnancy, abortion STIS and HIV and subsequent coercion. Studies done in Zimbabwe and Mozambique, evidence showed that it is easier to negotiate condom use for pregnancy prevention than for HIV and STIs protection (Calvert, et al., 2012). According to Higgins & Cooper (2012) Crosby et al, found that among 522 sexually active young women attending adolescent medicine clinics a strong desire to avoid pregnancy was the most influential correlate of consistent dual method use. Gragy, et al.; Weisman, et al found that consistency of condom use among adolescent pill users was greater when the partner was supportive of condom (Higgins & Cooper, 2012).
A study done in United States on adolescents and young women, showed that inconsistent and incorrect condom use was common particularly among young women aged 15 to 24 years old (Lopez, et al, 2014). To better protect themselves from STIs and unplanned pregnancy was the use of dual contraceptive methods correctly (e.g. use of a condom with an IUCD or hormonal method) (Lopez, et al, 2014). A study done in South Africa revealed a low level of dual methods use of 16% while another done in India showed that use of dual contraceptive was only 5% before HIV diagnosis and 25% after diagnosis (Mishra, Jashi & Khanna, 2011). It also showed inconsistent use of condoms in people living with HIV (Mishra, Jashi & Khanna, 2011). The other study carried in Zimbabwe reported dual contraception of 38% (WHO, 2010). According to Mtowo, Kasu & Mufunda, (2014), a study done in Zimbabwe revealed that the use of dual contraceptive was very low and also had low levels of practices regarding use of dual protection. They also commented that women were not confident of using the female condom. While the other study showed some of the respondent were not even aware of the dual protection, provided by condoms and argued that male and female condom were not contraceptives but only protect against STIs, HIV including AIDS (Chitereka & Nduna, 2010). Another segment of their respondent was not even aware of any contraceptives methods at all. In Manicaland province women from John Marange Apostle section revealed that they were not aware of any modern method of contraception but had knowledge of traditional methods only (Chitereka & Nduna, 2010). According to Prata, Screenivas & Bellows, and (2009) their study revealed that condom dual-use policies have the potential to significantly reduce HIV and STIs infection including unplanned pregnancy. Lower rate of dual contraception could be explained by two main reasons, first, low emphasis on dual contraceptives, during family planning counselling sessions, secondly misconception about condoms (Chakrapani, Shumugan & Newman, 2011). WHO recommended that action
should be directed towards motivating PLHIV on using dual methods to avoid the risk of unplanned pregnancy, HIV and STIs (Peipert, et al., 2011).

Sexual Transmitted Infections and Human Immune Deficiency Virus/Acquired Immuno Deficiency Syndrome

Youth under the age 25 years have never known a world without HIV and AIDS. Worldwide about 6000 youth aged 15 to 24 are infected with HIV each day (UNAIDS, 2010). More than thirty years into the HIV/AIDS pandemic, it remains one of the most serious challenges to global public health, around the world, 5 million young people aged 15 to 24 were living with HIV (UNICEF, 2011). According to WHO (2014), the largest proportion of STIs was believed to occur in people younger than 25 years old (Peipert et al., 2011). Globally, over 100 million STIs occur each year in people under the age of 25 years (Sales & Diclemente, 2010).

According to Action Researches, (2011) young people are at the centre of the global HIV epidemic and Sub-Saharan is a home to almost two thirds (61%) of all. Young people were at high risk for contracting HIV with 40% of new infections occurring in 15 to 24 years old (Save the Children, 2014). According to UNICEF (2011), young people aged 15 to 24 represent 41% of all new HIV infections, and 890,000 acquire HIV each year, meaning that around the world nearly 2,500 young people acquire HIV every day. At least 95% of all new infections occur in less developed countries, with Sub-Saharan Africa being by far the hardest hit region (UNAIDS, 2010). A study done worldwide showed that an estimation of 3.2 million young women are living with HIV or AIDS compared to 1.7 million young men (Cheetham, 2012).

In nearly 20 African countries, 5% or more of women aged 15 to 24 are infected, such statistics underscore the urgent need to address HIV/AIDS among youth (WHO, 2011). Valid data on worldwide incidence and prevalence of STIs especially in sexually active, unmarried
young people in developed countries are rare because STIs surveillance has been largely neglected and underfunded (Peipert et, al., 2010).

Zimbabwe and Africa in general 92% of HIV infections are transmitted through heterosexual intercourse and 7% is transmitted through mother to child transmission (Zvoushe, 2012).

In Zimbabwe it is estimated that close to 27% of youth aged between 15 to 24 years are HIV positive (MOHCW, 2010). The proportion of youth aged between 15 to 24 years which is HIV positive is estimated at 10, 7% in 2005, 10, 9% in 2007 and 11% in 2009 and currently the prevalence has decreased but still leaving Zimbabwe as one of worst affected countries (Zvoushe, 2012). Common practice of child and adolescent marriage is an important factor in the HIV/AIDS epidemic (Chinyere & Nduna, 2010). Married adolescent’s know less about HIV, are less able to negotiate condom use and are much more likely to use no method during sexual activities.

According to UNFPA (2013), Sexual transmitted infection is a global public health problem because of its high prevalence for serious complications and they predispose to transmission of HIV. Sexual transmitted infections can spread from one person to another so it calls for dual protection (Oyefara, 2010). Some common STIs are gonorrhoea, syphilis, chlamydia and trichomoniasis.

Gonorrhoea is a bacterial infection caused by Neisseria gonorrhoea, also called gonococcus bacteria. It is transmitted through sexual contact (Peipert, et al., 2013) Gonorrhoea can cause serious complication. Untreated STIs can lead to pelvic inflammatory disease, ectopic pregnancy, chronic pelvic pain and tubal infertility and may facilitate HIV transmission (Peipert, et al., 2013).
2.3 Unplanned/Unwanted Pregnancy

Unintended pregnancy is the pregnancy which is mistimed, unplanned or unwanted at the time of conception so unwanted pregnancy is also unintended pregnancy (Mambolea, 2012). Worldwide, around 80 million unplanned pregnancies are estimated to occur annually (Calvert, et al., 2012). Unwanted pregnancy was the major cause of induced abortion, one of the leading causes of maternal mortality and morbidity in the world (Mambolea, 2012). Hundred thousands of women become pregnant without intending to, and many of them decided to end the pregnancy into abortion (Mambolea, 2012).

In Sub-Saharan Africa an estimated 39% of pregnancies are an unintended and 33% of these pregnancies end in abortion most which are unsafe (Singh, Sedgh and Hussain, 2010). While a study done by Darteh & Chinyere, (2011) also revealed that in Sub-Saharan Africa as many as 14 million unintended pregnancies occur yearly and about half is attributed to women aged 15 to 24 years. Gap between sexual debut and age at marriages widens sexual activity prior to marriage also leading to increased premarital exposure to pregnancy risks (Darteh & Chinyere, 2011). Youth are more susceptible to unwanted pregnancy (Mambolea, 2012). A study done in Tanzania showed that women are at risk of unwanted/unplanned pregnancies, the highest risk of having these pregnancies and the risk of maternal mortality was among women of 15 to 24 years (Calvert, et al., 2012). According to Darteh & Chinyere (2011) early pregnancy causes this group of women aged 15 to 24 to reach their 19th birthday being mothers of 3 children which showed lack of spacing. A recent study done in Zimbabwe showed that between 60,000 and 80,000 unsafe abortions are performed in Zimbabwe every year mostly between the ages of 15 to 24 years (Zimind, 2014). A study done in Ghana showed that many countries in Africa including Ghana, young people aged 15 to 24 years are most at risk of early child bearing, unintended pregnancies, unsafe abortions, sexual transmitted and HIV infections (Darteh & Chinyere, 2011). The Minster of health and childcare Dr. Parirenyatwa
also acknowledged that there were high unintended or unwanted pregnancies, particularly between the age of 17 to 24 years and high degree of abortions hence the importance of talking about safe sexual methods (Zimind, 2014). In certain situations unplanned/unwanted pregnancy can lead to health, social and economic problems (Calvert, et al., 2012).

2.3.1 Unplanned Pregnancy Consequences

According to Exavery, et al, (2014) obvious consequences of unplanned pregnancy is induced abortion which is often unsafe, especial in countries where the practice is illegal. UNFPA, (2010) pointed that other psycho-social consequences were social rejection and expulsion from home, forced marriage, psychological trauma, social stigma, baby dumping and child abuse. A study done in United State showed that adverse pregnancy outcome attributed to unplanned/unintended pregnancy such as low birth weight, premature birth, maternal depression, anxiety, poor psychological well-being and poor utilization of ANCand delivery care has been shown in previous studies (Dixit, 2010). According to Exavery, et al., (2014) unplanned pregnancies contributed significantly to unwanted population growth which consequently compromises provision of social services and the wellbeing of the mother.

2.4 Abortions

Abortion is the expulsion of the products of conception before the embryo/foetus is viable, before 22 weeks of gestation weighing less than 500 grams, WHO definition. This can be induced or spontaneous expulsion, and can be safe or unsafe abortion (WHO, 2012).

Unsafe abortion is a procedure for terminating an unintended pregnancy, carried out either by person lacking the necessary skills or in an environment that does not conform to minimal medical standards or both( WHO,2012). With the exception of few countries, access to safe abortion in developing countries is limited to a restricted number of narrow conditions (WHO, 2014). Abortion is a major health obstetric problem across globe. Worldwide an
estimation of 22 million abortions continues to be performed unsafely each year resulting in the death of an estimated 47,000 women and disabilities for additional 5 million women (Joffe, 2010).

Globally, seventy five million pregnancies each year are unwanted, none use of contraceptives accounts for the majority of unwanted pregnancies, which may lead to unsafe abortions (Matsheza, 2010). While WHO (2012) revealed that Worldwide, twenty million unsafe abortions occur each year, eighty thousand women die each year because of complications following unsafe abortions. Worldwide statistics showed that 22 million women have unsafe abortion, of which most of them occur in developed countries (Mtowo, Kasu & Mufunda, 2014). An estimated 6,2 million unsafe abortions are performed each year in Africa and about 5,5 million of them are in Sub-Saharan countries (Alan Guttmacher, 2011). WHO (2011) showed that in Africa nearly 36,000 unsafe abortions deaths account for more than 50% of the worldwide total. About quarter of Africa’s unsafe abortion occur among young women aged 15 to 19, higher than in any other region. In Africa 59% of unsafe abortions are performed by young women between 15 to 24 years exposing themselves to possible infections, bleeding long term fertility problems and even death (SAFAIDS, 2011).

A recent study done in Zimbabwe showed that between 80,000 unsafe abortions are performed in Zimbabwe every year mostly between the ages of 15 to 24 years (Zimnd, 2014). The Minister of Health and Care Dr. Parirenyatwa also acknowledged that there were high unintended or unwanted pregnancies, particularly between the age of 17 to 24 years and high degree of abortions hence the importance of talking about safe sexual methods (Sunday mail, 2014). In developing countries two in five unsafe abortions occur among women under the age of 25 years and about one in the age of 20 years and a total of 40% occur among women 15 to 24 years of age (WHO, 2011).
A study done in Ghana showed that many countries in Africa including Ghana, young people aged 15 to 24 years are most at risk of early child bearing, unintended pregnancies, unsafe abortions, sexual transmitted and HIV infections (Darteh & Chinyere, 2012).

Complication to unsafe abortions account for 15% of maternal deaths worldwide (Alan Guttmacher, 2011). Consequences of unsafe abortion include loss of productivity, economic burden on public health system, stigma and long-term health problems such as infertility. Medical consequences include cervical or vaginal lacerations, sepsis haemorrhage, bowel or uterine perforation, tetanus, pelvic infections or abscess, chronic pelvic inflammatory diseases and secondary infertility (Adogu et al., 2014).

2.5 Summary
This chapter gave an overview of literature on dual contraception how it protects against unplanned pregnancy. The chapter also reviewed on STIs, HIV and AIDS, unplanned/unwanted pregnancy and abortion.
CHAPTER 3

Research Methodology

3.1 Introduction

The chapter explained the rationale behind the methodology which was used and indicated how the study was conducted. The focus of the chapter was on research methodology in terms of design, population, sampling, the research instruments and procedures that was used to collect and analyse data.

3.2 Research Design

A research design is a researcher’s overall plan for obtaining answers to the research questions or for testing the research hypothesis, (Polit&Hungler, 2013). Burns & Grove (2012) defined the research design as a blueprint for conducting a study that maximizes control over factors that could interfere with validity of the findings; it guides the researcher in planning and implementing the study in a way that will achieve the intended goals.

A good design has a high degree of precision, lacks bias and is appropriate to the problem under study it sought to identify the relationship between knowledge levels and practice of dual contraception.

A quantitative, non-experimental, descriptive correlation design was used in the study. A descriptive correlational study examines the linear relationships between two or more variables in order to determine the type and strength of the relationship (Polit&Hungler, 2013). In this study, the variables under study were knowledge on dual contraception as the independent variable and practice on dual contraception as the dependent variable. The descriptive element of the study involves the accurate portrayal of current phenomena of interest and the frequency with which that phenomena occurs (Polit& Beck, 2012). This design was found suitable because it sought to identify the relationship between knowledge
level on dual contraception and practice of dual contraception. The advantages of the study design according to Burns & Grooves (2012) cited that there was increased flexibility when investigating complex relationships among variables. There was also potential for exploring relationships that is not manipulated for future experimental studies as, Pilot & Beck (2013) extrapolated that a descriptive correlation study was an efficient method of collecting a large amount of data. In this study the researcher collected data from 84 participants hence the design was suitable for the study.

3.3 Study Site
The study setting was carried out at Morgenster Mission Hospital which is 35 kilometres southeast of Masvingo town. Morgenster Mission Hospital is in Masvingo Province which is found in the south eastern section of Zimbabwe. Morgenster mission hospital is a referral hospital of fifteen rural clinics and five rural hospitals; with a catchment area of 8905. It is a 240 bedded hospital, offering Primary Health Care activities which include antenatal care, family child care, immunisation and family planning. Women of child bearing age, aged between 15 to 24 years were accessed as they came to seek for the above services. These were included because some had children and it was anticipated that they are sexually active.

3.4 Sample Plan
A sampling plan describes the strategies that would be used to obtain a sample for a study (Burns & Grooves, 2012). A sample is a portion of the population that represents to the population. According to Burns & Grooves (2012) a sample is developed to increase the representativeness, decrease systematic bias and decrease sample error between the study sample and the population. The target population were women of 15 to 24 years at Morgenster mission hospital who came for above mentioned services. A quantitative, non-experimental descriptive correlation research design was used. Research participants were selected according to availability that was convenience sampling.
3.5 Target Population
A population is the entire aggregation of cases that meet a designated set of criteria (Polit & Beck, 2012). The target population comprises the aggregate of cases about which the research would make generalisation (Polit & Beck, 2012). The target population was the entire group in which the researcher was interested in. In this study the target population were women of child bearing, aged 15 to 24 years who had come to seek the above services at Morgenster Mission Hospital.

3.6 Accessible Population
Accessible population is the portion of the target population to which the researcher has reasonable access. The accessible target population were women aged 15 to 24 years within Morgenster Mission catchment area. The researcher accessed these potential participants as they came seeking for the above mentioned services.

3.7 Sampling Criteria
Sampling criteria is the essential characteristics of the target population (Burns & Grooves, 2012). It also refers to inclusion and exclusion which help to control extraneous variables which could interfere with measurements (Pilot & Beck, 2013). The sampling criteria included those women who had come for antenatal clinic, family planning services, immunisation and treatment of the under-fives at Morgenster mission hospital. Convenient sampling method was used for sampling.

3.7.1 Inclusion Criteria
Sampling criterion also includes inclusions and exclusions which helped to control extraneous variable, ensures homogeneity of a sample and provides guidelines for sample recruitment (Pilot & Beck 2013). Inclusion refers to the specific characteristics that the
investigator wishes to include as essential characteristics of the target population so as to achieve homogeneity, control extraneous variable, provide a guide for the sample recruitment and enables replication (Burns & Grooves, 2012). In this study women aged between 15 to 24 years who had come seeking for the above services and able to speak Shona or English were included in the study.

3.7.2 Exclusion Criteria
Exclusion sampling criteria are those characteristics that can cause a person or element to be excluded from the target population (Burns & Grooves, 2012). In this study woman who were in labour, who were very ill and mothers who had very ill children were excluded.

3.8 Sample Size
A sample of sufficient size is essential to describe the relationship or determine the effects of treatment (Burns & Grooves, 2013). A number of factors determine the sample size; these are the power, effect size and the significance level of the statistic used as well as potential attrition rate (Burns and Grooves, 2012; Polit & Hungler, 2013). Therefore; this means that the larger the sample, the smaller, the sampling error and also the more representative.

However, even the largest possible sample may not eradicate bias. Burns & Grove (2012) cited that the deciding factor in determining the sample size is the power.

Power is the capacity of the study to detect differences or relationships that actually exist in the population, (Polit & Hungler, 2013). It has the capacity to accept or reject the null hypothesis. This means, a power of .80 was used in this study because it was the minimum acceptable power for the study (Burns & Groove, 2012). This means that the risk of committing a type II error is .20, a type II error is failing to detect existing relationships (Burns & Groove, 2012). The effect size is referred to the magnitude of differences among variables; it is concerned with the relationship among variables (Polit & Beck, 2013). If the
effect size is small, detecting it will be more difficult and requires large samples (Burns & Grove, 2012).

Effect size affects power. As the effect size increases, power also increases (Pilot & Beck, 2013). Burns & Groves (2012), state that the effect size is a measure of how wrong the null hypothesis is. It was a strong index of how strong the effect of knowledge level on dual contraception was on practice of dual contraception which are independent and dependent variables. As the value of effect size increases, power also increases and the needed sample size decreases. The smaller effect size would be 0.2, a medium effect size is 0.5 and a large effect size is 0.8. A medium effect size of 0.5 was used in this study. Research has related nursing as having small to medium (0.5) effect size (Burns & Grove, 2012). Significance level signifies the probability that an observed relationship or the results are likely to be due to chance (Burns & Grove, 2012). It tries to control the likelihood of making a Type 1 error, which occurs when an investigator rejects the null hypothesis when in fact it is true and should be accepted. A significance level of 0.05 means only five times out of 100 similar results would be obtained. The researcher can therefore have a high degree of confidence that the findings are reliable (Pilot & Hungler, 2013). In nursing studies, the level of significance is usually at 0.05 or 0.01 because of the seriousness of type 1 error. A significance level of 0.05 was used in this study. Calculating the sample size requires that one knows the level of significance, power and effect size.

The formula used: \( n = \frac{z\delta}{\Delta}^2 \). The confidence level would be set at 95 %, effect size at 0.05 and power of 0.80. Where \( z \) is the confidence level, \( \delta \) is the variance, \( \Delta \) is the effect size. A sample size of 84 research participants were, recruited into the study to allow attrition.

\[ Z=1.96 \quad \delta=21 \quad \Delta=5 \]

\[(1.96 \times 21/5)^2=67.7\]
Based on power of 0.80

\[
67.7/0.80=84
\]

The number of research participants in this study, were 84

3.9.1 Sampling Procedure

Burns & Grove (2013) state that a sampling procedure describes the strategies that will be used to obtain a sample for the study and it is defined as the process of selecting research participants. A sampling method specifies in advance how study research participants are to be selected and how many would be included. The aim was to increase representativeness, decrease systematic bias and determine sampling error. In this study, non-experimental descriptive correlation study design was used. Research participants were selected according to availability that is a convenient sampling. The design enabled the researcher to gather information and make inferences about possible relationship between knowledge and practice of dual contraception.

In this study, women aged 15 to 24 years at Morgenster mission hospital represented the entire population (Polit & Beck, 2012). Burns & Grove (2013), purports that sampling decision has a major impact on generalizability of findings to other populations and in other settings. It was crucial to include people at the study site as these individuals influence the possibility of obtaining an adequate sample. This was supported by Burns & Grove (2013) who suggest that establishing a good working relationship is essential to gain cooperation and support. There was also need for courtesy and politeness in order to gain the research participants.

3.9.2 Variables

Variables are qualities, properties or characteristics of persons, things or situation that change or vary a study. Variables are characterized by a degree, amount, and differences within a
study. The independent variable in this study was knowledge levels on dual contraceptives. The dependent variable was practice of dual contraception.

### 3.9.3 Conceptual and Operational Definition

A conceptual definition provides a variable with connotative meaning (Burns & Grooves, 2012). According to Polit & Beck (2013) a conceptual definition is the abstract or theoretical meaning of the concepts being studied. Operational definition describes how variables will be measured or manipulated in a study (Burns & Grooves, 2012). Polit & Beck (2013) defined operational definition as a variable that specifies the operations that the researchers must perform to collect the required information.

Practice of dual contraception; in this study it was defined as action taken to utilize two methods of contraception a condom and any other for example a pill in order to prevent threats.

Dual contraception; was defined as the use of two family planning methods, a condom and any other contraceptive methods to prevent unwanted pregnancy, abortion, STIs including HIV.

Unwanted/unplanned pregnancy; it is pregnancy that is not desired or wanted by time of conception, by one or both biologic parents.

Knowledge; is the information given through health education or teaching on dual contraception.

### 3.9.4 Research Instrument

According to Polit & Hungler (2013), a research instrument is a device that is used to collect data. The researcher used a structured questionnaire with closed and open-ended questions based on literature review. Structured interview schedule face to face interaction was used to
collect data for the study, because it was one of the most frequently used methods for data collection in health and social research also because of time frame. According to Polit&Hungler (2013), questionnaires comprise of series of items that were presented in a written format in a fixed order where each respondent was requested to answer every item.

The items were constructed to elicit information on attributes, practice and knowledge. Polit& Beck (2012) postulate that such structured instruments tend to be straightforward. They provide factual responses that can be counted or analysed statistically. They have one added advantage of producing highly reliable data given that each research participant is studied using the same set of questions. The researcher developed a structured interview schedule based on literature. It included open and closed questions. The face to face interview technique provided the interviewer with an opportunity to elicit more information from the respondent’s incidental comments, facial and body expression and voice (Polit& Beck, 2012). The researcher had an opportunity to clarify some questions to respondents and probe further if need arise

Polit&Hungler (2013) state some of the advantages of using a questionnaire as being easy to complete if well-constructed and presented in a way suited to the target population. The form in which information is gained from each respondent is usually the same (e.g. through common response options) Anonymity of the respondent was easy to guarantee. Data is easy to analyse especially that from closed-ended questions. There is no opportunity to query the meaning of individual responses (Polit&Hungler, 2013). The study has three instruments namely; knowledge level on dual contraception questionnaires, practice of dual contraception and demographic variables.

Knowledge, on knowledge the questionnaire consisted of 5 items with a total score of 14, the highest score being 14 points and lowest being 3 points. A range of 3-6 indicates poor
knowledge; 7 -10 indicates moderate knowledge and a range of 11-14 indicating high knowledge. Scores were obtained by adding up items responses or by generating the scales mean score. The first item asked the research participants whether they had ever heard about contraceptive. The following responses were yes= 1 point and no = 0 point.

The second item asked about the types of contraceptives, the possible responses were yes=1 and no=0 and the item has a total score of 6 points. The third item asked whether the research participant had ever heard about dual contraception, the possible responses were yes= 1 and no = 0. The fourth item asked whether research participants knew what dual contraception is, the possible responses were yes = 1 and no =0 giving a total of score 3 points. The firth item asked about dual contraception protection, the possible responses were yes =1 and no =0 giving a total score of 3 points.

Practice; practice of dual contraception questionnaire consisted of 5 items, total score of 9 points ranging from 0 to 9 points. A score of 0 indicates no practice at all and 0-3 indicates poor practice, 4- 6 indicates moderate and 7- 9 indicates good practice. The first item asked about current types of contraceptives being used. The possible responses if using 1 type=1, using two type = 2 and using nothing =0. The second item asked about ever used a condom. The possible responses being yes =1 and no = 0. The third item asked had you ever used a dual contraception method. Yes = 1 and no = 0. The fourth item asked how often do you practice dual contraception and the possible responses are never =0, sometimes =1 and always = 3. The fifth item asked about use of condom with last sexual intercourse, the possible response are yes =1 and no =0. After adding the total scores of knowledge and the total scores of practice the researcher was able to correlate knowledge level with practice.
3.9.5 Validity

Validity is the degree to which an instrument measures what it is supposed to measure (Polit & Beck, 2013). According to Golafshani (2011) validity is a degree to which an instrument measures the characteristics being investigated, how well a scientific test measures what is sets out to measure or how well it reflect the reality it claims to represent. There are four types of validity which are statically, conclusion, internal and external validity. Statistical validity refers to the ability to make an accurate assessment about whether, the independent and dependent variables are the related and about the strength of that relationship. Internal validity is approximate validity which will interfere with that relationship between the two variables (Burns & Grooves, 2012). Internal validity includes threats identified by research methodologists (Campbell & Grooves, 2014). External validity is the degree to which a study can be generalized and across population of persons, settings, times outcomes and treatment variations. To ensure validity the researcher, translated the instrument into Shona language which was a local language. The researcher and the supervisor evaluated the instrument to ensure they measure the required construct. Pilot study was done to test the instrument to ensure validity.

3.9.6 Reliability

Reliability refers to the accuracy and consistence of information obtained from a study (Polit & Beck, 2013). It can be defined as the consistency with which an instrument measures the attribute it is intended to measure (Burns & Grooves, 2012). To ensure reliability, a pilot study was done on ten research participants at Morgenster’s Teacher’s College.

3.9.7 PILOT STUDY

A pilot study is a small version or trial run of the major study (Polit & Hungler, 2013). The pilot study was carried on ten research participants. This was done to check whether the instrument is valid and reliable. The pilot was carried out at Morgenster Teacher’s College.
Permission was obtained from the Principal of Morgenster Teachers College, Medical Superintendent and the Station management team. Ten participants who met the inclusion criteria were chosen using convenient sampling method. The pilot study was carried out in one day. To avoid instrument bias, the research participants who were used for the pilot study were not selected for the main study.

The purpose of the pilot study was to assess the reliability and validity of the instrument. It was going to alert the researcher on issues taken for granted. It allowed clarity and relevancy of the questions and the length of time needed to answer the questions. Procedure for recording responses of the pre-test allowed an assessment of reliability and validity of issues of the instrument.

3.9.7 Data Collection Plan

A data collection instrument plan detailed how the study was implemented. It was necessary to provide the growing work of implementation of data collection process (Burns & Grooves, 2012). Data collection plan includes selection of a setting, sample, development of supportive relationship with the staff working area considering time, and cost factors, planning that included data analysis, interpretation, communication of findings and evaluation plan. It helped to identify sources of bias and address ethical issues. Data was collected at Morgenster Mission Hospital at antenatal clinic and maternity ward. This was done in April and May 2015. Structured interview were used to collect data. The researcher took 20 to 25 minutes with each participant to complete the questionnaires. The researcher went over the questionnaires after data collection to ensure anonymity. Data was collected during the working days that is from Monday to Friday. Coding of data was done on the same day after data collection. Coding involves the translation of verbal data into numeric form according to a specific plan. Last but not least, data was transferred from written document into computer files for subsequent analysis.
3.9.8 Ethical Considerations

According to Polit&Hungler(2013), ethical considerations refer to the quality of procedures with respect to adherence to professional, legal and social obligations to research participants. Permission to carry out the study was sought from the Medical Research Council of Zimbabwe and the Joint Research Ethics Committee. This was an ethical review board for protection of human research participants in the study. A written informed consent form was utilised for the protection of the research participants’ rights. Potential benefits of the study were highlighted to research participants whom thereafter research participants gave permission to participate in the study. Permission to carry out the study was sought from the Medical Superintendent of Morgenster Mission Hospital.

The research participants were given objectives of the study and informed consent obtained. Those volunteered to participate filled in the consent form revealing the objectives of the study. (Polit& Beck, 2012) indicated that humans should be treated as autonomous agents capable of controlling their activities. Prospective study research participants had the right to voluntarily decide whether to participate or not. They were informed that they had the right to withdraw any time and this would not prejudice their treatment.

They were free to ask questions and get explanations before they engaged in the study. The researcher, maintained to stated time to avoid delays. Questionnaires were coded as no names were included to ensure anonymity. All filled questionnaires were considered sensitive and confidential. They were kept under lock and key.

3.9.9 Data Collection Procedure

A request to use the rooms at the hospital was forwarded to the sister in-charge of the Outpatient department to ensure consistency of environmental conditions. This helped to prevent introducing extraneous variables. Privacy was ensured and noise controlled. This
could have influence responses on the dependent variables. According to Burns & Grove (2013), recruiting the number of research participants originally planned is crucial, as data analysis and interpretation of findings depends on an adequate sample size.

Burns & Grove (2013) further regard direct contact with potential Participants as the most effective form of recruitment. In this study, face-to-face interview was done in a separate room. Reassurance and explanations were ensured through informed consent. Records were kept and those who were given the questionnaires they filled them and returned within one day. This was done to obtain the required response and reduce attrition. Data collection was done in April and May. The researcher considered unforeseeable problems that interfered with implementation of data collection plan such as, institutional changes, resistance from research participants, and lack of experience in data collection technique.

**Data Analysis**

Data analysis is conducted to reduce, organise and give meaning to data (Burns & Grove, 2013). In this study, statistical procedures were used to determine whether the phenomenon was present or not in the population. Planning data analysis involves coding and selection of appropriate techniques to analyse data. Coding according to Burns & Grove (2013) is the process of transforming data from categories, words or phrases into numerical symbols that can be computerised. Numbers to each questionnaire were recorded into a code book thereby documenting the count on value of every variable that will be entered into a computer file. This was kept in its original form.

The data was entered and analysed using the Statistical Package of Social Sciences (SPSS-PC20). Research questions allowed the investigator to organise the data in such a way that it gave meaning to facilitate insight (Burns & Grove, 2013). Sample demographics
were analysed using descriptive statistics such as frequencies, percentages, mean, and standard deviation.

Practice regarding use of dual contraception as the dependent variable was analysed using the descriptive statistics. The dependent variable was reflected by the research question: What is the nature of practice among women aged 15 to 24 years? Knowledge level as the independent variable will be reflected by the research question: What is the knowledge level on dual contraception?

The Pearson correlation test was used to examine the relationship between knowledge level on dual contraception and practice regarding use of dual contraception.

**Summary**

The chapter addressed the methodology of the study. The study design, sampling plan, sample size, sampling procedure, variables, instrument, data collection plan, ethical considerations as well as data collection procedures and data analysis.
CHAPTER 4
RESULTS

4.1 Introduction
The purpose of the study was to examine the relationship between knowledge level and practice of dual contraception as a prevention of pregnancy, abortions, STIs and HIV, among women aged 15 to 24 years at Morgenster mission hospital. The chapter presents results of the study findings. In this chapter the summary of the study is given, followed by narratives and tables of sample demographics, knowledge levels and practice of dual contraception.

4.2 Summary
The study question was: What is the relationship between knowledge level on dual contraception and practice of dual contraception among women aged 15 to 24 years enrolled at Morgenster mission hospital?

The Health Belief Model was used to guide the study. The study was carried out from April 2015 to May 2015. Eighty four (84) women of child bearing age, aged 15 to 24 years were selected into the study through convenience sampling which was non-probability sampling technique. The response of the participants was hundred percent.

Data was analysed using Statistical Package for Social Science (SPSS) 20(2011) version. Data was analysed in three categories which includes demographic data, knowledge levels on dual contraception and practice of dual contraception. The descriptive and inferential statistics such as frequency, mean were used to describe the demographic characteristics, knowledge levels on dual contraception and practice of dual contraception.

Pearson’s correlation coefficients test was used to examine the relationship between knowledge levels and practice of dual contraception. The results of the study were $r= .260^*.$
p=0.017. This indicated that there is a positive relationship between knowledge levels and practice of dual contraception among women aged 15 to 24 years enrolled at Morgenster mission hospital. Simple regression analysis was used also to examine the strength of the relationship between knowledge levels and practice of dual contraception. The results were (R squared=.068, F= 5.938, p=0.017, b=.260*). Indicating that knowledge levels on dual contraception accounts for 6.8% change on practice of dual contraception as a prevention of unplanned pregnancy, abortion, sexual transmitted infections including HIV. The results showed that women were knowledgeable about dual contraception in contrast with their practice which was very low.

4.3 Sample Demographic Characteristics

Table 1; shows demographic of the study participants. Their ages ranged between 15 -24 years. Six five (79.9%) participants’ ages ranged between 20-24years, nineteen (34.9%) ranged between 15-19 years. The mean age was 21.3years. Sixty seven (79.8%) were married, fourteen (16.7%) were single, two (2.4%) were divorced while one (1.2%) was widowed. The majority of women thirty nine (46.4%) had only one child, twenty (28.6%) had two children, eighteen (21.4%) had three children and three (3.6%) had no children. Most of the women forty eight (57.1%) had attained secondary education, Twenty (23.8%) had attained primary level and sixteen (19.1%) reached tertiary level. The majority of participants eighty (95.2%) were Christians and four (4.8%) were not Christians.
Table 1: Sample Demographics

N=84

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<tr>
<td>Ages 15-19 years</td>
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<td>Ages 20-24 years</td>
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<tr>
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<tr>
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</table>
4.3.1 Knowledge on dual contraception

Table 2; Shows knowledge level on dual contraceptives among, participants, eighty (95.2%) had heard about contraceptives and four (4.8%) had never had about contraceptives. Eight two (97.2%) knew that pills were contraceptives methods while two (2.4%) did not know that pills were contraceptives method. Forty seven (56%) did not know that condoms were contraceptive methods and 37 (44%) knew condoms were contraceptive methods.

Seventy two (85.7%) knew that IUCD was a contraceptive method and twelve (14.3%) did not know. Similarly seventy two (85.7%) of the participants knew that jadelle was a contraceptive method while twelve (14.3%) did not know. Seventy seven (91.7%) of the participant knew that depo provera was a contraceptive method while seven (8.3%) did not know that depo provera was contraceptive method.
Table 2: Knowledge levels on dual contraception

N=84

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever heard about contraceptives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>80</td>
<td>95.2</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>4.8</td>
</tr>
<tr>
<td>The following are contraception methods Yes/No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is a pill contraceptive method?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>82</td>
<td>97.6</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>Is condom a contraceptive method?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>37</td>
<td>44</td>
</tr>
<tr>
<td>No</td>
<td>47</td>
<td>56</td>
</tr>
<tr>
<td>Is intrauterine device a contraceptive method?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>72</td>
<td>85.7</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
<td>8.3</td>
</tr>
<tr>
<td>Is Depo provera a contraceptive method</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>77</td>
<td>91.7</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
<td>8.3</td>
</tr>
<tr>
<td>Is Jadelle a contraceptive method</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>72</td>
<td>85.7</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>14.3</td>
</tr>
</tbody>
</table>
Table 3: shows results on knowledge on abstinence, fifty one (60.7%) said it was not a contraceptive method and thirty three (39.3%) knew that it was a contraceptive method. Sixty two (73.8%) of the participants had heard about dual contraception and twenty two (26.2%) 

Analysis on what is dual contraception showed that forty five (53.6%) knew that condom alone was not a dual contraception and thirty nine (46.4%) thought it was a dual contraception. Consistent and correct use of a condom as a dual contraception was not known by fifty one (60.7%) of the participants and only thirty three (39.3%) knew that it was a dual contraception. The majority sixty one (72.6%) of the participants knew that use of condom and any other method was a dual contraception method while twenty three (27.4%) did not know.

Dual contraception as a protection against pregnancy was known by seventy eight (92.9%) participants and six (7.1%) did not know. The majority seventy nine (94%) of the participants knew that dual contraception protects against STIs while five (6%) were not aware that it protects against STIs. Similarly seventy nine (94%) thought it protects against pregnancy, STIs and HIV and five (6%) did not know.
Table 3: Knowledge on dual contraception

N=84

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following are contraceptive methods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is abstinence a contraceptive method?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>33</td>
<td>39.3</td>
</tr>
<tr>
<td>No</td>
<td>51</td>
<td>60.7</td>
</tr>
<tr>
<td>Have you ever heard about dual contraception?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>62</td>
<td>73.6</td>
</tr>
<tr>
<td>No</td>
<td>22</td>
<td>26.4</td>
</tr>
<tr>
<td>Dual contraception</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condom alone is not a dual contraception</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>45</td>
<td>53.6</td>
</tr>
<tr>
<td>No</td>
<td>39</td>
<td>46.4</td>
</tr>
<tr>
<td>Condom used consistently and correctly is a dual contraception?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>33</td>
<td>39.3</td>
</tr>
<tr>
<td>No</td>
<td>51</td>
<td>60.7</td>
</tr>
<tr>
<td>Condom and another contraceptive method is a dual contraception?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>79</td>
<td>94</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
**Table 4:** shows the scores on knowledge levels on dual contraception. The total scores were graded into 3 categories; low, moderate and high knowledge. A total score of 3-7 indicated poor knowledge levels on dual contraception, a score of 8-10 indicated moderate knowledge levels on dual contraception and a score of 11-14 indicated high knowledge on dual contraception. The mean score was 10.6, standard deviation 2.33, mode 12 and median 11.

**Table 4:** Categories of knowledge levels on dual contraception

N=84

<table>
<thead>
<tr>
<th>Levels of knowledge</th>
<th>Range</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>3-7</td>
<td>9</td>
<td>10.7</td>
</tr>
<tr>
<td>Moderate</td>
<td>8-10</td>
<td>26</td>
<td>31</td>
</tr>
<tr>
<td>High</td>
<td>11-14</td>
<td>49</td>
<td>58.3</td>
</tr>
</tbody>
</table>
Table 5 shows the total scores for knowledge levels on dual contraception. The minimum score was 3 and the possible maximum score was 14, mean score 10.6 and the standard deviation 2.3. Four of the participants were below the mean.

**Table 5: Total scores on levels of knowledge on dual contraception**

N=84

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>5.9</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>5.9</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>10.7</td>
</tr>
<tr>
<td>10</td>
<td>14</td>
<td>16.7</td>
</tr>
<tr>
<td>11</td>
<td>11</td>
<td>13.1</td>
</tr>
<tr>
<td>12</td>
<td>18</td>
<td>21.4</td>
</tr>
<tr>
<td>13</td>
<td>13</td>
<td>15.5</td>
</tr>
<tr>
<td>14</td>
<td>5</td>
<td>5.9</td>
</tr>
</tbody>
</table>
4.3 Practice on dual contraception

Table 6: Shows the nature of practice among study participants, fifty seven (67.9%) used one method, fourteen (16.7%) used nothing and thirteen (15.4%) used dual contraception.

Table 6: Practice on dual contraception

N=84

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>What type of contraceptive methods are you using currently?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using nothing</td>
<td>14</td>
<td>16.7</td>
</tr>
<tr>
<td>Used one method</td>
<td>57</td>
<td>67.9</td>
</tr>
<tr>
<td>Used two methods</td>
<td>13</td>
<td>15.2</td>
</tr>
</tbody>
</table>
Table 7 shows nature of practice among fifty seven participants who were using one method, twenty four (42.1%) were using oral contraceptives/pill, fifteen (26.3%) were inserted jadelle, eleven (19.3%) were on depo provera and seven (12.3%) were inserted intrauterine device.

**Table 7:** Practice on dual contraception

N=57

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of contraceptives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral contraceptives/Pill</td>
<td>24</td>
<td>42.1</td>
</tr>
<tr>
<td>Jadelle</td>
<td>15</td>
<td>26.3</td>
</tr>
<tr>
<td>Depo provera</td>
<td>11</td>
<td>19.3</td>
</tr>
<tr>
<td>Intrauterine device</td>
<td>7</td>
<td>12.3</td>
</tr>
</tbody>
</table>
Table 8: shows nature of practice among thirteen participants who were using two methods/dual contraception, five (38.5%) used condoms plus oral contraceptives, four (30.8%) used condoms plus depo provera, three (23.1%) use condoms plus jadelle and one (7.6%) used condoms plus intrauterine device.

Table 8: Practice on dual contraception

N=13

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of dual contraception</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condoms and Pills</td>
<td>5</td>
<td>38.5</td>
</tr>
<tr>
<td>Condoms and Depo provera</td>
<td>4</td>
<td>30.8</td>
</tr>
<tr>
<td>Condoms plus Jadelle</td>
<td>3</td>
<td>23.3</td>
</tr>
<tr>
<td>Condoms plus IUCD</td>
<td>1</td>
<td>7.6</td>
</tr>
</tbody>
</table>
Table 9: Shows that thirty eight (45.2%) never used condoms and forty six (54.8%) once used condoms. On use of dual contraception, sixty six (78.6%) had never used dual contraception and eighteen (21.4%) had once used dual contraception. Frequency on use of dual contraception/condom plus any other contraceptive method had never been used by fifty seven (67.9%), twenty four (28.6%) sometimes used dual contraception and three (3.5%) always used condoms.
Table 9: Practice on dual contraception

N=84

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever used a condom?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>46</td>
<td>54.8</td>
</tr>
<tr>
<td>No</td>
<td>38</td>
<td>45.2</td>
</tr>
<tr>
<td>Have you ever used a condom plus any other contraceptive method?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>18</td>
<td>21.4</td>
</tr>
<tr>
<td>No</td>
<td>66</td>
<td>7.6</td>
</tr>
<tr>
<td>How often do use a condom plus any other contraceptive method?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>57</td>
<td>67.9</td>
</tr>
<tr>
<td>Sometimes</td>
<td>24</td>
<td>26.8</td>
</tr>
<tr>
<td>Always</td>
<td>3</td>
<td>35.5</td>
</tr>
<tr>
<td>Did you use a condom on your last sexual intercourse?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>26</td>
<td>31</td>
</tr>
<tr>
<td>No</td>
<td>58</td>
<td>69</td>
</tr>
</tbody>
</table>
Table 10: shows analysis on scores practice which were categorized into three categories, poor, moderate and good practice, a total score of 0-3 indicated poor practice, 4-6 indicated moderate and 7-9 indicated good practice.

**Table 10: Categories for practice on dual contraception**

N=84

<table>
<thead>
<tr>
<th>Variables</th>
<th>Range</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>0-3</td>
<td>56</td>
<td>66.6</td>
</tr>
<tr>
<td>Moderate</td>
<td>4-6</td>
<td>26</td>
<td>31</td>
</tr>
<tr>
<td>Good</td>
<td>7-9</td>
<td>2</td>
<td>2.4</td>
</tr>
</tbody>
</table>
Table 11: reveals the total scores on practice of which the minimum score was zero and maximum score was 7.

**Table 11: Total scores for practice on dual contraception**

N=84

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>11.9</td>
</tr>
<tr>
<td>1</td>
<td>28</td>
<td>33</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>14.5</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>7.1</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>10.7</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>6.0</td>
</tr>
<tr>
<td>6</td>
<td>12</td>
<td>14.3</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>2.4</td>
</tr>
</tbody>
</table>
Table 12: Shows the Pearson’s correlation coefficient indicating the relationship between knowledge and practice of dual contraception among women aged 15 to 24 years r 0.260 * \( p < 0.017 \). This reveals that there is a positive correlation between knowledge levels and practice of dual contraception among women aged 15 to 24 years at Morgenster mission hospital.

Table 12: Pearson’s Correlation output for knowledge levels on practice of dual contraception

N=84

<table>
<thead>
<tr>
<th>Variable</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>.260*</td>
</tr>
</tbody>
</table>

*p< 0.05 \[**p< 0.01*p< 0.017\]

Key; X=Knowledge levels on practice of dual contraception

Y=Practice of dual contraception
Table 13: Shows the regression analysis of relationship between knowledge levels and practice of dual contraception. The significant regression coefficient was $p<.017$ and $R^2=0.068$ which means that 6.8% variation or change on practice and reduction of unplanned pregnancy, abortion, STIs and HIV, is explained by change in knowledge levels on practice of dual contraception. An increase in knowledge level on dual contraception increases the practice on dual contraception and also decreases the unplanned pregnancy, abortion, STIs including HIV infection.

Table 13: Regression Analysis

N=84

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>BETA</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>.235</td>
<td>1.046</td>
<td>.260*</td>
</tr>
<tr>
<td>Constant</td>
<td>.093</td>
<td>.096</td>
<td></td>
</tr>
</tbody>
</table>

$R^2=0.068$ $F=5.938$

*$p<.05$ **$p<.01$ *$p<.017$

X= Knowledge levels on practice of dual contraception.
4.5 Summary

This chapter presented research findings on Demographic data, knowledge levels on dual contraception and practice of dual contraception. Descriptive statistics were used to present and analyse the information.
CHAPTER 5
DISCUSSION, IMPLICATIONS, and RECOMMENDATIONS.

5.1 Introduction
This chapter presents the summary of the study, discussions on the findings, conclusions and implications of the study that were drawn. The discussion focuses on the specific study questions which addressed knowledge level on practice of dual contraception. Finally recommendations that are based on the research findings are given. Relevant literature was used as a frame of reference during discussion.

5.2 Summary
The purpose of this descriptive correlation study was to examine the relationship between knowledge levels and practice of dual contraception as a prevention of unplanned pregnancy, abortion, STIs including HIV infection. This study was conducted at Morgenster mission hospital. The sample comprised of (84) women aged 15 to 24 years enrolled at Morgenster Mission Hospital. Data was analysed through descriptive statistics using Statistical Package for Social Science (SPSS) 20(2011) version.

The practice of dual contraception was measured using a five item tool. The minimum score for the study was zero and maximum score 7 with a mean score of 2.6. The scores were grouped into three categories poor, moderate and good practice. Fifty six (66.6%) had poor practice twenty six (31%) had moderate and two (2.4%) had good practice of dual contraception.

The knowledge level on dual contraception was measured on a 5 item tool scale. The minimum score was 3 and maximum score was 14 with a mean of 10.6. The scores were graded into three categories poor, moderate and high; these were used to measure knowledge
levels on dual contraception. Nine (10.7%) had poor knowledge, twenty six (40%) had moderate and forty nine (58.3%) had high knowledge on dual contraception.

The Pearson product moment test was used to examine relationship between independent variables of knowledge levels on dual contraception and the dependent variable was practice of dual contraception as a prevention of unplanned pregnancy, abortions, STIs including HIV infection. A simple regression was done to examine the strength of relationship between the independent variable and dependent variable. The strength of relationship between knowledge levels on practice of dual contraception indicated by $R^2 = 0.068$, $F = 5.938$, $p < 0.017$ meaning that independent variable knowledge on dual contraception accounts for 6.8% on practice of dual contraception as a prevention of unplanned pregnancy, abortion, STIs and HIV.

Discussion and Implication

5.3.1 Sample Demographics

The research participants were women aged between 15 to 24 years with the mean age of 21.3 years. Most of them are sexually active and are in greater need of contraceptives and dual protection it offers (UNAIDS 2010). This is an at risk group, twice likely to die in child birth than their adult counterpart (Ramath, 2012). Because of age those that are married are less able to negotiate condom use and are more likely to use no method during sexual activities, thus increasing their risk.

This study showed that fourteen (16.7%) were single mothers, two (2.4%) were divorcees and one (1.2%) was a widow. Eighteen (21.4%) had three children this concurred with Darter and Chinyere (2011) who found out that because of early child bearing this group 15 to 24 years had three children before their 19th birthday showing lack of planning. In this study
four (4.8%) were 16 years, having children at that age this indicates a greater need of dual protection to delay child bearing.

The majority of the participants (57%) had attained secondary education and (19%) had attained tertiary education, which is in line with the country’s literacy rate of 94%. This explains why most of the participants scored moderate (31%) and high (58.3%) on knowledge scales. It is of concern though that with high knowledge scores there was no corresponding high level of practice scores. This may mean that there are other factors other than knowledge that contribute to decision to practice dual contraception. Pack & Xiamong (2011) observed the same sentiments.

Most of the participants were Christians that is eighty (95.2%). Health workers can take advantage to empower these women on dual contraception through church gatherings.

Eighty (95.2%) knew about contraceptives and four (4.8%) had never heard about contraceptives. The majority had knowledge on contraceptives; those who were not knowledgeable fall under the 37% unmet need of contraceptives that still need to be reached with information. A study done by Chitereka & Nduna (2010) revealed that another segment of their research participants were not aware of any contraceptive method at all. These women who are not knowledgeable would not be able to use any of the contraceptives methods: This will expose them to unplanned pregnancies leading to unsafe abortions and contraction of STIs and HIV infection.

The study revealed a high knowledge on contraceptives. The most known methods were oral contraceptives (95%), depo provera (91.7%), jadelle (85.7%), intrauterine device (85.7%), abstinence (39.3%). In this study just over half (56%) participants knew condoms by the common brand name ‘protector’ and were not aware that it had protective as well as
contraceptive properties. In contrast with studies, done in Nigeria showed higher percentages than this study (Pack, Xiamong, Stanton & Cottrell, 2011)

Sixty two (72.8%) participants had heard about the dual contraception. Although study findings showed that majority knew about dual contraception more information is needed especially during family planning counselling sessions to emphasise on use of dual contraception.

Responding to, condom alone is not a dual contraception, thirty nine (46.4%) thought that condom alone was a dual contraceptive method and forty five (53.6%) knew that condom alone was not a dual contraceptive method. This implies that these participants did not have enough information, which means more information should be given through health education.

Condom alone used correctly and consistently is a dual contraception, thirty three (39.3%) knew that condom alone used correctly and consistently was a dual contraception method and fifty one (60.7%) reported that condom alone used correctly and consistently was not a dual contraception. According to Maharaja (2014) and Zimbabwe Family Planning Council (2012) they all cited that condom alone when used correctly and consistently it’s a dual contraception because of its twin protection against pregnancy and sexual infections.

Condom plus any other contraceptive method as a dual contraception was known by sixty one (72.6%) and twenty three (27.7%) were not aware that it was a dual contraception method. Calvert, et al., (2012) cited that dual contraception is the simultaneous use of two methods that is a condom plus any other contraceptive method which can either be depo provera (injectable), Intrauterine cervical device or contraceptives/pill.
Seventy eight (92.9%) were aware that dual contraception protects against pregnancy and STIs. This is in line with Winner, et al., (2012) who stated that dual contraception protects against pregnancy, STIs and HIV and even reduces incidence of papilloma virus (HPV) infections by 70%. Although Tyler, et al., (2013) cited that dual method use may be a reflection of perceived risk or of motivation to prevent both unplanned pregnancies and STIs. This is not reflected in this study since there was low usage observed. If women perceive risk then they should be able to practice safe protection to prevent risk.

5.4 Practice on dual contraception

Responding to what type of contraception methods are you using currently? Fourteen (16.7%) of the participants used nothing, fifty seven (67.9%) used one method and thirteen (15.4%) used dual contraception. The use of hormonal methods alone was very common among these women, which only protects them against pregnancy but no protection against STIs and HIV infections. Among fifty seven participants who were using one method, twenty four (42.1%) were using oral contraceptives/pill, fifteen (26.3%) had jadelle inserted, eleven (19.3%) were on depo provera and seven (12.3%) were inserted intrauterine device. Among thirteen participants who were using two methods/dual contraception, five (38.5%) were using condoms plus oral contraceptives, four (30.8%) were using condoms plus depo provera, three (23.1%) were using condoms plus jadelle and one (7.6%) used condoms plus intrauterine device. The study findings showed low use of dual contraception. This also concurred with a study done in Zimbabwe which reported low dual use of 38% (WHO, 2011).

Responding to question, have you ever used a condom? Forty six (54.8%) had used condoms, which showed a good practice. Thirty eight (45.2%) had never used condoms and this was supported by a study done in Zimbabwe which cited that many women had problems in negotiating safer sex with their partners, due to power dynamic in relationship leading to low
use of condoms. There are also myths and misconception about condoms, condom use is also associated with prostitution or disease prevention rather than contraception (Matsheza, 2010).

Responding to item, have you ever used condoms and any other contraceptive method? Eighteen (21.4%) had once used dual contraception and sixty six (78.6%) had not used dual contraception. The majority had never used dual contraception, which was unexpected considering their high scores in knowledge. It appears that low usage of dual contraception is not a problem in Zimbabwe alone; A study done in United State of America revealed a low dual contraception use of 14% (Pack, Xiamong, Stanton and Cottrell, 2011).

Responding to item; how often do you use a condom plus any other contraception method? Three (3.6%) always used condoms plus any other contraception, twenty four (28.6%) reported that they sometimes used that method and fifty seven (67.9%) reported that they had never used that method. The study findings revealed low use and inconsistent use of dual contraception. This concurred with Lopez, et al., (2014) that inconsistence and incorrect use of dual contraception was common particularly among women aged 15 to 24 years. Correct and consistent use of dual contraception should be emphasized during family planning counselling sessions. Chakrapani, Shumungan& Newman (2011) insist that lower rate and inconsistent use of dual contraception could be explained by low emphasis on dual contraception during family planning counselling sessions and misconception about condoms.

Fifty eight (69%) had not used condoms on their last sexual intercourse and twenty six (31%) had used condoms on their last intercourse. Low usage reported could be due to negative attitude; Nyazema (2013) women say they are viewed as prostitutes when they are seen using condoms.
5.5 Relationship between Knowledge levels and Practice of dual contraception

Pearson product moment was used to examine the relationship between knowledge levels on practice of dual contraception. A positive correlation of \((r = .260^*, p=<.017)\). This means that as knowledge on dual contraception increase, practice of dual contraception should also increase.

Linear regression analysis showed that levels of knowledge on dual contraception had a positive effect on practice of dual contraception. The strength is indicated by \(R^2 = .068, F = 5.938, p=<0.017, b = .260^*\). This means that knowledge level on dual contraception accounts for 6.8% variance in the practice of dual contraception, as a prevention of unplanned pregnancy, sexual transmitted infections and HIV.

5.6 Theoretical Framework

In this study Health Belief Model (HBM) which was developed in 1950s, was used to provide conceptual guidance to the study. The model consists of three phases which are, individual’s perception, modifying factors and variables. The individual’s perception has three constructs which are perceived severity (seriousness), perceived susceptibility and perceived benefit and barriers. Most women did not perceive severity (seriousness) of not practicing dual contraception; this was shown by the study findings revealing low use of dual contraception.

5.7 Implications to Maternal Child Care /Midwifery Practice, Education, Research Midwifery/ Nurse Practice

Findings from this study showed low practice of dual contraception (21.4%). Study findings also showed inconsistent use of dual contraception, with only twenty four (28.6%) stating they sometimes used dual contraception.

Nurses should emphasize on the use of dual contraception practice and consequences of unplanned pregnancy, abortions, STIs including HIV during family planning counselling.
sessions. Nurses should involve men during these family planning counselling sessions so that the counterpart will support the practice of dual contraception

5.8 Education and Research recommendations

According to the research findings there are gaps in the practice of dual contraception. The research findings have shown that only 6.8% change or variation in practice of dual contraception was explained by knowledge levels. This should be taken seriously as a matter of concern by health personnel. Educators should encourage students to carryout researches on factors that influence practice of dual contraception, for them to give effective health education to women of child bearing age.

5.9 Limitations

Research participants were sampled through convenience sampling which cannot be generalized. The sample consisted mostly of women from Morgenster mission hospital catchment area, which are rural areas and a few from peri urban; this reduces generalizability of the findings to the entire population of Zimbabwe. The instrument was designed by the investigator and has never been subjected to validity test.

Summary

Unplanned pregnancy is the major cause of induced abortion, one of the leading causes of maternal mortality and morbidity. In Zimbabwe studies showed that between 60 000 and 80 000 unsafe abortions are performed every year mostly between the ages of 15 to 24 years.

The purpose of the study was to examine the relationship between knowledge levels and practice of dual contraception as a prevention of unplanned pregnancy, abortions, STIs, including HIV infection among women aged 15 to 24 years at Morgenster mission hospital.

A non-probability, descriptive correlational design was used in this study. The study utilized Health Belief Model as a conceptual model. Eighty four participants were sampled. The
instrument used to measure the variables was a structured questionnaire which had three sections. The demographic data was measured through the demographic data measuring tool, knowledge on dual contraception was measured through knowledge level tool and practice of dual contraception was measured through practice on dual contraception tool.

Descriptive statistics were used to describe, analyse and summarise data on knowledge levels on dual contraception and practice of dual contraception. The mean score on knowledge levels was 10.6, standard deviation 2.3. The mean score of practice of dual contraception was 2.6 and standard deviation was 2.1.

A significant positive relationship was noted _r_ = .260*. The results of Pearson correlation coefficient was used to establish the relationship between knowledge the study showed that levels of knowledge on practice of dual contraception have a weak effect on practice _R_ squared = .068 indicating that knowledge levels on practice accounts for 6.8% variance or change on practice of dual contraception.
REFERENCES


- Matsheza, I. B. (2010). *To examine the relationship between knowledge levels on self-care practices and occurrence of abortion among women of bearing age*. Harare


• Zimind. (2014). * Abortions increase among youth a cause for concern*. Harare
APPENDIX I

INFORMED CONSENT FORM

PROJECT TITLE

Examination of relationship between knowledge level on dual contraception and practice of dual contraception as a prevention of unplanned pregnancy, abortions, sexual transmitted infection and HIV infection, among women aged 15 to 24 years at Morgenster mission hospital.

Principal investigator; Mupasi Irene MNS Student

Phone number of the Principal investigator; 0773549823

PROJECT DISCRIPTION

I am doing a study to examine the relationship between knowledge level on dual contraception and practice of dual contraception as a prevention of unplanned pregnancy, sexual transmitted infections (STIs) including HIV among women aged 15 to24 years at Morgenster mission hospital in Masvingo Province. Dual contraception is the use of two contraceptive methods that is a condom plus any other contraceptive methods e.g. depo provera or oral contraceptives. The purpose of the study was to examine the relationship between knowledge and practice of dual

Contraception among women aged between 15 to 24 years. The researcher will ask questions concerning your knowledge and use of condoms and other contraception methods.
Findings will be used in the improvement of use of dual contraception to prevent unplanned pregnancy, STIs and HIV in women of child bearing age. The research findings will not be used against you.

**YOUR RIGHTS**

You are kindly requested to participate in this study but before you decide whether or not to volunteer for the study. You must understand its purpose, how it may help you, the risks and what is expected of you. This process is called informed consent.

**PURPOSE OF RESEARCH STUDY**

The purpose of the research study is to examine the relationship between knowledge and practice of dual contraception among women aged 15 to 24 years at Morgenster mission hospital. You were selected in study because you are within childbearing age, aged between 15 to 24 years.

**PROCEDURE INVOLVED IN THE STUDY**

If you decide to participate, you will be interviewed, which will take about 20 to 25 minutes. The interview will be carried in separate room.

**DISCOMFORTS AND RISKS**

There might be some discomforts as the researcher will be asking some sensitive questions about use of condoms. This may affect you psychologically.
PONTENTIAL BENEFITS

The researcher will not guarantee or promise you that you will benefit from the study. The study may not benefit you but benefits other women in future.

STUDY WITHDRAWAL

If you participate in the research study you are free to withdraw from the study at any time during the study or to skip any question without any penalty or prejudice to treatment.

CONFIDENTIALITY OF RECORDS

If you indicate your willingness by signing this document, information will be treated confidentially and no one will have access to the information except me. Your name will not appear anywhere on the questionnaires but numbers will be used. The information will be considered sensitive and confidential and will be kept under double locked cupboard. Only the researcher will have control over this information.

PROBLEMS/QUESTIONS

If you have any questions you are free to ask or contact me on phone number 0773549823. You are also free to contact this address University of Zimbabwe, College of Health Science, department of nursing sciences, telephone 04-791631 extension 2221.
AUTHORIZATION

I have read this paper about the study or it was read to me. I understood the possible risks and benefits of the study. I know being in the study is voluntary. I choose to be in this study. I know I can stop being in this study and will not lose any benefits entitled to me. I will get off this consent form (Initial and all the previous pages of the consent).

Participant’s name (please print).................................................................

Date........................................Time.........................................................

Participant’s signature..............................................................................

Date........................................Time.........................................................

Signature of researcher..............................................................................

Date ........................................Time.........................................................
APPENDIX 11

INFORMED CONSENT IN SHONA

GWARO RETENDERANO

MUSORO WETSVAKURUDZO


ZITA REMUONGORORI

Zitarangundinodzi Mupasi Irene,ndirimudzidiwepaYunivhesitiyeZimbabweMupasitoitachidzidzoyepamusorocheMastersvakotimunezv科学。

NHAMBA DZENHARE: Nhambadzangudzerunharedzinoti 0773549823

TSVANANGURO YETSVAKURUDZO


KODZERO YENYU
Musatimapindamutsvakurudzoiyi,
munofanirwakunzwisisadonzwoyetsvakurudzoiyizvaingakubatsiraiuyezvamunotarisirwaiyi.H
urongwahwachouhwuhwunodzitenderano.

DONZVO RETSVAKURUDZO
Donzworetsvakurudzoiyinderekuongororaukamapakatiperuzivonepakatipezvemashandisirwo
ekodomukusanganisirapamwecheteneimwenzirayezvemarongerwoemhuri.Pakatipamadzimai
anemakoreguminemashanukusvikiramakumimavirinemashanu.Kutimupindemutsvakurudzoiy
imunofanirakungemurimunhukadziariipamakorearehwapamusoroapo.
MuchingaramunharaundayemuMuMorgenster mission hospital.

ZVICHAITWA MUTSVAKURUDZO
Kana muchingemasarudzakupindamutsvakurudzoiyi,
muchatorwamoendeswaparutivipasinavamwe. Mobvuzwanibbudzo kana
kupiwangwarorembudzomopindura.Izvizvinotirwakutimupinduremakasununguka,
munotarisirwakupindurasekuzivakwenyu.Mibvudzoymuchabvuzwaintarisirwakutoramamini
tsimakumimaviri kana makumimatatuzvichiindiranekukakakwenu.

ZVAMUNOGONA KUWANA KUBURIKIDZA NEKUPINDA MUTSVAKURUDZO
Muitiwetsvakurudzoinohaasikukuvimbisaikutipanechamuchawana kana chamuchazowana
kana
mapindamutsvakurudzoino.Tsvakurudzoinoiokwanisakusakubatsiraiimasiinoikwanisakuzob
etsaramadzimaichidukupakushandisanzirimbirinotikodomuneimwenzirayezvekurongamhur
ipamaeranookudziviriranhumbupamwenezvirwerezvepabondekusanganisiranecheshuramat
ongo.

ZVINGAKUVADZA MUTSVAKURUDZO IYI
Tsvakurudzoiyihainazvakaipazvingakuvadzazvamungasangananazvoasikutimuokwanisakus
hushikanamufungwapachivanhucedunekudakwemivudzoekushandisakodomu kana
muchiitabonde.
KUBUDA MUTSVAKURUDZO IYI

Munokwanisakusarudzakupinda kana kubudamutsvakurudzoiyicheronguvayamada, pasinakushungurunzwakanakunyimwa kana kutorerwazvangamuchifaniwakuwana. Munokwanisazvekusiyamiibvudzoineichishungurudzapasinadambudziko.

KUCHENGETENZWA KWAMANGWARO


MIBVUDZO

Makasunungukakubvudzamibvudzomaeranonegwaroretederanoiyi kana kutizvinechekuitanetsvakurudzo. Munokwanisakubvudzaiyizvozi kana kutimunongonakutoranguvayenyumuchifunganezvavomodzondifonera panambadziripamuso ro.

BVUMO

BVUMIRANO

Zitarapatisipendi (nyorai namavara makuru)...................................................

Date...........................................Time......................................................

Runyorwarwapatapisipendi.................................................................

Date...........................................Time......................................................

Runyorwarwomuongorori.................................................................

Date...........................................Time......................................................
APPENDIX 111

SECTION A

DATA COLLECTING INSTRUMENT

DEMOGRAPHIC DATA

1) How old are you?

2) What is your marital status?
   Single
   Married
   Widowed
   Divorced

3) How many children do you have?
   None
   One
   Two
   Three
   Four and above
4) What is your level of education?

Did not go to school

Primary level

Secondary level

Tertiary level

5) What is your religion?

Christianity

Muslim

Traditionalist

SECTION B

Knowledge on dual contraception

Please tick in the box

1. Have you ever heard about contraceptives?
   i. Yes
   ii. No

2. The following are types of contraceptives?
   i. Are pills contraceptive methods?
      a. Yes
      b. No
ii. Are condoms contraceptive methods?
   a. Yes
   b. No

iii. Is an intrauterine device a contraceptive method
   a. Yes
   b. No

iv. Is depo provera a contraceptive method?
   a. Yes
   b. No

v. Is Jadelle a contraceptive method?
   a. Yes
   b. No

vi. Abstinence is it a contraceptive method?
   a. Yes
   b. No

3. Have you ever heard about a condom?
   a. Yes
   b. No

4. What is dual contraception?
   i. Is condom alone not dual contraception?
      a. Yes
      b. No

   ii. Is condom used consistently and correctly a dual contraception?
      a. Yes

b. No

iii. Are condoms and any other contraceptive method a dual contraception?
   a. Yes
   b. No

5. Dual contraception protects against…..

   Does dual contraception protect against pregnancy?
   a. Yes
   b. No

   ii. Does dual contraception protect against sexual transmitted infection?
       a. Yes
       b. No

   iii. Does dual contraception protects against pregnancy STIs and HIV?
       a. Yes
       b. No

SECTION C

PRACTICE

1) What types of contraceptive methods are you using currently-------------------------?

2. Have you ever used a condom?
   a. Yes
   b. No
3. Have you ever used dual contraceptive that is a condom and any other contraceptive method?
   a. Yes
   b. No

4. How often do you use a condom plus any other contraceptive method?
   a. Never
   b. Sometimes
   c. Always

5. Do you a condom with your last sexual intercourse?
   a. Yes
   b. No
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<td>d. Dzidzoyepamusoro</td>
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5. Munopindachitenderochipi
   a. Mukirisitu
   b. Muchewa
   c. Chivanhu
   d. Dzimwevo

CHIKAMU CHECHIPIRI

Ruzivonezvekurongamhurinekuzvidzivirira

1. Makambonzwa here nezvekurongamhuri

   a. Hongu
   b. Kwete

2. Dzinoteverainziradzokurongamhuri

   i. Nzirayamapiritsiinzirayekurongamhuri here?
      a. Hongu
      b. Kwete

   ii. Nzirakondomuinzirayekuronganhuri here?
      a. Hongu
      b. Kwete

   iii. Nziralupuinzirayekurongamhuri here?
      a. Hongu
      b. Kwete
iv. Nzirayejekiseni/depo proverainzirayekurongamhuri here?
   a. Hongu
   b. Kwete

v. Kupfekerazvitanda/jadero
   a. Hongu
   b. Kwete

vi. Nzirayekusaitabondeinzirayekurongamhuri here?
   a. Hongu
   b. Kwete

3. Chinonzinzirambiridzokurongamhurikuitasei?
   i. Hakusikushandisakondomuroga here?
      a. Hongu
      b. Kwete
   ii. Kushandisakondomunguvadzosenamazvo here?
      a. Hongu
      b. Kwete
   iii. Kushandisakondomupamweneimwenzirayezvekurongamhuri?
      a. Hongu
      b. Kwete
4. Kushandisanzirambiridzinotikondomukusanganisapamweneimwenzirayekurongamhurikun odzivirirachii?

i. Kunodziviriranhumbu here?
   a. Hongu
   b. Kwete

ii. Kunodzivirirazvirwerezvepabonde here?
   a. Hongu
   b. Kwete

iii. Kunodzivirirachirwerecheshumatongo here?
   a. Hongu
   b. Kwete
APPENDIX V PERMISSION LETTERS
09 March 2015

Dear Irene Mupasi

**RE: ACCEPTANCE FOR RESEARCH AT MORGENSTER MISSION HOSPITAL**

This letter serves as a response to your application for a place to conduct a study research.

We are glad to inform you that your application was accepted, you are very much welcome and we hope we will be of great assistance in your studies.

God bless you.

Yours faithfully

\[Signature\]

Dr T Muchengwa

Medical Superintendent
Morgenster Mission Hospital
P Bag 9042
Masvingo
12 February 2015

The Provincial Medical Director Masvingo
Masvingo Province
Masvingo
Dear Sir/Madam

REF: APPLICATION FOR PERMISSION TO CARRY OUT A RESEARCH STUDY, TO EXAMINE THE RELATIONSHIP BETWEEN KNOWLEDGE LEVELS AND PRACTICE OF DUAL CONTRACEPTION AS A PREVENTION OF UNPLANNED PREGNANCY, SEXUAL TRANSMITTED AND HIV INFECTIONS AMONG 15 TO 24 YEARS AT MORGENSTER MISSION HOSPITAL.

I am a student with the University of Zimbabwe, College of Health. Department of nursing science. I am requesting for permission to carry out the above mentioned study at Morgenster Mission Hospital. This is submitted in partial fulfilment for the Master’s Degree in Nursing Science.

Enclosed please find the following documents

An Introductory letter from the University of Zimbabwe, College of Health Science.

A copy of research proposal.

Your co-operation will be greatly appreciated

Yours faithfully

Mupasi Irene

56
Joint Research Ethics Committee
For The University of Zimbabwe,
College of Health Sciences and
Parirenyatwa Group of Hospitals

APPROVAL LETTER

Date: 21st April 2015

Name of Researcher: Irene Mupasi

Address: University of Zimbabwe, Department of Nursing Science

Re: A Study To Examine The Relationship Between Knowledge Levels And Practice Of Dual Contraception As A Prevention Of Unplanned Pregnancy. STIS Including HIV infection.

Thank you for your application for ethical review of the above mentioned research to the Joint Research Ethics Committee. Please be advised that the Joint Research Ethics Committee has reviewed and approved your application to conduct the above named study. You are still required to obtain MRCTZ approval and if required by the nature of your study, RCZ approval as well, before you commence the study.

- APPROVAL NUMBER: JREC/51/15
- APPROVAL DATE: 22nd April 2015
- EXPIRY DATE: 21st April 2016

This approval is based on the review and approval of the following documents that were submitted to the Joint Ethics Committee:

a) Completed application form  
b) Full Study Protocol  
c) Informed Consent in English and/or appropriate local language  
d) Data collection tool version:

After this date the study may only continue upon renewal. For purposes of renewal please submit a completed renewal form (obtainable from the JREC office) and the following documents before the expiry date:

a. A Progress report  
b. A Summary of adverse events.  
c. A DSMB report

OHRI IRB Number: IORG 00003144  
PARIRENYATWA GROUP OF HOSPITALS FWA: 00105150
• MODIFICATIONS:

Prior approval is required before implementing any changes in the protocol including changes in the informed consent.

• TERMINATION OF STUDY

On termination of the study you are required to submit a completed request for termination form and a summary of the research findings/results

Yours sincerely

Dr N Madziva
For JREC Chairman
## APPENDIX XVI

### Time – Table

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APPENDIX: VII

BUDGET FOR THE STUDY

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</tr>
<tr>
<td>f) Communication costs</td>
<td>1x10</td>
<td>$1x10</td>
<td>$10-00</td>
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<tr>
<td>g) Permission fees for MRCZ &amp; JREC</td>
<td>1x2</td>
<td>$50X2</td>
<td>$100-00</td>
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<tr>
<td>Total cost</td>
<td>-</td>
<td>-</td>
<td>$292.00</td>
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