

**KNOWLEDGE AND ATTITUDES OF HIV POSITIVE WOMEN ON EXCLUSIVE  
BREASTFEEDING IN MOPANI DISTRICT (GREATER LETABA SUB-DISTRICT),  
SOUTH AFRICA**

by

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submitted in accordance with the requirements

for the degree of

**MASTER OF PUBLIC HEALTH**

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**UNIVERSITY OF SOUTH AFRICA**

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### DECLARATION

I declare that **KNOWLEDGE AND ATTITUDES OF HIV POSITIVE WOMEN ON EXCLUSIVE BREASTFEEDING IN MOPANI DISTRICT (GREATER LETABA SUB-DISTRICT), SOUTH AFRICA** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.



18 February 2016

.....  
**Nathaniel Nдавheleseni Muditambi**

.....  
**Date**

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BREASTFEEDING IN MOPANI DISTRICT (GREATER LETABA SUB-DISTRICT),  
SOUTH AFRICA**

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**ABSTRACT**

The study was conducted to determine the knowledge and to describe attitudes of HIV positive women on exclusive breastfeeding in Mopani District (the Greater Letaba Sub-District, Limpopo), South Africa. A quantitative, exploratory and descriptive design was adopted in this study to describe the knowledge and attitudes of HIV positive women on exclusive breastfeeding. The researcher used a self-developed structured questionnaire to collect data. Descriptive and inferential statistics were used to describe data. The SPSS software version 21.0 was used to analyse data and this were displayed in tables and figures. A total of 123 participants were included in the study. The study concluded that HIV positive women have good knowledge and positive attitude on exclusive breastfeeding.

**Keywords**

Antiretroviral therapy; attitude; elimination of mother-to-child transmission; exclusive breastfeeding; formula feeding; HIV/AIDS; HIV positive women; infant feeding; knowledge; malnutrition; mix-feeding; mother-to-child transmission.

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## *Dedication*

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**LIST OF ACRONYMS**

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal care
ART	Antiretroviral treatment
EMTCT	Elimination of mother-to-child transmission
HCT	Human counselling and testing
HIV	Human Immunodeficiency Virus
MTCT	Mother-to-child transmission
NGO	Non-governmental Organisation
NIMART	Nurses initiate management of antiretroviral treatment
PICT	Provider initiated counselling and testing
TB	Tuberculosis
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations International Children Emergency Fund
WHO	World Health Organization

# CHAPTER 1

## ORIENTATION TO THE STUDY

### 1.1 INTRODUCTION

Mother-to-child transmission (MTCT) of the Human Immunodeficiency Virus (HIV) occurs when a HIV infected mother passes the virus to the child. This may occur during pregnancy, delivery or during breastfeeding. Since the start of the HIV/AIDS epidemic more than 78 million people have been infected, whilst 39 million people are reported to have died (Joint United Nations Programme on HIV/AIDS (UNAIDS) Report 2014a:2). There are 35 million people living with HIV globally, 3.2 million are children, 2.1 million are adolescent and 4.2 million are people above 50 years of age (UNAIDS Report 2014a:2). Fortunately, with the presence of anti-retroviral treatment (ART), HIV is no longer a death sentence. Although this is so, problems in the health care provision still exist because it is reported that only two out of five people have access to ART (UNAIDS Report 2014a:3). HIV remains the leading cause of death amongst women of child bearing age. In 2013, it was reported that 54% of women in the middle and low-income countries did not receive HIV testing which is fundamental to HIV prevention, treatment and health care services. The absence of ART intervention can result in about one third of children living with HIV dying before their first birthday and half by their second birthday. Thus, starting ART therapy before 12 weeks of life reduces HIV related deaths by 72% in children (UNAIDS Report 2014a:3).

In 2014, the South African Minister of Health announced that HIV positive patients with a CD4 count less than 500 qualify for ART. The elimination of mother-to-child transmission (EMTCT) of HIV guideline (South Africa 2014:14) stipulates that to eliminate MTCT of HIV, all pregnant and breastfeeding women qualify for lifelong ART regardless of their CD4 cell count. The rate of HIV transmission from mother to child if not on ART was ranging between 30%-45% depending on the duration of breastfeeding (UNAIDS Report 2014b:3). Many strategies including EMTCT of HIV have managed to reduce MTCT of HIV during pregnancy, labour as well as breastfeeding (UNAIDS Report 2014b:5).

The risk of HIV transmission is maximal during the breastfeeding period. So, there is a need to place more attention on women who are breastfeeding. Hence, the dissemination of information to strengthen the knowledge of women on breastfeeding practices was identified as a fundamental step in addressing this challenge (UNAIDS Report 2014b:5).

## **1.2 BACKGROUND TO RESEARCH PROBLEM**

According to the World Health Organization (WHO) and the United Nations International Children Emergency Fund (UNICEF), the mortality of more than 800,000 children under the age of five can be prevented (WHO and UNICEF). This can be achieved through the following strategies: initiating breastfeeding within the first hour after birth, exclusive breastfeeding for six months and continuing to give breastmilk for two years or more. Infant feeding should be safe, nutritionally adequate, age relevant and complementary feeding should be introduced after six months (Holla-Bhar, Iellamo, Gupta, Smith & Dadhich 2015:2). Unfortunately, prevalence of breastfeeding remains low globally regardless of the overwhelming evidence supporting the significance of breastfeeding in reducing child mortality, morbidity, malnutrition and the risk of developing non-communicable diseases in adult life (Holla-Bhar et al 2015:2). In addition, the generation of money from formula milk has accelerated from \$22.4 billion in 2003 to \$58 billion in 2013 with almost half of these sales in developing countries like South Africa (Holla-Bhar et al 2015:2).

Katepa-Bwalya, Mukonka, Kankasa, Masaninga, Siziya and Babaniyi (2015:5) conducted a study that sought to establish the appropriate time to start breastfeeding, duration of exclusive breastfeeding and when to start complementary feeding. The results of the study indicate that only 50% of women who participated in the study had some knowledge about breastfeeding. However, another study was conducted by Teka, Assefar and Hailelassie (2015:6) the results showed that 77% of women who participated in the study indicated that the advantage of breastfeeding is for prevention of pregnancy. In a separate study by Mekuria and Edris (2015:3), results showed that the majority (90.1%) of the study participants had received breastfeeding information, (61.7%) of mothers did not have enough knowledge of breastfeeding and (57.4%) of mothers knew that the first milk (colostrum) should be given to infants. The results from

these studies suggest that knowledge levels around breastfeeding are a significant determinant of the breastfeeding behavior (Mekuria & Edris 2015:3).

Acknowledging the fact that HIV can be transmitted through breast milk, the WHO developed a series of infant feeding guidelines which guides HIV positive mothers on how to feed their babies (Shayo, Vaga, Moland, Kamuzora & Blystad 2014:2-3). The South African policy on EMTCT recommends that HIV positive breastfeeding women may continue up to 12 months (South Africa 2014:79).

### **1.3 RESEARCH PROBLEM**

Production and marketing of infants formula has become a very profitable industry since these products are vigorously marketed (Kent 2015:9). The HIV Epidemic and attractive media advertisements influenced women to practice formula feeding in their attempt to eliminate the risk of MTCT of HIV. There are gaps identified in infant feeding practices. These gaps are partly related to communication of the changes in breastfeeding guidelines (Shayo et al 2014:2). Wu, Scherpbier, Van Velthoven, Chen, Wang, Li, Zhang and Car (2014:4) conducted a study which further identifies other gaps in infant feeding practice which are poor infant feeding knowledge and practices. Wu et al (2014:5) state that poor Infants and Young Child feeding policy suggest that the recommendation from WHO and UNICEF have not been implemented effectively.

In South Africa, infant feeding guidelines have been amended several times. So, there is an immediate need to ascertain if the public have the correct information so that strategies to reinstall the trust and confidence of the public on breastfeeding policies can be implemented. To promote and protect breastfeeding, strong advocacy and continued research is required; hence the researcher embarked on this study in order to determine the current knowledge and describe attitudes of HIV positive women on exclusive breastfeeding. The study intended to answer the following questions: What is the knowledge and attitudes of HIV positive women on exclusive breastfeeding in Mopani District (Greater Letaba Sub-District) South Africa?



## **1.4 THE PURPOSE AND OBJECTIVES OF THE STUDY**

The purpose of the study was to determine the knowledge and describe the attitudes of HIV positive women on exclusive breastfeeding in Mopani District (the Greater Letaba Sub-District, Limpopo), South Africa. Through this study, the researcher sought to respond to the question: what is the knowledge and attitudes of HIV positive women on exclusive breastfeeding? The objectives of the study were as follows:

- To determine the knowledge of HIV positive women on exclusive breastfeeding.
- To describe the attitudes of HIV positive women on exclusive breastfeeding.

## **1.5 SIGNIFICANCE OF THE STUDY**

The results of the study may assist the researcher in understanding knowledge and attitudes of HIV positive women on exclusive breastfeeding and ultimately identifying problems and misconceptions about exclusive breastfeeding. The information obtained may have influence in the formulation or amendment of infants feeding policies, strategy or awareness campaign strategies to address the knowledge and attitudes of HIV positive women on exclusive breastfeeding. The operational managers at greater Letaba Sub-District can utilise the results to better understand and manage HIV positive mothers at their facilities. The findings will further assist managers to understand the fundamental aspects to success or failure of infant feeding policies and to inform or recommend intervention strategies targeted for this group of the population. The study will explore the impact of independent variable (demographic and socio-economic status) on attitude and knowledge of exclusive breastfeeding, which is rise more question for further studies. The prevailing negative attitudes towards exclusive breastfeeding could be replaced by positive attitudes to breastfeeding through improved knowledge about exclusive breastfeeding.

## **1.6 DEFINITIONS OF TERMS**

### **1.6.1 Knowledge**

Knowledge is the expertise and skills acquired by a person through experience or education in the theoretical or practical understanding of a subject (Knowmanint 2015).

Knowledge in this study is defined as the information or understanding of education received by HIV positive women in the Greater Letaba Sub-District on exclusive breastfeeding

### **1.6.2 Attitude**

This refers to a predisposition or tendency to respond positively or negatively towards a certain idea, object, person or situation (*Business-dictionary* 2015). Attitude in this study refers to either positive or negative reaction or response of HIV positive women at the Greater Letaba Sub-District on exclusive breastfeeding.

### **1.6.3 Human immunodeficiency virus (HIV)**

This is the virus that causes HIV infection. During HIV infection this virus attacks and destroys the infection-fighting CD4 cells of the body's immune system. Loss of CD4 cells makes it difficult for the body to fight infection. HIV is a sexually transmitted infection. It can also be spread by contact with infected blood, or from mother to child during pregnancy, childbirth or breast-feeding. It can take years before HIV weakens your immune system to the point that you have AIDS (HIV/AIDS-mayo Clinic 2015).

### **1.6.4 Acquired Immune Deficiency Syndrome (AIDS)**

AIDS is the most advanced stage of HIV infection it is diagnosed when a person infected with HIV has a CD4 count of fewer than 200 cells/mm or has an AIDS-defining condition. It is a severe immunological disorder caused by the retrovirus HIV, resulting in a defect in cell-mediated immune response that is manifested by increased susceptibility to opportunistic infection (*Thefreedictionary* 2015).

### **1.6.5 HIV positive women**

HIV positive women refer to women who have taken an HIV test whose results have been confirmed positive and who know their status (South Africa 2013:69). For the aim of this study HIV positive women are women who tested positive and confirmatory tests were done, and the women are collecting ART in one of the clinics in the Greater Letaba Sub-District.

### **1.6.6 Antiretroviral Therapy (ART)**

Antiretroviral therapy (ART) is the recommended treatment for HIV, involves taking fixed doses of a combination of three or more anti-HIV medicines from at least two different drug classes every day to control the virus (*AIDSinfo* 2012:9).

### **1.6.7 Mother-to-child transmission (MTCT) of HIV**

Mother-to-child transmission (MTCT) of HIV is the passing of HIV from a woman infected with HIV to her baby during pregnancy, labour, delivery or breastfeeding (*AIDSinfo* 2012:5)

### **1.6.8 Exclusive breastfeeding**

Exclusive breastfeeding means feeding an infant breastmilk only; no supplementary feeding such as water, juice, animal milk or solid foods for the first six months of life, except vitamins, minerals and medication prescribed by a doctor or health care worker when medically indicated (South Africa 2013:68). In this study exclusive breastfeeding refers to feeding breast milk only for six months without giving anything, unless medically indicated; i.e. no formula, water, syrups or traditional medicines.

### **1.6.9 Exclusive formula feeding**

Exclusive formula feeding means feeding infant formulated milk product only for six months without giving solids except water (South Africa 2013:69). In this study formula feeding refers to giving infant artificial milk only, not breast milk, for six months.

## **1.7 RESEARCH DESIGN AND METHOD**

Polit and Beck (2012:12) explain research method as a set of techniques a researcher utilises to structure a study and gather information, relevant to the research question.

### 1.7.1 Research design

The research design is a plan which helps the researcher to get answers to the questions being studied. It controls external factors that may affect the study (Polit & Beck 2012:58). A quantitative, descriptive approach was adopted in the study to describe the knowledge and attitudes of HIV positive women at the Greater Letaba Sub-District's clinics.

### 1.7.2 Setting

Brink, Van der Walt and Van Rensburg (2012:59); as well as Polit and Beck (2012:49) define a setting as a specific place or places where the information is obtained. There were 21 ART clinics in Greater Letaba Sub-District; probability sampling was used to select three ART clinics. Three clinics were selected for data collection.

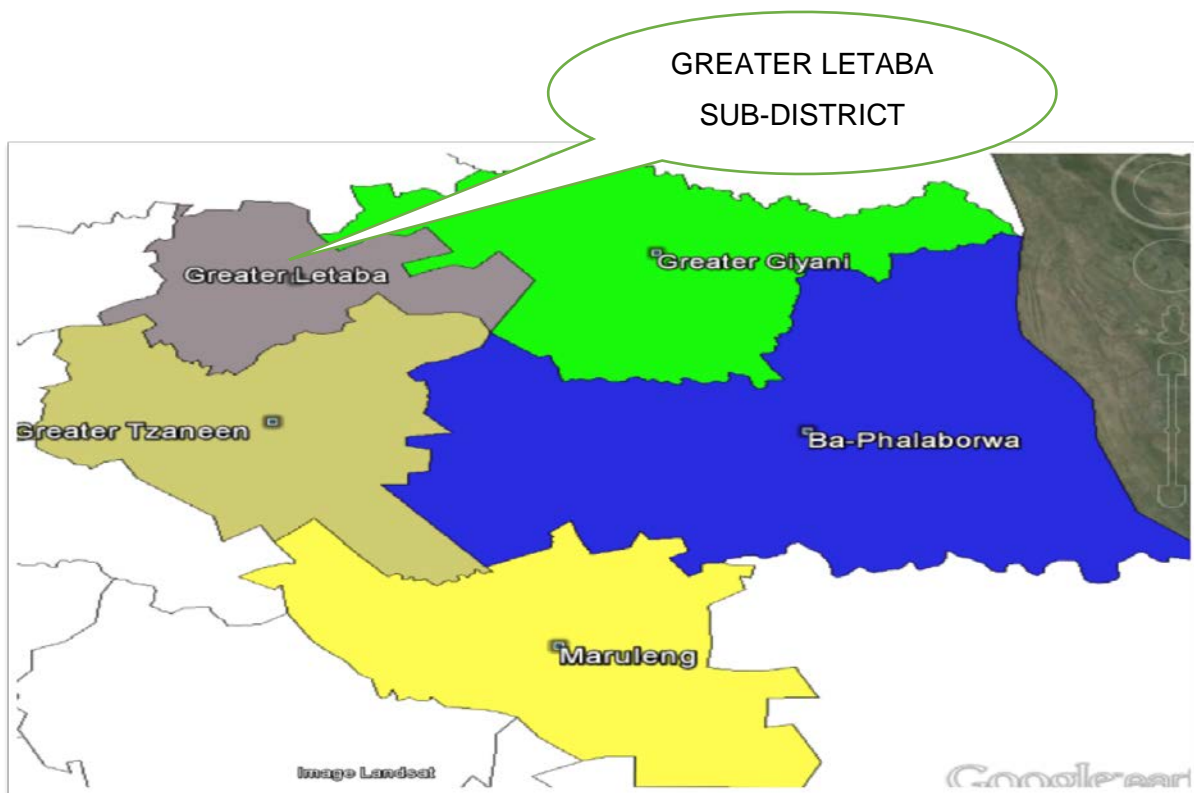


Figure 1.1: Map of Mopani District  
([www.Googlemap.co.za](http://www.Googlemap.co.za))

### **1.7.3 Population**

A population is all individuals or objects with similar defined characteristic (Polit & Beck 2012:59). In this study the researcher was interested in HIV positive women above 18 years who had babies six months old and younger.

### **1.7.4 Sample and sampling**

Burns and Grove (2009:348) and Polit and Beck (2012:275) define sampling as a process of selecting a part of the population to represent the whole population. Both probability and non-probability sampling were used in this study. Probability sampling was used to sample the sites for inclusion and non-probability sampling was used to select respondents.

### **1.7.5 Data collection**

According to Polit and Beck (2012:725), data collection is defined as the collection of data needed to respond to a research problem.

### **1.7.6 Data collection instrument**

In the study the researcher used a self-developed structured questionnaire rooted in the literature. The questionnaire was relevant to the topic under investigation. The pre-test assisted the researcher to improve the face and content validity of the instrument. The questionnaire consisted of the following sections:

Section A: Demographic data

Section B: Knowledge of exclusive breastfeeding

Section C: Attitude on exclusive breastfeeding

### **1.7.7 Data collection process**

The questionnaires were administered at the sampled clinics. During the days of data collection the researcher identified respondents who meet the criteria described under

the description of the population above. The researcher met with the respondents in a quiet area where the respondent was seated comfortably. The researcher explained the aim of the study and ethical issues to the respondents. In addition, issues such as confidentiality and privacy were also discussed with the respondents.

## **1.8 SCOPE OF THE STUDY**

The scope of the study was to include 160 respondents. It was difficult to reach the target number of respondents because not all HIV positive women coming to an ART clinic were meeting the criteria. The data was collected in three different facilities. The study focused on knowledge and attitudes to exclusive breastfeeding as a results no information on the practice of exclusive breastfeeding was obtained.

## **1.9 STRUCTURE OF THE DISSERTATION**

The dissertation consists of five chapters:

Chapter 1: Orientation of the study

Chapter 2: Literature review

Chapter 3: Research design and method

Chapter 4: Analysis, presentation and description of the research findings

Chapter 5: Conclusions and recommendations

## **1.10 CONCLUSION**

This chapter introduced the background to the study, including the purpose, objectives and an overview of the methodology of the study. Chapter 2 will be discussing the literature review.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 INTRODUCTION

This chapter focuses on the literature review which was undertaken during the study. The reviewed literature was mainly on knowledge and attitudes of HIV positive women on exclusive breastfeeding. Various books and journal articles were consulted on the knowledge and attitudes of women on exclusive breastfeeding. A global and South African status on HIV was outlined followed by more literature that is specific to the topic in the following way: More literature was focusing on women and children who are infected and affected by HIV/AIDS, because these are the people who are more relevant to the research topic. Sociocultural and demographic determinants of health that are direct and indirect contributors to the spread of HIV were described.

Literature review can be defined as a process of gathering information through reading, understanding and making conclusion of a published topic by scholars who are relevant to the study topic (Brink et al 2012:70). Polit and Beck (2012:757) define literature review as the summary of critical existing information on the topic of interest, with the purpose of placing research problem in the context.

There are various reasons to conduct review (Brink et al 2012:71):

- To analyse the current information about topic of interest, ultimately identify knowledge gaps getting the clear state of the knowledge.
- To identify or refine a research problem and a research question.
- Through gap identification one will avoid to duplicate knowledge.
- To gain ideas on how to utilise research method and determine which one work on what and which one does not work on what.
- To compare the findings on existing study and the results at hand.

Literature reviews assist the researcher to have a clear understanding of the nature and the depth of the research problem (De Vos, Delpont, Fouché & Strydom 2011:134).

## **2.2 CONCEPTS RELATED TO HIV/AIDS**

### **2.2.1 Knowledge of HIV/AIDS**

It is the knowledge of HIV/AIDS that will enable people to apply evidence based decision and preventive measures. HIV among others can be transmitted during pregnancy, delivery and breastfeeding. So, there is a need to understand the fundamental aspects of HIV if we desire to eliminate its transmission (Clive 2011:23).

#### ***2.2.1.1 Human immunodeficiency virus (HIV)***

Human immunodeficiency virus (HIV) belongs to a family of retroviridae. It also belongs to a genus lentivirus because it takes time for virus to cause disease. HIV is further divided into type 1 and 2; type 1 is more common in Southern Africa and type 2 in West Africa (Van Dyk 2012:6).

#### ***2.2.1.2 Acquired immune deficiency syndrome (AIDS)***

AIDS is an abbreviation for Acquired immune deficiency syndrome. This disease is not inherited but caused by the virus HIV that enters the body. HIV destroys the body's ability to fight infection, making the body more prone to opportunistic infections (Van Dyk 2012:5). The UNAIDS Report (2013:8) describes AIDS as a fatal disease that eventually cause death. Currently, ART are the only drugs that can slowdown the replication of the virus and improve the standard of living, but they don't eliminate the virus from the body (UNAIDS report 2013:8).

#### ***2.2.1.3 Transmission of HIV***

HIV is transmitted primarily through sexual intercourse from HIV infected individuals, to the uninfected. The virus is abundant in sexual fluids (semen and vaginal fluids) of infected person. The virus needs receptor macrophages to attach to them so that it gains access into the blood. A pregnant woman who is HIV infected can transmit HIV to her baby during pregnancy or during delivery. Research has shown that there is approximately a 25% chance that infected women can transmit HIV to her baby during



pregnancy (Clive 2011:23). Breastfeeding is another risk of HIV transmission from the HIV infected mother to uninfected infant. All this risks, however, can be significantly reduced if and HIV infected woman takes ART (Clive 2011:23).

### **2.3 STIGMA AND DISCRIMINATION**

HIV-related stigma refers to the negative beliefs, attitude and feeling towards people living with HIV and people associated with people living with HIV (UNAIDS Report 2014a:2). HIV-related discrimination is defined as unfair and unjust treatment of an individual based on real or perceived status (UNAIDS Report 2014a:2). Stigma and discrimination are among the most highly rated barriers to the prevention, treatment, care and support of people living with HIV (UNAIDS Report 2014a:2). The UNAIDS Report (2014a:2) further explain that various research results have shown that stigma and discrimination prevents people from seeking medical assistance on time. HIV positive people often find it difficult to disclose their status, this prevents them to access and adhere to treatment. Thus, reducing HIV-related stigma and discrimination is fundamental in ensuring appropriate access to health services by those at a high risk (UNAIDS Report 2014a:2). Stigma and discrimination has a negative impact on the life of the clients; this includes their health, working and family life. Some of the clients have internalised stigma, as a result, they blame themselves for their status (Dos Santos, Kruger, Mellors, Wolvaardt & Van der Ryst 2014:80).

There are several other factors that contribute to lower levels of stigma. These may include the level of education, less health worries, less disclosure concern socioeconomic status. The level of stigma is high when the opposite is the case in these factors. Hence, it is said that intervention strategies should consider socio and demographic factors because they have an influence on the stigma (Tzemis, Forrest, Puskas, Zhang, Orchard, Palmer, McInnes, Fernades, Montaner & Hogg 2014:99).

The Joint United Nations Programme on HIV/AIDS outlines the strategy to achieve zero discrimination. This was also outlined in the National strategic plan for HIV, STI and TB (South Africa 2012:12). Hence, the UNAIDS has encouraged countries to introduce laws that help fight against discrimination. In 2012 of all the countries that submitted their AIDS report, 61% reported that they have anti-discriminatory laws that protect people living with HIV. The number of countries that are reported to have access to HIV

related legal services increased from 45% in 2008 to 55% in 2012. However, it is believed that the implementation of these laws is very much insufficient and inconsistent, meaning that a lot of HIV discrimination is not reported (UNAIDS Report 2014a:8).

## **2.4 HIV/AIDS GLOBAL STATUS**

There is a continuous decline on the number of new infections in most parts of the world. For example, there were 3, 4 million new HIV infections in 2001 and 2.1 million in 2013, a decline of 38%. The progress is evident in children as well, where there were 240.000 new HIV infections in 2013, which is a decline from 580.000 in 2002 by 58% (UNAIDS Report 2014a:8). The knowledge of HIV status in people living with HIV is higher than before; 86% of people living with HIV globally know their status. Meanwhile, there is a decrease in deaths associated with HIV/AIDS as HIV related deaths have fallen by 35% since 2005 to 2013 globally (UNAIDS Report 2014a:8). Further, the number of women receiving ART prophylaxis has doubled over the past five years from 33% to 68% (UNAIDS Report 2014b:8). To eliminate MTCT of HIV it is imperative to prevent HIV transmission among women of reproductive age. In addition, there is an observed decline in HIV transmission among women of reproductive age in priority countries like South Africa, Angola Botswana and Burundi (UNAIDS Report 2014b:8). All women, including those who are HIV positive should have access to family planning; this will help prevent unwanted pregnancies. Unfortunately, more than half of priority countries are failing to meet the need of family planning (UNAIDS Report 2014b:9).

In 2012 countries like Ghana, Namibia and Zambia had met the target of initiating 90% pregnant women on ART. Most of the countries like South Africa were on track to reach the 2015 target of enrolling 80% of people living with HIV on the ART programme. In 2012, above 900,000 women globally, were initiated on ART for EMTCT of HIV programme. The expanded programme on EMTCT of HIV prevented more than 670,000 children from acquiring HIV (UNAIDS Report 2013:38).

The UNAIDS target to reach 90% of pregnant women to be enrolled on ART was within reach by the end of 2015. Gender inequality remains the barrier and challenge in the fight to combat HIV. Close to all 92% of the countries including South Africa reported on

the mid-term reviews on their AIDS response acknowledge the need to address gender inequality (WHO Report 2014:117).

Although there seems to be stability in other countries, the situation is different in sub-Saharan countries which have become the most affected in the world, with 3% of young women living with HIV compared to 1.3% of men (UNAIDS Report 2014b:10). In 2013 there were 24.7 million people living with HIV in Sub-Saharan Africa. Of these, 1.5 million were estimated as new infections in Sub-Saharan Africa. Out of 1.5 million new infections 210,000 were children, whilst out of 24.7 million people living with HIV 58% were women (UNAIDS Facts Sheet 2014:2). Hence, it is said that sub-Saharan Africa contributes about 70% of global new HIV infection. In 2013 up to 1.1 million people died of HIV related illness in Sub-Saharan Africa. However, between 2005 and 2013, a decline in this number of deaths was reported to be about 39%. This could be attributed to the treatment coverage estimated at about 37% of people living with HIV in Sub-Saharan Africa (UNAIDS Facts Sheet 2014:2).

## **2.5 SOUTH AFRICA HIV/AIDS STATUS**

Shisana, Rehle, Simbayi, Zuma, Jooste, Zungu, Labadarios and Onoya (2014:108) conducted a survey in South Africa which investigated HIV prevalence and the associated behavior. The survey estimated that 1.2 million people were living with HIV in South Africa. KwaZulu-Natal was found to have the highest prevalence (16.9%), whilst the lowest was the Western Cape at 5%. Females between the ages of 30-34 were found to have the highest prevalence (36%) as compared to males (25.6%). Hence, there is a need to focus on the female of child bearing age.

An assessment of the prevalence based on race showed that blacks have the highest (15%) infection levels, followed by the colored population with 3.1%. Location type suggested that prevalence among people staying in urban informal settlement is the highest (2.5%) and lowest at urban formal settlement (1.1%) (Shisana et al 2014:108).

HIV incidence remains a concern because statistics show that occurrence among young females between the ages 15-24 was over four times compared to young males of the same age range. Shisana et al (2014:108) further indicates that more females were

aware of their HIV status as compared to males. Whilst, 62.2% of males did not know their HIV status, a lower 45% of the females were not. Only 26% of South Africans had accurate information on sexual transmission and prevention of HIV, so generally there is a decrease in the knowledge of HIV prevention among South Africans. Shisana et al (2014:108) also indicate that participants responded positive in all questions about the attitude towards people living with HIV/AIDS

In KwaZulu-Natal, life expectancy has increased from 49.2 to 60.5 years by 2011. This was due to the implementation of the ART programme (Maartens & Goemaere 2014:7). There is much to be celebrated in South Africa. After a decade of the ART programme, South Africa has managed to initiate two million people on ART, making it the largest ART programme in the world (Maartens & Goemaere 2014:7). With the largest number of people on ART, it is alleged that the country will soon face challenges like shortage of ART and retention of clients on care (Maartens & Goemaere 2014:7). South Africa has moved to Option B+ and 90% of pregnant women living with HIV are on ART (UNAIDS Report 2014b:9). South Africans has managed to pass the era of HIV denialism with about two million people on ART, now the focus is to achieve zero HIV infection, zero death and zero stigmas related to HIV. HIV positive people are now living longer, starting families and growing old in the public (Moorhouse 2014:9). So, Moorhouse (2014:9) indicates that another focus for the country is to improve the quality of life. South Africa has managed to reduce death related to HIV/AIDS by 51% between 2009 and 2013 (UNAIDS Report 2014a:9).

In South Africa EMTCT programme has been integrated to mother obstetric unit, this approach now is a standard in providing rapid ART, on-going care and support to HIV positive mothers during pregnancy and post-natal should be provided. This has contributed in reduction of MTCT of HIV to less than 1% (Kaplan, Orrell, Lawn, Bekker & Wood 2014:36). The vision of the South African government outlined in the National strategic plan for HIV is zero new infections, zero new infections due to vertical transmission, zero preventable death associated with HIV and zero discrimination associated with HIV (South Africa 2012:12).

## 2.6 THE POTENTIAL RISK FACTORS FOR HIV TRANSMISSION IN WOMEN

There are various biological factors that place women in more vulnerable situations to HIV infection than men. A woman is a receptor during sex; semen from infected man is deposited to the woman's vagina and remains there for a while. This allows the virus to enter the body effectively. Women who have cervical conditions like erosion and cervical ectopic pregnancy (pregnancy that is implanted on the uterine endocervix), are more vulnerable to HIV transmission. Inflammation or damage to the wall of the vagina which usually results from sexually transmitted infections is a risk of HIV transmission. Menstruation can be a risk of HIV transmission because of the exposed inner lining of the uterus particularly after menstruation (Clive 2011:405).

Ramjee and Daniels (2013:1) state that women are more susceptible to HIV transmission because of the following reasons, women have large mucosal surface area that expose them to pathogens, Increased level of oestrogen contribute to women's biological risk to HIV infection, cleansing ritual, virginity testing, young women entering marriage early and undiagnosed STIs.

Abdool, Sibeko and Baxter (2010:122) also state that the thickness of the epithelium layer (the layer that covers the inside wall of the uterus) act as protection, unfortunately contraceptives that contains progesterone lead to thinning of the layer. Dellar, Dlamini and Karim (2015:66) indicated that the mechanism that renders women more vulnerable to HIV transmission is not clearly understood, because the risk factors outlined has not been observed in other studies. Dellar et al (2015:66) conducted a study in KwaZulu-Natal which revealed that young women are more at risk of HIV transmission as compared to older women. Among other predisposing factors that the authors indicated are, the immature cervix has a large genital mucosa and high level of genital inflammation. Another study conducted by Feldblum, Enosse, Dubé, Arnaldo, Muluana, Banze, Nhanala, Cunaca, Chen, Merlin, and Thompson (2014:5) in southern Mozambique provides consistent suggestions that there is a high prevalence of HIV among sexually active young women. Hence, intervention needs to target young women of reproductive age. The high prevalence among this group is also attributed to multiple partners and less use of condoms in women using family planning procedures such as injections (Feldblum et al 2014:5). Feldblum et al (2014:5) also indicated that most

young women did not report condom use in the last sexual intercourse and 59.6% of women did not use condom.

Apart from biological and physiological factors there are six key social and structural drivers of HIV transmission in women, this includes transforming gender norms, addressing violence against women, transforming legal norms to empower women, promote women empowerment, Lack of knowledge on HIV/AIDS, income, stigma and discrimination (Hardee, Gay, Croce-Galis & Peltz 2014:5). Ramjee and Daniels (2013:1) state that poverty, inequality and low economic status has been associated with early sexual intercourse and low condom usage among women. Hence, Ramjee and Daniels (2013:1) further state that gender norms, violence and discrimination against women is associated with risk of HIV transmission in women.

Pascoe, Langhaug, Mavhu, Hargreaves, Jaffar, Hayes and Cowan (2015:12) conducted a survey which further reveals that poverty among women was identified as one of the contributory (risk) factors to HIV transmission. Poor women were found to engage in sexual activities at an early age, moreover some have multiple partners so that they can have material or financial support. During the survey women who experience shortage of food, were reported to have a high risk sexual behavior (Pascoe et al 2015:12). Hardee et al (2014:5) further indicate that by addressing these social and structural drivers this will lead to increased HIV protective behaviors, create more gender equity relationships, decrease violence and improve services for women

## **2.7 CHALLENGES EXPERIENCED BY HIV POSITIVE WOMEN**

### **2.7.1 Socio-economic status**

The relationship between socio-economic status and HIV transmission is poorly understood. Women with low economic opportunities may engage in transactional sex, this may increase the risk of HIV infection. There is also high prevalence rate of HIV among the wealthier population. Buot, Docena, Ratemo, Bittner, Burlew, Nuritdinov and Robbins (2014:3) conducted a study which reveals that high income inequality, high unemployment, high poverty and high cost of living all correlated with high incident and increase risk of HIV transmission by 2-3 folds.

### **2.7.2 Vulnerability**

Women are often exploited and regarded inferior to men, this renders them vulnerable to HIV as they can't negotiate condom use. The risk of women to get infected is seven times greater than that of a man. Women are biologically more susceptible to HIV transmission. Moreover, this is accompanied by economic inequality that place women in greater risk of getting HIV (Hajizadeh, Sia, Heymann & Nandi 2014:19).

### **2.7.3 Fertility intension**

Marlow, Maman, Groves and Moodley (2012:5) conducted a study which indicated that HIV positive women have fear to have children because they do not want to give birth to HIV infected children or transmit HIV to the child. Some women indicated that giving birth will accelerate the progression of HIV. Other women are anxious that they might die and leave their children behind.

### **2.7.4 Health service challenges**

HIV positive women felt that they don't receive all the time and attention they required from the health care worker and other services. This is attributed to the fact that, health care workers don't pay attention to their social issues and they are not free to ask question (Kose, Mandiracioglu, Mermut, Kaptan & Ozbel 2012:36). Kose et al (2012:35) indicate that women felt that health care workers don't communicate with them well; they don't trust the health care workers with the issue of confidentiality. Most women also felt that being HIV positive they don't have the right to question the service they are getting (Kose et al 2012:36).

### **2.7.5 Individual level challenges**

The UNAIDS Report (2013:80) state that lack of proper counselling contributes to women not coping well with the new diagnoses, thus leading to denialism. Depression is more likely because women are expected to care for the whole family while they are still struggling to deal with the new condition. Inadequate knowledge and misconception on EMTCT of HIV intervention and HIV prevention leave women more vulnerable to make wrong decision. Some women are afraid to disclose their status to partners. In some

instances, the partner may refuse to use condom or to take ART (UNAIDS Report 2013:8).

### **2.7.6 Societal level challenges**

There is general fear of stigma among women, fear to be seen for EMTCT of HIV services. Lack of decision making power at the family because men are the ones who make decisions in some of the families (UNAIDS Report 2013:8).

## **2.8 KNOWLEDGE AND AWARENESS OF WOMEN ON ANTENATAL CARE AND ELIMINATION OF MOTHER-TO-CHILD TRANSMISION**

The knowledge of ANC and EMTCT of HIV services contribute to better utilisation of the services. Antenatal care is an acknowledged contributing factor in improving pregnancy outcomes. Information and services about EMTCT of HIV which include breastfeeding and option of HIV testing is provided to pregnant women during ANC. There is a continuous mother and infants' mortality which resulted from poor utilisation of ANC and EMTCT of HIV services (Shabila, Ahmed & Yasin 2014:7). Women are not effectively using the public services among other contributing factors is poor quality of care at public facilities. Some women indicated that public hospitals are always congested so nurses don't have enough time to explain the entire questions they are having. They report that there is no information about practicality of exclusive breastfeeding. Other women reported that they receive different advice from nurses. However, some reported that they did receive good service from public facilities (Shabila et al 2014:7).

In a study conducted by Deressa, Seme, Asefa, Teshome and Enqusellassie (2014:332) 90% of pregnant women had some knowledge on MTCT of HIV. They reported that HIV positive mothers can transmit HIV to their babies. About 2.6% of the women did not think that HIV could pass from mother to child. 7.1% did not know whether or not HIV can be transmitted from mother to child. The majority of mothers (72.4%) think that HIV can be transmitted through breastmilk; this was followed by pregnancy (49.7%) and delivery (49.5%). Owoaje, Omidokun and Ige (2012:4) conducted a survey in Nigeria which further highlighted that women had knowledge on EMTCT of HIV, however, the Owoaje et al (2012:4) as indicated that despite the knowledge some of the women had a negative perception on HCT and breastfeeding.



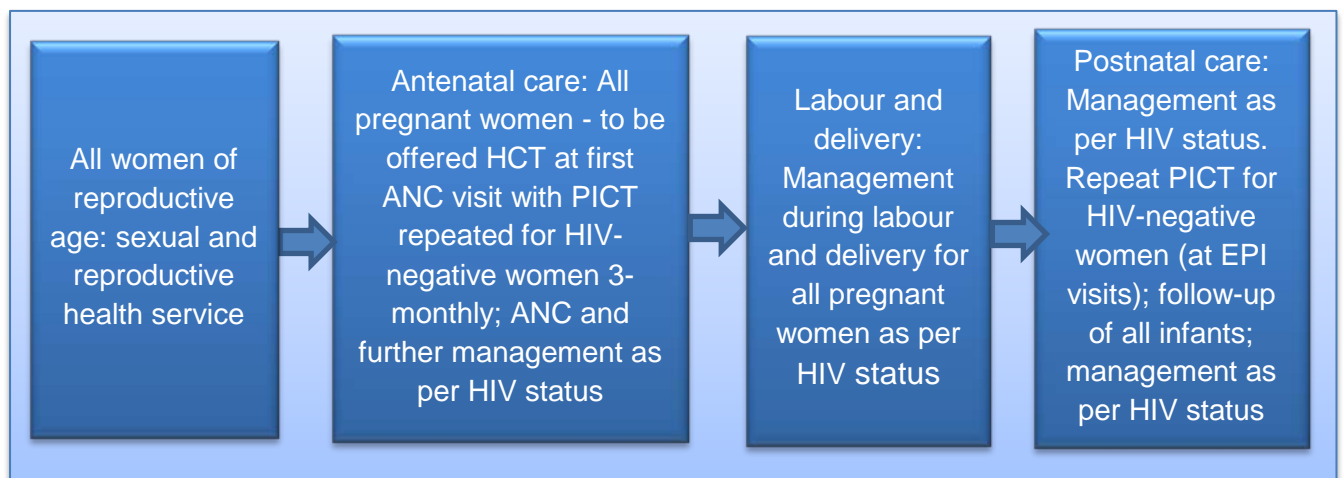
Inadequate knowledge on ANC and EMTCT contribute to late booking and is recorded as the most contributing cause of maternal death (Haddrill, Jones, Mitchell & Anumba 2014:1). Women reported that they book late because of the following factors, not aware of pregnancy, unplanned pregnancy, avoiding symptoms and postponing the date for visit to the clinic (Haddrill et al 2014:3). Other contributing factors to lack of utilisation of ANC services include lack of knowledge, Cultural factors, educational attainment, accessibility and distance to the health care (Tsawe & Susuman 2014:2).

Tsawe and Susuman (2014:4) conducted a study which further indicated that more than a half (58, 4%) of women went for ANC visit four times, whereas 41, 6% went more than five times. Majority were women between the ages of 20-24, which indicated that age is significantly associated with ANC visit. Women who were married (60%) reported that they went for ANC four times and unmarried women went for more than five times.

## **2.9 ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION PROGRAMME**

The progress accomplished by previous intervention on EMTCT of HIV has inspired the sense that it is feasible to eliminate MTCT of HIV globally. Hence, we are no longer talking about PMTCT but EMTCT since the start of 2015. However, HIV may not disappear in the near future but the AIDS epidemic can be eliminated as a global threat by 2030 (UNAIDS Report 2014b:6). Rapid progress must be made by 2020 if we are to meet the global target of the end of the AIDS epidemic by 2030. By accelerating the speed of HIV prevention and treatment approaches will reduce the epidemic to more controllable level and eventually elimination. To achieve this by 2030 the number of new HIV infections and AIDS related deaths must decrease by 90% as compared to 2010.

There are benefits of accelerating the AIDS response in low and middle income countries. These include a reduction of 28 million HIV infections between 2015 and 2030. If this can be achieved, 21 million deaths will be avoided. Most importantly, 24 billion US dollars of additional cost on treatment will be averted (UNAIDS Report 2014a:6). EMTCT of HIV is a key component in HIV prevention and represents a critical opportunity to reduce the HIV epidemic. ART is the core intervention of EMTCT of HIV; ART drugs can reduce the likelihood of vertical transmission from 45% to 15% (South Africa 2014:47).



**Figure 2.1: Key components of EMTCT programme**  
(South Africa 2014:47)

The implementation framework for the elimination of HIV infection in children and keeping their mothers alive will be based on four pronged strategies. A comprehensive EMTCT of HIV consists of four pronged approach (UNAIDS Report 2014b:4).

- Prevention of HIV infection among women of childbearing age.
- Prevention of unintended pregnancies among women living with HIV.
- Prevention of transmission of HIV from mothers living with HIV to their infants.
- Treatment, care and support for mothers living with HIV and their children and families.

Mnyani, Simango, Murphy, Chersich and McIntyre (2014:36) conducted a study which also reveals several factors which deter efforts to EMTCT of HIV. These factors include undiagnosed HIV before pregnancy, unplanned pregnancy, delayed ANC booking and low level of education.

Lerebo, Callens, Jackson, Zarowsky and Temmerman (2014:182) conducted a study which further emphasised that EMTCT of HIV service uptake among women and infants can be affected by access to health care service provision and human counselling and testing (HCT) coverage for those who might be due or qualify for ART. The shortage of nurses, distance to the health care facility and turnaround time of the blood results all

contribute to low EMTCT of HIV uptake. In order to increase the uptake, the government needs to address these challenges.

Strategies that can be used to improve implementation of EMTCT of HIV programme uptake were identified in a study conducted in Mozambique by Gimbel, Voss, Rustagi, Mercer, Zierler, Gloyd, Coutinho, Cuembelo and Sherr (2014:1). The identified strategies include a high number of institutional deliveries. Using on-site point of care CD4 machine was identified as one of the factors that contribute to the effective EMTCT of HIV services. High number of nurses and doctors was also a positive factor because there won't be long waiting hours with enough staff. Clinics that were receiving support from non-governmental organisation (NGO), which has women support groups, community linkages and patient tracking system were reported to be providing quality EMTCT of HIV services.

South Africa has made a great progress in the EMTCT of HIV programme in the last decade. The achievement can be exemplified by the health service in Khayelitsha Western Cape which was at the forefront in the implementation of PMTCT in 2003/2004. Due to a shortage of doctors, the Western Cape piloted the Nurses Initiated Management of Antiretroviral Treatment (NIMART) in Khayelitsha which contributed to the management of EMTCT of HIV in South Africa today. Khayelitsha is a resource poor area yet their EMTCT programme remain among the best in the world, there is hope that in near future pediatric HIV infection will be a thing of the past (Stinson, Giddy, Cox, Burton, Ibeto, Cragg, Van Cutsem, Hilderbrand, Boulle, Goemaere & Coetzee 2014:30).

In the face of South African progress on EMTCT of HIV programme there are still challenges that deter South Africa to realise universal coverage on EMTCT of HIV (Bhardwaj, Robinson & Goga 2014:239). On EMTCT of HIV South Africa still face the following gaps, late ANC booking, Low CD4 count done to HIV positive women and low initiation of EMTCT of HIV prophylaxis or lifelong ART. Bhardwaj et al (2014:240) indicated that lack of knowledge of key indicators, lack of systematic process of feedback and no monitoring linked to action were identified as bottlenecks.

## **2.10 STRATEGIES TO ELIMINATE MOTHER-TO-CHILD TRANSMISSION**

The purpose of the global plan is to work towards elimination of new HIV infection and keeping the mothers alive. This will be done by reaching all the HIV positive mothers and their children, from the pregnancy until delivery and breastfeeding. After breastfeeding HIV prevention and treatment needs of mothers and children will be addressed within the continuum of comprehensive programme (UNAIDS Report 2014b:4). There are measures that can be implemented throughout the stages of pregnancy, labour/delivery and after birth to EMTCT of HIV.

Health promotion on exclusive breastfeeding is a significant determinants of mothers to exclusively breastfeed their infants for six months (Kuzma 2013:16). Women are encouraged to do follow-up clinic visits so that the health of the mother and that of the baby can be monitored. Women will receive counselling on safe sex practices, family planning, postnatal contraceptive and partner testing. Women will receive guidance on the safe infant feeding practices and ART drugs as lifelong or prophylaxis's (Van Dyk 2012:48). HIV incident is greater during late pregnancy than in non-pregnant women. Women seroconvert during pregnancy following a negative test. Some women who test positive do not disclose their status to the partner although, they need to disclose so that they can get family support (Shikwane, Villar-Loubet, Weiss, Peltzer & Jones 2013:109-110). Bucagu, Bizimana, Muganda and Humblet (2013:6) conducted a study which further signifies disclosure as pivotal in elimination of MTCT of HIV. The study indicates that disclosure encourages prevention and non-disclosure is related to sexual risk practices. Disclosure was also significantly associated with social support which provides a mother with opportunity to practice EMTCT measures without fear.

During labour, nurses must avoid unnecessary rupture of membranes, rupture of membrane for longer period before delivery is associated with MTCT of HIV (Van Dyk 2012:48). Episiotomy should be avoided because the blood of the mother will come into contact with the baby (Van Dyk 2012:48). Avoid trauma to the baby, avoiding forceps and vacuum extraction. Elective caesarean section should be performed if possible because it reduces the chances of MTCT of HIV by 80% (Van Dyk 2012:48).

After delivery MTCT of HIV can be further reduced by avoiding trauma to the new born and wipe away secretion from the face of the baby. Avoid unnecessary suctioning of

the nose and airway of the baby because it will cause trauma on the mucous membrane. The infant should receive Nevirapine from birth up to six weeks or longer depending on the mother if she is breastfeeding or not (Van Dyk 2012:48).

Formula feeding is recommended feeding practices in HIV exposed babies, only if the acceptance, feasible, affordable, accessible and sustainable (AFAAS) criteria is met. This is the reason why formula feeding is not recommended in developing countries like South Africa because there are people who don't have access to clean water and good sanitation (Wood, Chahroudi, Chen, Jaspan & Sodora 2013:34).

According to South African antiretroviral treatment guideline (South Africa 2014:40), HIV infected adult qualifies for ART drugs with a CD4 count cell of less than 500 copies p/m. An adult can also qualify irrespective of CD4 count cell if her/she has any type of Tuberculosis (TB) or she is pregnant or breastfeeding. An adult can again qualify irrespective of CD4 count cell if the patient is diagnosed with Cryptococcus or TB meningitis and if WHO clinical stage 3/4. All infants and children between the ages of 5-15years qualify if they are WHO clinical stage 3 and 4 or CD4 Count Cell of less than 500 copies. All infants and children under the age of 5 years qualify for ART irrespective of CD4 count cell or any condition. A pregnant or breastfeeding woman who is HIV positive qualifies for life-long ART (Option B+) (South Africa 2013).

South Africa uses a combination of three drugs which is either three among Tenofovir, Zidovudine, Lamivudine, Efavirenz and Nevirapine. There is introduction of fixed dose combination Tenofovir, Emtricitabine and Efavirenz which is one pill. For children three drugs will be selected from Abacavir, Lamivudine, Efavirenz and Kaletra depending on weight and age. ART drugs are used as prevention measure of MTCT of HIV, all women and children who qualify should get the treatment or prophylaxis (South Africa 2013).

The regimen on South African ART guideline are supported by the results from a study which was conducted by Van Deusen, Paintsil, Agyarko-Poku and Long (2015:130-131) which indicated that by offering option B+ to HIV positive women they are long-term benefits both to the mother and the baby. This option also reduces the risk of HIV transmission in subsequence pregnancies.

The use of option B+ have long term adverse outcomes which include drug resistance, congenital anomalies, preterm delivery, and impaired growth (Doherty & Ciaranello 2013:459). Doherty and Ciaranello (2013:459) also indicated that to EMTCT of HIV parents must adhere to medication, the authors further define adequate adherence as taking >80% of the doses.

Alongside using treatment as prevention there are social-cultural factors which include stigma and discrimination, gender inequality, religious beliefs and family disruption need to be eradicated to ensure eliminate MTCT of HIV (Okoli & Lansdown 2014:154). Okoli and Lansdown (2014:154) further reveal that family abuse, marriage disruption led to women not adhering to EMTCT of HIV programme. There are socioeconomic factors which include poverty, illiteracy, lack of awareness or accesses to EMTCT service must be addressed. Okoli and Lansdown (2014:154) indicate that involving male partners improve the EMTCT, because mother gets full support. Women often accept to test for HIV if they came with their partners (Okoli & Lansdown (2014:155). Haile and Barhan (2014:2) state that male involvement in the EMTCT of HIV programme is very important for the success of the whole process of implementing the programme; however, there is low participation by male partners. Knowledge of HIV status, maternal willingness to inform the husband about the availability of voluntary counselling and testing, previous history of couple counselling, were found to be contributing factors of male involvement in EMTCT.

Doherty and Ciaranello (2013:458) conducted a study which classifies significant EMTCT of HIV intervention strategies. The authors indicate that effective EMTCT demand the mother and the infants to access service anytime through the EMTCT of HIV cascade of care. The implementation of four prongs as outlined in this document will be very much significant, addressing prong 1 and 2 will also be necessary to archive EMTCT of HIV. Doherty and Ciaranello (2013:459) indicated that reducing the duration of breastfeeding it can limit the risk of HIV transmission. However, the authors also acknowledge the risk that came with cessation of breastfeeding which include; increased infant mortality from pneumonia, diarrhea, or malnutrition associated with weaning.

Ciaranello, Perez, Keatinge, Park, Engelsmann, Maruva, Walensky, Dabis, Chu, Rusibamayila, Mushavi and Freeberg (2012:2) conducted a study the results further

state that access to EMTCT services and adherence to medication throughout pregnancy and breastfeeding is key in EMTCT of HIV.

Okoli and Lansdown (2014:155) indicate that lack of knowledge and skills from health care provider need to be capacitated, women who received good quality counselling attend ANC well, adhere to medication and to other EMTCT of HIV strategies (Okoli & Lansdown 2014:155). There is a huge relationship between political governance and ART coverage sustainable political commitment. South African government has shown commitment in this regards. Measures and policies to support HIV implementation to more effectively improve the welfare of people living with HIV most significantly HIV positive mothers and their infants are needed (Man, Worth, Kelly, Wilson & Siba 2014:1).

## **2.11 INFANT FEEDING PRACTICES**

Poor nutrition is a significant factor for child health. This is the leading cause of disease burden in children under the age of 5 years. Various proven public health and nutritional intervention strategies has been implemented. These include the promotion of exclusive breastfeeding. It has resulted in a significant progress in improving child survival and good health in many countries (Mangasaryan, Martin, Brownlee, Ogunlade, Rudert & Cai 2012:991). However, there are other practices that place the child in a risk of HIV transmission through MTCT like mixed feeding.

### **2.11.1 Exclusive breastfeeding**

Exclusive breastfeeding mean an infant receives breastmilk from the mother or expressed breastmilk for at least six months, with the exception of medicine given if prescribed by the doctor (South Africa 2013:68). Breastmilk has many benefits for the infants, because it contains all the necessary nutrients for the baby in the first six months of life. Breastmilk contains nutrients that can protect the infant against opportunistic infection like pneumonia and diarrhea. South African government recommended exclusive breastfeeding for six months and introduction of complementary feeding after six months (South Africa 2013:68). Education about breastfeeding after delivery has contributed positively to those who breastfed their infants (Mgongo, Moshia, Msuya, Uriyo, Msuya & Stray-Pedersen 2013:4). Joshi,

Angdembe, Das Ahmed, Faruque and Ahmed (2014:8) further indicated that there is low prevalence of exclusive breastfeeding so there is a need to promote breastfeeding.

This is evident in some countries with low practice of breastfeeding rate like Chad (2%), Cote d'Ivoire (4%), Gabon (6%), and Sierra Leone (8%). However, there are other countries who have managed to increase the rate of exclusive breastfeeding which include Benin (70%), Rwanda (85%) and Ghana (63%) (Tampah-Naah & Kumi-Kyereme 2013:1). The World Health Organization (WHO) reported the overall prevalence rate of 43% which was the highest in the eastern Asia and the lowest in west/central Africa with 20%. In Sub-Saharan Africa where there is high rate of MTCT of HIV, malnutrition, child mortality have the overall prevalence rate of 33% (Mgongo et al 2013:2).

In Sub-Saharan Africa challenges that contribute to low breastfeeding rate are reported to be: the baby continue to be hungry after breastfeeding, mother in-law and the neighbors pressurised the women to wean the baby, the baby was not gaining enough weight and breastfeeding was tiring (Agunbiade & Ogunleye 2012:1). Some of the challenges that affect exclusive breastfeeding are type of occupation, educational status, monthly income, Antenatal visit and the counselling received about infant feeding (Seid, Yesuf & Koye 2013:14).

### **2.11.2 Mixed feeding**

The WHO recommended that solid feeds or other feeds except the breastmilk must be introduced after 6 months of life (South Africa 2013:70). Exclusive breastfeeding for the first six months has low risk of MTCT of HIV as compared to mixed feeding even in the absence of ART (Vallely, Kelly, Kupul, Neo, Fiya, Kaldor, Mola, & Worth 2013:7). Mixed feeding reduces the absorption of essential nutrients from breastmilk, increasing the risk of diseases like diarrhea and respiratory infections (Barhane, Egata & Worku 2013:2). As a result mixed feeding is contributing to about 10% of the disease burden in Ethiopia (Barhane et al 2013:2). There are long-term effects on infants that are mixed-fed which included poor academic performance, decreased productivity, poor cognitive and social development among infants under 5 due to poor infants and young child feeding practices (Barhane et al 2013:2).



The situation is not different in United Arab Emirates where mothers (83.5%) were found to introduce solid feed before the age of 6 months. Most of the mixed feeding took place before 3 months, 15,3% of the mothers reported that they give gripe water, 10,1% yansun and 2,5% gave their infants tea. Mothers justified that giving infants water in first months of life is their traditional practice because it is hot in their region (Radwan 2013:6-172).

### **2.11.3 Formula feeding**

Formula feeding is associated with well documented health risks like diarrhea, obesity, respiratory tract infection and poor cognitive development (Bonia, Twells, Halfyard, Ludlow, Newhook & Murphy-Woodridge 2013:1). A study conducted in Canada by Bonia et al (2013:2) found out that there is lack of knowledge among women on breastfeeding, majority of the women were of opinion that formula milk has more nutrients compared to breastmilk. Some mothers reported that because they don't eat healthy their breastmilk don't contain best nutrients (Bonia et al 2013:4). Other women reported that formula feeding is convenient compared to breastfeeding, because they have more time to do other duties in the house, look after other children and sleep. Mothers reported that breastfeeding is embarrassing in the public hence they decide to formula feed (Bonia et al 2013:4).

#### ***2.11.3.1 International code of marketing breastmilk substitute (WHO)***

This practice of formula feeding is influenced by overly marketing of formula milk. Thus ultimately convincing mothers that formula milk is the best. The South African government encourages all personnel providing care to mothers and infants to adhere to all provisions of international code of marketing breastmilk substitute, namely:

- No advertising of breastmilk substitutes to the public.
- No free samples to mothers.
- No promotion of products in health care facilities.
- No company "mother craft" nurses to advice mothers.
- No gifts or personal samples to health workers.

- No words or pictures idealising artificial feeding, including pictures of infants on the products.
- Information to health workers should be scientific and factual.
- All information on artificial feeding, including the labels, should explain the benefits of breastfeeding, and the costs and hazards associated with artificial feeding.
- Unsuitable products, such as condensed milk, should not be promoted for babies.
- All products should be of a high quality and take into account the climatic and storage conditions of the country where they are used (South Africa 2013:31).

These measures were taken to promote breastfeeding, after considering all the risk that comes with formula feeding (South Africa 2013).

Kuzma (2013:18) conducted a study in Guinea, the results indicated that the majority of women reported formula feeding is not good. Moreover, knowledge on the complications that come with formula feeding was low. Most mothers who lack knowledge on the danger of formula feeding were below grade 8 educational level (Kuzma 2013:18). Some of the older mothers acknowledged the danger of formula feeding and also reported that it is expensive, but most did not know that it could cause diarrhea or illness.

Other women in the same region showed a positive attitude towards breastfeeding, saying that it is their culture to breastfeed (Kuzma 2013:18). Other contributing factors to formula feed are insufficient breastmilk, sickness of the mother, infant or new pregnancy (Zhang, Tang, Wang, Qiu, Binns & Lee 2014:4524). The sickness of the mother can be due to mode of delivery, which also contributed to low exclusive breastfeeding, women who delivered through caesarean section prefer formula feeding. This is because they spend first weeks nursing the wound this take away time to think of breastfeeding. Those with insufficient breastmilk will buy formula milk if they afford (Onah, Osuorah, Ebenebe, Ezechukwu, Ekwochi & NduKwo 2014:6).

## 2.12 FACTORS THAT INFLUENCE THE CHOICE OF INFANT FEEDING

Haroon, Das, Salam Imdad and Bhutta (2013:S20) conducted a study and reported that there is lack of knowledge and confidence among women who breastfeed for fewer months. This was further echoed by a study conducted by Nankumbi and Muliira (2015:108) which further highlights lack of knowledge about breastfeeding contributing to the decision of the mother to formula fed. Nankumbi and Muliira (2015:109) indicated that mothers reported that they don't know when to initiate or stop breastfeeding and when to introduce complementary feeding. The perception of insufficient milk and working outside the house were among factors reported that contributed to early weaning and no exclusive breastfeeding. Zhang et al (2015:4524) conducted a study which further indicate that perception of insufficient milk is a common contributing factor, 74% of women choose to formula fed they babies because of insufficient breastmilk. The same study reveals the women decide to formula fed because of lack of knowledge on the benefits of breastmilk and the perception that formula milk has more nutrients than breastmilk.

Maternal low age and poor knowledge about exclusive breastfeeding were identified as the contributing factors to mix feeding (Barhane et al 2013:2). Prelacteal which is the initiation of any feeds before breastmilk is the common practice in Nepal. Prelacteal feeding is the barrier to exclusive breastfeeding and contributing risk factor of mix feeding. There are factors that lead to pre-lacteal feeding which include the age of the mother at pregnancy (Khanal, Adhikari, Sauer & Zhao 2013:10).

Mothers who are not educated were nearly twice as likely not to initiate breastfeeding in a timely manner as compared to those who are educated. In terms of level of education mothers with primary education and those with secondary education were 0.33 and 0.57 times less likely to practice exclusive breastfeeding as compared to mothers with tertiary education (Onah et al 2014:8). Mothers who are educated are marketable always seeking employment they don't have time to breastfeed (Onah et al 2014:8). Maternal education is associated with delayed initiation of breastfeeding. However, educational status is not the predictors of exclusive breastfeeding (Onah et al 2014:8).

Kafulafula, Hutchinson, Gennero and Guttmacher (2014:248) conducted a study in Malawi and the results shows that during prenatal care women have a high confidence

of exclusive breastfeeding. This was positively associated with normative, control belief, maternal belief and disclosure of HIV status. The results indicated that there is a need to assess the mother's positive belief on exclusive breastfeeding to identify those who are at the risk of terminating exclusive breastfeeding. Marembo, Zvinavashe, Nyamakura Shaibu and Mogobe (2014:259) conducted a study which was assessing factors that influence the decision HIV positive women on infant feeding choice. Marembo et al (2014:262) indicated that factors include sociocultural acceptability (58.8%), support from significant others (35%), knowledge of chosen method (55%), affordability (62%), implementation of chosen method without interference (62.5%) and safety (47.5%).

Adugna (2014:5) states that there is an inverse relationship between exclusive breastfeeding and socioeconomic status, women from richer family backgrounds had low rate of exclusive breastfeeding. They practice formula feeding because they can afford. This practice sometimes is because their partners are rich not necessarily because of economic status of the mother (Onah et al 2014:8).

Breastfeeding is the natural way of providing children with essential nutrients. It is said that in Ethiopia breastfeeding is almost universal. Almost all mothers in rural communities have breastfed their babies (98,2%) (Adugna 2014:5). Most working mothers can afford to buy formula, hence the attitude related to modernity and urbanisation makes them to formula feed. The association between employment and breastfeeding has not been uniform. For example, a study conducted in China reported that part-time workers initiate breastfeeding early. On the contrary, a different study conducted in Bangladesh shows that there is no association between employment and timely initiation of breastfeeding (Adhikari, Khanal, Karkee & Gavidia 2014:8). Similarly, Zhang et al (2015:4524) conducted a study which reveals that 16% of women decided to introduce formula feeding because they had to go back to work.

The results from the preceding discussion is congruent with a study conducted by Nankumbi and Muliira (2015:109) which reveals that mothers choose to mix-feed because of the pressure from family members and work load at home. Ethnicity is a strong factor that predicts how the mother will respond to health care needs, including infant feeding choices.

## **2.13 ADVANTAGES OF PRACTISING EXCLUSIVE BREASTFEEDING**

Exclusive breastfeeding is a cheap and cost effective way of decreasing child mortality and morbidity in low-middle income countries (Mgongo et al 2013:2). This was also evident from a study conducted by Grzelak, Wozniak and Czyzewska (2014:4). The data from the study suggested that the component on the breastmilk can't be replicated artificially. Breastmilk is the best source of nutrients that are significant for construction of a well development of gastrointestinal track, central nervous system and immune system which are significant for the normal function of the body.

These benefits go beyond cessation of breastfeeding in improving health, reducing risk of disease and respiratory disease in the adulthood. A child who underwent breastfeeding will rarely suffer from lifestyle disease like diabetes and hypertension (Grzelak et al 2014:4). Grzelak et al (2014:10) additionally state that some of the mothers in his study acknowledged the advantages of exclusive breastfeeding, that it promotes good nutritional habit for the mother, they reported that a mother who is breastfeeding will eat more which in turn assist her to produce more milk. HIV positive mothers also reported that exclusive breastfeeding is self-satisfying because it gives them a sense of achievement as a mother. Mothers believed that breastfeeding prevents pregnancy. So they continued breastfeeding so that they can prevent unwanted pregnancy (Kafulafula et al 2014:5).

On the contrary, some mothers don't see the advantages that come with exclusive breastfeeding. Hence, they reported that it causes maternal illness and breast problems. In addition, they reported that if they exclusively breastfeed for long time their body won't have enough food. Few HIV positive mothers reported that exclusive breastfeeding reduces the MTCT of HIV and that it is a way of conveying your love to your infant (Kafulafula et al 2014:5). In an HIV positive woman, breastmilk can be the source of HIV infection, but if exclusive breastfeeding is practiced the risks are decreased (Young, Israel-Ballard, Dantzer, Ngonyani, Nyambo, Ash & Chantry 2010:2028).

## 2.14 INFANT FEEDING IN THE CONTEXT OF HIV/AIDS

Infants and children need the best nutrition to ensure maximum growth and development. Infant and Young Child Feeding policy indicates that, poor infant and young child feeding practices, such as no breastfeeding and inadequate complementary feeding, can result in poor child development and risk of acquiring infections. The rate of breastfeeding in South Africa is low; this is due to perception of insufficient breastmilk, compounded by fears of HIV transmission, marketing of breastmilk substitutes and misinformation (South Africa 2013:8).

A study conducted by Goosen, McLachlan and Schubl (2014:13) in Western Cape Province in South Africa, to describe factors that hinder exclusive breastfeeding. Among other factors, mothers reported that they have a perception that a child needed water or gripe water. They were concerned that breastmilk alone is not enough. Moreover, Swarts, Kruger and Dolman (2010:476) conducted a study in KwaZulu-Natal which reveals that a high number of HIV positive women indicated that they will not breastfeed because they were afraid to infect their babies.

The South African health service sector supports women who are HIV positive to exclusively breastfeed for six months. Breastfeeding should be continued for 12 months with ART. Complementary feeds can be started from six months. The HIV negative mothers is also encouraged to exclusively breastfeed for six months and continue breastfeeding for up to 2 years with complementary feeds initiated from six months. HIV positive mothers whose infants are HIV positive should breastfeed for 2 years and longer because the HIV positive child will benefit more from the breastmilk which increases his/her survival chances. The following are the key component of infant and young child feeding policy:

- Initiate breastfeeding as early as possible from the facility.
- Exclusive breastfeeding for the first six months is encouraged.
- Breastfeeding can be continued for 2 years and beyond.
- Feeding infant in the context of HIV.
- Use of commercial formula.
- Complementary feeds can be introduced at six months.

- Infants and children must be fed even in difficult times.
- The health care personnel have the responsibility to implement maternal, women, neonatal and child health at national, provincial, District and facility level (South Africa 2013:11).

The policy was designed to promote and protect best feeding practices that will ensure the optimal growth of the child in the context of HIV. Almost every mother can breastfeed her infant, however, there are other conditions (sepsis and herpes simplex virus type 1) that can affect the mother and prevent her from breastfeeding (South Africa 2013:15).

#### **2.14.1 Conditions for cases where breastfeeding is not possible**

The policy has made provision for all mothers who cannot breastfeed to meet the following criteria for formula feeding:

- Ensure safe water and sanitation at the household and in the community level.
- The mother/caregiver can reliably provide sufficient infant formula to support normal growth and development of the infant.
- The mother/caregiver can prepare it hygienically and frequently enough so that it is safe and carries a low risk of diarrhea and malnutrition.
- The mother/caregiver can, in the first six months, exclusively give infant formula milk.
- The family is supportive of this practice.
- The mother or caregiver can access health care that offers comprehensive child health services.

Incorrect infant feeding practices among HIV positive women often result in infants receiving less breastmilk. Mixed feeding and introduction of complementary feeding done before six months, this increases the risk of HIV transmission and malnutrition.

Muluye, Woldeyohannes, Gizachew and Tiruneh (2012:241) conducted a study which concluded that there was high number of respondents who reported that they followed the recommended infant feeding guidelines. This number was more significant in HIV

positive women than HIV negative women. This is due to repeated messages about breastfeeding that HIV positive women receive during counselling (Goga, Doherty, Jackson, Sanders, Colvin, Chopra & Kuhn 2012:7).

However the mothers also report mixed feeding and undesired practices during six months of care. Health messages on infant feeding must be aligned with the national policy; it should be strengthened in primary health care, particularly in situations where elimination of mother-to-child transmission of HIV is prioritised like South Africa (Doherty et al 2013:458).

In sub-Saharan Africa there is a decrease in the vertical transmission of HIV. The global AIDS report indicated that it was observed that the decrease was almost 24% between 2009 and 2011. In South Africa the infection rate among HIV exposed infant was 3.5% in 2010. The preliminary statistic for 2011 suggests that, South Africa is at 2.7% (Lazarus, Struthers & Violari 2013:1). To change breastfeeding practices is beyond amending guidelines, there is a need to address cultural and traditional practices. Correct messages about breastfeeding need to be spread throughout the communities to address the lay-knowledge of some members of the community.

## **2.15 CONCLUSION**

This chapter outlined the literature review. It included the background on global and South African HIV issues. Concepts which are specific to the topic were highlighted. These included knowledge and attitudes on breastfeeding, as well as exclusive breastfeeding. The following chapter will be outlining the research methodology.



## **CHAPTER 3**

### **RESEARCH DESIGN AND METHOD**

#### **3.1 INTRODUCTION**

The literature review chapter has outlined evidence which suggest that exclusive breastfeeding is the best feeding option for both exposed and non-exposed HIV infants. Several reviews of infants feeding policies have led to numerous amendments of breastfeeding guidelines. Due to these changes the current knowledge and attitudes of women on exclusive breastfeeding need to be understood. The researcher initiated this study in order to determine the current knowledge and describe attitudes of women on exclusive breastfeeding. The researcher through this study sought to respond to the question: what is the knowledge and attitudes of HIV positive women on exclusive breastfeeding in Mopani District (Greater Letaba Sub-District) South Africa? The objectives of the study were as follows:

- To determine the knowledge of HIV positive women on exclusive breastfeeding.
- To describe the attitudes of HIV positive women on exclusive breastfeeding.

The purpose of a study might be to explicitly and precisely describe, identify or anticipate a counter measure for a problem (Burns & Grove 2009:38). An exploratory, descriptive design was adopted in this study to assist the researcher to answer the research question.

#### **3.2 RESEARCH APPROACH**

##### **3.2.1 Research paradigm**

De Vos et al (2011:40) describe a research paradigm as an organised approach that has a set of steps and a well-established plan to acquire and analyse data. A quantitative approach was applied in this study to determine the knowledge and describe attitudes of HIV positive women on exclusive breastfeeding.

The circumstances described by the researcher may already take place or are currently taking place (Burns & Grove 2009:246). Quantitative researchers utilise methods designed to control the study, thus decreasing biases and increasing precision and validity. Quantitative research is nearly allied with positivism and objectivity is highly valued, the data will be objective as possible, no interference from the researcher. The empirical evidence is gathered using structured method, collected according to an established plan and the information is numeric (Brink et al 2012:11; Burns & Grove 2009:22; Polit & Beck 2008:16). The researcher had a predetermined plan on how to collect the data, a structured questionnaire was developed and responses were coded numerically.

### **3.2.2 Research design**

De Vos et al (2011:142) defined research design as an integrated statement that explains various technical decision that form part of research project planning. Polit and Beck (2012:58) describe research design as a comprehensive plan for obtaining answers to the questions being studied and it controls some of the challenges that may arise during the study. The research design selected for the purpose of this study is exploratory descriptive design. This is a non-experimental study because no intervention was introduced to manipulate the independent variable, the setting was not controlled and the phenomenon was observed in the natural environment (Brink et al 2012:112; Polit & Beck 2012:223).

#### ***3.2.2.1 Exploratory research design***

Exploratory research describes the whole picture of the phenomenon, the nature in which it is manifested and the factors to which is associated with (Polit & Beck 2012:18). The purpose of the study was to determine the knowledge and describe the attitudes of women on exclusive breastfeeding. This design was appropriate because it allowed the researcher to explore the factors which are associated with these dependent variables (knowledge and attitude).

### ***3.2.2.2 Descriptive research design***

De Vos et al (2011:96) define descriptive design as a strong examination of phenomena and their deeper meanings leading to in-depth description. The purpose of a descriptive design is to observe, describe and document the details of the phenomenon as it occurs in a natural environment (Brink et al 2012:112; Polit & Beck 2008:226). Descriptive design was used in this study, to determine the knowledge and describe attitudes of HIV positive women to exclusive breastfeeding. Brink et al (2012:112) indicate that descriptive studies may be used to diagnose problems with current practice or to justify or determine current practice, and to make judgements or to generate theory. This design was applicable in addressing the objectives of the study, which were to determine and describe the current knowledge and attitude of women on exclusive breastfeeding. Descriptive designs may contain more than one variable and the description of the association between these variables gives a comprehensive nature of the phenomenon (Burns & Grove 2009:237). Two dependent variables (knowledge and attitude) and six independent variables (age, educational status, marital status, residential type, source of in-come and pregnancy status) were under study.

## **3.3 RESEARCH METHOD**

The research method is a set of techniques researchers utilise to structure a study and gather information relevant to the research question. The quantitative researcher utilises scientific and systematic approach, the progress is logical through series of steps and a specified plan (Polit & Beck 2012:12).

### **3.3.1 Population and sampling**

The process and the technique of selecting the population are outlined as follows:

#### ***3.3.1.1 Population***

Polit and Beck (2012:59) define population as all people or elements with common defined attributes. De Vos et al (2011:223) indicate that these are people who have the characteristics that are of interest to the researcher. In this study the researcher was interested in HIV positive women above 18 years who had babies six months old and

younger. The targeted population was specific and relevant to the research title, because women who recently had their babies were practising either exclusive breastfeeding, formula or mixed-feeding.

- *Inclusion criteria*

Burns and Grove (2009:344) describe inclusion criteria as all attributes significant for inclusion in the target population. The inclusion criteria for this study were; HIV positive women of the age of 18 and above who had babies six months old or younger, attending an ART clinic at the primary health care facilities of Mopani District in the Greater Letaba Sub-District.

- *Exclusion criteria*

Burns and Grove (2009:344) describe exclusion criteria as all attributes that can significantly render a person to be excluded from the target population. Women who did not meet the inclusion criteria and those who met the inclusion criteria but were either not at the clinic on the day of data collection or declined to participate, were excluded.

### **3.3.1.2 Sampling**

Sampling is a process of choosing a part of the population to represent the whole population (Polit & Beck 2012:275). Both probability and non-probability sampling were used in this study. Brink et al (2012:134) and Burns and Grove (2009:353) state that by using probability sampling method elements or individuals from the population have an equal opportunity of being chosen to participate in the study. De Vos et al (2011:231) state that by using non-probability sampling methods elements or individuals from the population do not have an equal opportunity of being chosen to participate in the study. Probability sampling was used to sample the sites for inclusion and non-probability convenience sampling was used to select respondents. On the day of data collection, the researcher included those respondents who met the selection criteria at the site.

### **3.3.1.3 Sample frame**

Sample frame is the technical name for the list of elements from which the sample will be chosen (Burns & Grove 2009:348; Polit & Beck 2012:280). The list of HIV positive women of the age of 18 years and above who had babies six months old or younger, collecting ART from clinics in Greater Letaba Sub-District. An approval letter from Limpopo Provincial office (see Annexure C) was submitted to the District; this allowed the researcher to access the number of women collecting ART in different facilities in Greater Letaba Sub-District from HIV electronic register.

### **3.3.1.4 Sampling sites**

Probability sampling was used to select the sites for inclusion. This involved random selection of elements, so the elements had an equal chance of being selected. Multistage cluster sampling is one of probability sampling; this method is more practical than any other types of probability sampling. The researcher used a multistage cluster sampling method because it was going to be difficult to include all the sites. Rather than selecting individuals, multistage cluster sampling involves selection of broad clusters/groups. For the purpose of this study three clinics were selected and from the selected clinics individuals were sampled. It is possible to combine probability and non-probability sampling in multistage sampling (Polit & Beck 2012:275). The researcher deliberately selected the three ART clinics based on the high number of females collecting ART (Clinic A: 633, Clinic B: 503 and Clinic C: 467).

### **3.3.1.5 Ethical issues related to sampling**

The researcher strictly adhered to the sampling procedure outlined in this chapter and the researcher did not discriminate against respondents. Respondents were sampled based on the criteria outlined in this document. The rights of the respondents were maintained throughout the sampling process. Before sampling the researcher introduced himself to the respondents and briefly explained the purpose of them being sampled. The respondents were sampled based on the criteria, clients who refused to be part of the study were treated fairly with respect and their decision for not participating was respected.

### **3.3.1.6 Sample**

A sample is a part of the population consisting of those selected to participate in the study (Polit & Beck 2012:742). In this study convenience sampling was used. Non-probability convenience sampling is the utilisation of easily accessible respondents for the study (Brink et al 2012:140; Burns & Grove 2009:354). De Vos et al (2011:232) define convenience sampling as any case that comes into contact with the researcher who meets the criteria and who will be included in the study until the target number is obtained.

De Vos et al (2011:224) indicated that large samples allow the researcher to make more representative, accurate conclusions and more precise predictions. The larger the population, the less percentage of that population is required for it to be representative. In many instances a 10% sample is considered enough to control sampling error; alternatively a sample of minimum size 100 is enough (De Vos et al 2011:224). The researcher decided to utilise the 10% of the population of each selected cluster/clinic to calculate the number of sample size.

**Table 3.1: Sample size calculation**

<b>Sites/clusters</b>	<b>Population</b>	<b>Percentage</b>	<b>Number of sample</b>
<b>Clinic A</b>	633	10%	63
<b>Clinic B</b>	503	10%	50
<b>Clinic C</b>	467	10%	47
<b>TOTAL</b>	<b>1603</b>	<b>30%</b>	<b>160</b>

Polit and Beck (2012:742) define sample size as the number of people who participate in a study. For the purpose of this study a sample of 160 was set as a target for this study, this number also exceeded the required minimum of 100 elements. Every client who was at the ART clinic on the day of sampling and was meeting the inclusion criteria was included until the researcher reached 123 respondents over a period of five months. The target of 160 was not reached because some of the mothers were not willing to wait for the researcher.

### **3.3.2 Data collection**

Polit and Beck (2012:725) describe data collection as the gathering of information needed to address research purpose, objectives and research question.

#### ***3.3.2.1 Data collection approach and method***

Data collection methods are distinguished by three different dimensions: structure, researcher obtrusiveness and objectivity. The structure of the data collection is either structured or unstructured. If the data collection is structured, the researcher collects data from respondents in a comparable and pre-specified way (Polit & Beck 2012:190). A structured data collection approach was used in this study, the approach was appropriate because the research design was descriptive and explorative. This approach allowed the researcher to determine how and what information to be collected. Structured approach is more relevant for deeper examination of a phenomenon and the data is simple to analyse because is easy to quantify (Polit & Beck 2012:191).

The researcher used a self-developed structured questionnaire to collect data. The questionnaire was administered orally face-to-face for the respondents who could not read and write. Those who could read and write completed the questionnaires by themselves. Respondents were identified based on the criteria, and the researcher met with them on the private area to maintain confidentiality. The respondents were given predetermined written questionnaires to complete. The completed questionnaires were kept in a private area in the home of the researcher. The method is relevant because the objectives of a self-reported method are to find out the thoughts, perception, belief, attitude, experience and knowledge level of individuals (Brink et al 2012:152; Polit & Beck 2012:279).

#### ***3.3.2.2 Developing and testing of the data collection instrument***

Burns and Grove (2009:398) define a questionnaire as a printed form with a list of questions developed to obtain information through responses from the respondents. The structured questionnaire (see annexure G) used in this study was developed based on the literature and was developed to address the research question and the

objectives. The questionnaire was selected because it is easy to get data from large groups of people.

#### *3.3.2.2.1 Pre-testing of data collection instrument*

De Vos et al (2011:195) describe the aim of piloting as to see if the pre-test addresses the research topic and to see if the respondents understand the questionnaire. No matter how well the sampling and analysis is done, ambiguous questions lead to wrong responses and ultimately to incorrect conclusions. The questionnaire was pre-tested in a similar environment to that of the actual study. Piloting was done on the sites that were not part of inclusion. Respondents meeting the criteria were used, the questionnaire was administered. The respondents were requested to give feedback on the questionnaire to identify challenges experienced during the process. The researcher evaluated the questionnaire against the time, clarity and sensitivity. The challenges like unclear statements identified during the pre-test were used to improve the questionnaire before the actual study.

#### *3.3.2.3 Characteristics of the data collection instrument*

The data collection instrument in quantitative research is organised in a way that will give precise and correct data that will be vital in assisting the researcher to respond to the research question (Polit & Beck 2012:191). The questionnaire was relevant because only the data that was of interest to the researcher was included. The questionnaire consisted of the following sections:

##### *Section A: Demographic data*

Section A consisted of socio-demographic details, which include age, marital status, education, source of income, residential type and pregnancy status. This section had six questions 1 to 6.

##### *Section B: Knowledge of exclusive breastfeeding*

Section B consisted of questions which were more relevant to the knowledge of women on exclusive breastfeeding. The researcher wanted to determine and describe the



knowledge of women on exclusive breastfeeding. The section consisted of 18 questions from 7 to 24.

#### *Section C: Attitude on exclusive breastfeeding*

Section C consisted of questions regarding the attitude of women on exclusive breastfeeding. A Likert type scale was used the section included 14 questions from 25 to 38. The respondents had to select their responses from strongly agree, agree, don't know, disagree and strongly disagree. Close ended question were included in this section.

#### **3.3.2.4 Data collection process**

The researcher communicated telephonically with the clinic staff to set the date to start with the collection of data. During the days of data collection the researcher identified respondents who met the criteria, and met them in a quiet area where the respondents were seated comfortably and the area was free from noises. The researcher introduced himself to the respondents and the respondents were given an opportunity to introduce themselves. The researcher explained the aim of the study and ethical issues to the respondents, such as the issue of confidentiality and privacy.

The respondents were told that the information obtained will be used only for the purpose of this study. The respondents were given a consent form to sign as an agreement to participate on the study, an information sheet that detailed the purpose and significance of the study. The questionnaire was administered by the researcher at the site; any misunderstanding was explained by the researcher. The respondents were never subjected to physical examination nor any interventions introduced; only information about the topic was gathered. The researcher administered the questionnaire in a language of the respondents, which was mostly Sepedi. The researcher only translated the questions to the language of the respondents if necessary, so there was no need to translate the answers back to English because the respondents had to choose their responses from given options. The respondents were encouraged to give honest responses; at the end the researcher thanked the respondents for their involvement in the study. The completed questionnaires were

collected by the researcher once the respondents were done on the same day of data collection and the respondents were allowed to ask questions.

### **3.3.3 Data analysis**

Data analysis is the systematic organisation and synthesis of research data (Polit & Beck 2012:725). The researcher used statistical methods to arrange, understand and communicate numeric information. The variables in the study were appropriately synthesised according to their measurements.

Nominal level statistics describe variables that are categorical in nature and that differ in quality rather than quantity. In this study variables that were using nominal levels were marital, educational and source of income. The other level of measurement is the ordinal level, this involved ordering objects based on their characteristics and they are systematic based on some criteria. This is significant to this study because the attitude questions are using ordinal level of measurement. Interval level of measurement describes variables that have equal interval between them and the researcher used this measurement to categorise attitude scores. The ratio measurement level describes variables that have equal intervals between them but also have an absolute zero. The researcher used this scale to measure age and knowledge scores (Salkind 2012:112).

#### ***3.3.3.1 Descriptive statistics***

The primary stage in the analysis of data is to describe it, because descriptive statistics describe the overall set or distribution of scores (Salkind 2012:162). Descriptive statistics give the researcher knowledge of what the data looks like and further analysis can be done. Salkind (2012:392) states that descriptive statistics fundamentally measures the distributions and variability. Frequency distributions is the logical organisation of values and it echo's the number of times the value occurs (Polit & Beck 2012:382). The researcher used frequency distributions to have an idea of how many responses fell in categories of interest.

To communicate the overall summary or average scores in a distribution, the researcher used measures of central tendency. There are three types of measures of central tendency which include mode, median and mean. Mode is the most frequent occurring

score in a distribution; the mean is the sum of all scores divided by the number of scores. The median is the point in the distribution above which and below which 50% of all cases fall (Polit & Beck 2012:385). The researcher frequently used the median as a measure of central tendency in a distribution. The median was used by the researcher because it is more robust value of central tendency; it can also be used to describe ordinal, interval and ratio data.

The mean and mode are univariate descriptive statistics; they describe one variable at a time. However, most research seeks to establish relationship between variables; bivariate descriptive statistic was used by the researcher to depict such relationship. Contingency table is two dimensional frequency distributions in which frequencies two variables are cross tabulated. Custom tables were also used to describe categorical measures of dispersion or central tendency like mean and median in some sections. Correlation describes the degree of relationship between two variables. Contingency tables were used to describe relationships between two variables in this study (Polit & Beck 2012:389).

The researcher used bar charts to describe frequencies of age categories, marital status categories and source of income categories. Pie charts were also used to show proportionate frequencies of current pregnancy status categories and residential categories. A frequency table was used to show frequencies of educational status categories, attitude categories as well as to show frequencies of responses to the items; do you want /don't want to breastfeed and do you want/don't want to exclusively breastfeed.

The researcher further analysed the knowledge and attitudes of HIV positive women on exclusive breastfeeding. Knowledge questions were sub-divided into 4 researcher specified categories namely; Knowledge on HIV/AIDS; Knowledge on HIV transmission in the context of breastfeeding; Knowledge on infant feeding in the context of HIV transmission and knowledge on advantages and disadvantages of feeding options in the context of HIV. The researcher calculated the overall score from each specified category using the formulae: Overall Knowledge Score = Sum of knowledge scores on questions in the specified category. As an example to calculate the overall score of Knowledge on HIV/AIDS, the overall score was calculated as; Score on the question (What is HIV) + Score on the question (HIV and AIDS is the same). Over and above,

the researcher also calculated the overall knowledge score by summing all specified category scores.

For attitude questions, the researcher used the Likert-type of standardised scale to calculate scores based on the following formula: Overall attitude score = Total score of all attitude questions and ranged from 11 to 55. The total scores were then categorised into ordinal classes whereby a total score between 11 and 21 is “Very negative attitude”, score between 22 and 32 “Somehow negative attitude”, 33 “Neutral”, between 34 and 44 “Somehow positive attitude” and between 45 and 55 “ Very positive attitude”. Individual attitude items had scores ranging from 1 to 5 where table 3.2 describes the ranges according to the attitude items. The researcher used pie charts to depict the ordinal class frequency distributions. The calculated scores on knowledge categories and attitudes were described using the mean and median as measures of dispersion. Table 3.2 shows the categorisation of attitude scores by items in the questionnaire.

**Table 3.2: Categorisation of attitude score**

Items	Score				
	1	2	3	4	5
25, 26, 29, 33,	Very negative attitude	Somehow negative	Neutral	Somehow positive attitude	Very positive attitude
27, 28, 30, 31, 32, 34, 35, 36	Very positive attitude	Somehow positive attitude	Neutral	Somehow negative	Very negative attitude

*Cluster analysis*

Cluster analysis is the most commonly used technique to group individuals or objects in such a way that objects in the same group (called a cluster) are more similar to each other than those in other groups. Cluster analysis can be used as a data reduction technique or can be used to generate a hypothesis. Cluster analysis is more descriptive than inferential as it describes underlying relationships between objects in the same group.

The researcher also used cluster analysis to describe the findings further. The procedure separated respondents into 3 clusters or groups. The researcher then investigated the common underlying attributes in each group, thereby describing attributes that can separate knowledge levels and attitude categories among HIV positive women on exclusive breastfeeding.

### ***3.3.3.2 Inferential statistics***

Salkind (2012:394) states that inferential statistics are methods that allow inferences to be made from the sample to the population. Statistical methods like multiple discriminant analysis were used.

#### *Multiple discriminant analysis*

Multiple discriminant analysis was used to understand the group differences and to anticipate the likelihood that an entity will belong to a particular group based on different metric independent variable (Hair, Black, Babin, Barry & Anderson 2010:16). Multiple discriminant analysis is the appropriate multivariate technique if the single dependent variable is dichotomous or multichotomous and therefore non-metric. In this study, the researcher wanted to understand differences in attitudes and predict the likelihood of a positive attitude or a negative attitude given a combination of age and knowledge. The dependent non-metric variable was the attitude (multichotomous) and the independent variables were HIV Knowledge, Knowledge on HIV transmission in the context of infant feeding, general knowledge on infant feeding, knowledge on advantages and disadvantages of infant feeding options and age.

Analysing data through a computer programme enabled the researcher to manage huge amounts of data and increase the validity of the research and it was easy to audit. Data was analysed using statistical software, Statistical Package for Social Sciences (SPSS) version 21.0.

## **3.4 INTERNAL AND EXTERNAL VALIDITY OF THE STUDY**

### **3.4.1 Validity**

Salkind (2012:123) refers to validity as truthfulness, accuracy, authenticity, genuineness and soundness of the test or the instruments. De Vos et al (2011:172) refer to validity as the extent to which an empirical measure adequately reflects the real meaning of the content under investigation. Validity has two aspects: that the instrument actually measures the concept in question and that the concept is measured accurately.

#### ***3.4.1.1 Validity of data collection instrument***

Validation of the instrument ensures that the data to be collected is of good quality and evidence based. The greater the volume of data supporting validity the more results are reliable or valid (Polit & Beck 2012:336). The researcher in this study implemented the following activities to validate the data collection instrument: Pre-testing assisted the researcher to ascertain if the intended variable knowledge and attitude were measured. The questionnaire was administered in the language (Sepedi) that best suited the respondents; there was no need to translate answers from the respondents because they had to choose from given options. The researcher ensured that the instrument was measuring the knowledge and attitudes of women on exclusive breastfeeding; the instrument's validity was based on content, face and construct validity.

Reliability of the measurement instrument was done only for section C (attitude questions). This is because the knowledge questions are achievement tests that are researcher-made tests (Salkind 2012:136). The knowledge questions were designed specifically in the context of the research topic and used the researchers' conceptual knowledge together with consultations (supervisors and EMTCT coordinators) around the issue, hence testing the reliability of the knowledge questions is not necessary.

Reliability coefficients range from +1.00 to -1.00. A value of +1.00 signifies perfect reliability whilst a value of 0.00 or less indicates no reliability (Salkind 2012:119). The Cronbach's Alpha is the most common measure of internal consistency or reliability. It is commonly used when a scale like a Likert or Thurstone scale is used to determine if the scale is reliable (Salkind 2012:136). To test the reliability of the Likert scale used for the

attitude questions, Reliability test was done and the Cronbach's Alpha measure (reliability coefficient) was obtained.

**Table 3.3: Reliability statistics for attitude scale**

Cronbach's Alpha	Cronbach's alpha based on standardised items	Reliability coefficients range	N of Items
0.645	0.634	+1.00 to -1.00	12

From table 3.3 above, Cronbach's Alpha value of 0.645 shows that the scale used to measure attitude in this study is fairly reliable.

#### *3.4.1.1.1 Content validity*

Content validity is the degree to which an instrument has an appropriate sample of items for the construct being measured and adequately covers the construct domain (Polit & Beck 2012:723; Salkind 2012:124). The questionnaire that was used was developed from the literature to ensure that it covers all crucial aspects of interest. Knowledge and attitude were well defined so that the meaning and the content were comprehensively investigated.

#### *3.4.1.1.2 Face validity*

Face validity refers to whether the instrument appears to measure the appropriate construct (Polit & Beck 2012:728). The supervisor, statistician and the researcher checked the questionnaire for organisation and appropriateness. The researcher designed and organised the questionnaire in an attractive way.

#### *3.4.1.1.3 Construct validity*

Salkind (2012:125) defines construct validity as the degree to which the test results are associated with the fundamental set of related variables. De Vos et al (2011:174) explain construct validity as focusing on the meaning of the instrument, what it is measuring, and how and why it works in this manner. It also tries to establish the theory underlying the instrument. The researcher developed the instrument based on the

objectives and the purpose of the study. The researcher engaged fellow nurses, EMTCT coordinators who are working in field of HIV and the supervisors to pre-test the instrument.

### **3.4.2 External validity**

Brink et al (2012:111) and Salkind (2012:393) refer to external validity as the level to which the outcomes of the study can be generalised to other people and other settings. Polit and Beck (2012:727) define external validity as it concerns inferences about the extent to which relationships observed in a study hold true over variations in people, condition, and setting, as well as over variation in treatment and outcomes. The participant's inclusion was done in different setting under various conditions. The observation made on the study was also compared with other observation in different studies.

### **3.4.3 Internal validity**

Brink et al (2012:109), Burns and Grove (2009:222) and Salkind (2012:394) refer to internal validity as a level to which the results of an experiment can be due to the interference by the researcher, independent variable, rather than to factors which are beyond the researcher's ability to control. Polit and Beck (2012:731) refer to internal validity as the level to which it is possible to make a decision that the outcome is caused by independent variable and that the relationship between the two is not because of the factors outside the study. The researcher was firm in application of quantitative methods as outlined in this document, no adjustment done during the implementation.

## **3.5 ETHICAL CONSIDERATIONS**

Brink et al (2012:34) indicated that there are three basic ethical principles that guide the researcher during the research process: respect for persons, beneficence and justice. These principles are based on the human rights that need to be maintained in research: fair treatment, privacy, anonymity, confidentiality and being protected from harm or discomfort Burns and Grove (2009:189). The ethical considerations were maintained in the following ways.



### **3.5.1 Protection of the rights of the participants**

Polit and Beck (2012:152) define non-maleficence as reducing harm and beneficence as increasing benefits by all means. The researcher ensured that the research participants were never subjected to any harm. Human beings are considered as autonomous; they can make their own decision if they want to be part of the study or not (Burns & Grove 2009:189). The researcher explained to the respondents that they can terminate their participation at any stage without any reprisal. Furthermore, all the information was kept confidential and it was never used against the respondents. All respondents were identified by the study number for anonymity so that no information will be traced back to the respondent. Polit and Beck (2012:154) explain that respect relates to human dignity and the right to self-determination. The rights of the respondents were respected; to ensure informed consent they were given a consent form (see annexure F) to sign before participating in the study.

The researcher provided the respondents with the details about the study so as not to deceive the respondents in any way. All the completed questionnaires were kept in a lockable cupboard at the researcher's home before being entered onto the computer. Justice in research means that respondents will share equal benefits and also the burdens that come with the study (Polit & Beck 2012:155). The respondents were treated fairly; even if the respondent refused to participate, she received the same attention and respect as those who participated. The questionnaire was administered only in the presence of a researcher and the respondent. For the respondent who cannot read and write, a person who is not part of the research was requested to witness the explanation of the research information and signing of the consent form. Respondents were not discriminated against or disrespected due to their HIV status; confidentiality and privacy about their HIV status was maintained. Respondents were given an information sheet (see annexure E) for further reading and the contact details of the researcher were given if they wish to contact the researcher, or the supervisors, for further explanation.

### **3.5.2 Protection of the rights of the institution**

Before embarking on the research, ethical clearance was obtained from the Higher Degrees Committee of the Department of Health Studies, UNISA. The letter (see annexure B), the research proposal, ethical clearance certificate, and consent form were

submitted to the Limpopo Provincial Department of Health's Research Ethics Committee to request permission to conduct the study. The ethical clearance certificate from UNISA and a letter of approval from Limpopo Provincial Department of Health's Research Ethics Committee were submitted to Mopani District Manager and to the Primary Health care Manager (see annexure D) to request institutional permission to conduct the study. The information obtained from a particular institution was kept confidential and no information was used to exploit a particular institution.

### **3.5.3 Scientific integrity of the research**

The goal of the researcher is to maintain respect for the scientific community by protecting the integrity of scientific knowledge. The researcher has the responsibility of maintaining ethical standards during research and the reporting of results. This can be achieved by being competent, accurate and honest while conducting the study (Brink et al 2012:43). The researcher adhered to the principles and methodology of research as outlined in the proposal which prohibit plagiarism and fabrication. All documents regarding the study were made available to the supervisors to check for fabrication and plagiarism if any. All questions were administered in the same way as approved by the Provincial Department of Health Ethics Committee. All the information obtained from the respondents were recorded as it is and used only for the research purposes. The respondents were included according to the predetermined criteria and those who did not qualify were excluded.

## **3.6 CONCLUSION**

This chapter described the research design and method used in this study. The sampling technique, data collection and analysis method were discussed. In addition, internal and external validity were explained. The ethical issues related to sampling and data collection were described. Chapter 4 will be detailing the analysis, presentation and description of the research findings.

## **CHAPTER 4**

### **ANALYSIS, PRESENTATION AND DESCRIPTION OF THE FINDINGS**

#### **4.1 INTRODUCTION**

Chapter 3 discussed the research design and the methodology. Chapter 4 will be presenting the analysis and description of the research findings. The purpose of this study was to determine the knowledge and describe attitudes of HIV positive women on exclusive breastfeeding in Mopani District (the Greater Letaba Sub-District, Limpopo), South Africa. In this chapter the following objectives are addressed; to determine the knowledge and to describe the attitudes of HIV positive women on exclusive breastfeeding.

#### **4.2 DATA MANAGEMENT AND ANALYSIS**

A self-developed structured questionnaire was developed which was rooted from the literature and associated with the research objectives as highlighted above. The questionnaire consisted of three sections; Section A concentrating on demographic data, Section B on the knowledge of HIV positive women on exclusive breastfeeding and Section C on the attitudes of HIV positive women on exclusive breastfeeding. Multistage cluster sampling was used to identify the site and convenience sampling was used to select the respondents.

#### **4.3 THE RESEARCH RESULTS**

The researcher anticipated reaching a target of 160 respondents; nevertheless 123 respondents were reached at the end of the study. For the purpose of this study 'N' refers to the number of the respondents in the study (N=123). The 'n' was used for the number of responses on each item.

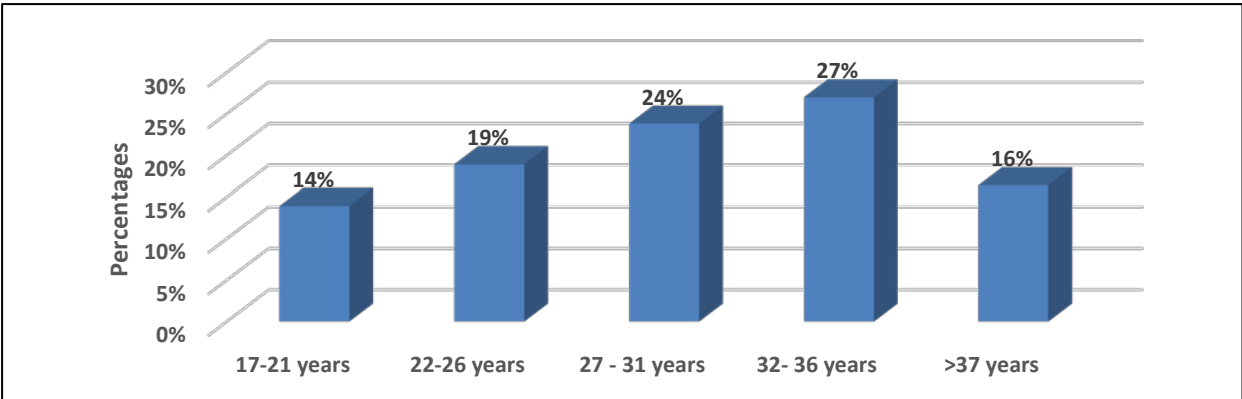
##### **4.3.1 Sample characteristics**

This section describes the respondent's socio-demographic details, which include age,

marital status, education, source of income, residential type and pregnancy status. In some analyses, the researcher will be treating these characteristics as independent variables.

**4.3.1.1 Age distribution analysis (N=123)**

The age distribution of respondents as specified in figure 4.1 indicated that more respondents were between the age of 32-36 (27%, n=33), 24% (n=29) were between 27-31 years, 19% (n=23) were between 22-26 years, 14% (n=17) were between 17-21 years and 16% (n=20) were older than 37 years. This shows that the majority of respondents were between the ages of 32-36. Respondent ages were within the reproductive age of 22–36 years. The mean age of the respondents was 24.4 years (see figure 4.1). According to the Mopani Annual Report (2013:12) the population of greater Letaba consists of a young population of 36.8% at less than 35 years (Mopani Annual Report 2013:12). From the same annual report the highest age with the highest population is females between the ages of 15-34 (34.81%). Shisana et al (2014:108-122) conducted a survey in South Africa which investigated HIV prevalence and the behavior of females. The survey found out that females between the ages of 30-34 have the high HIV prevalence rate as compared to other age categories.

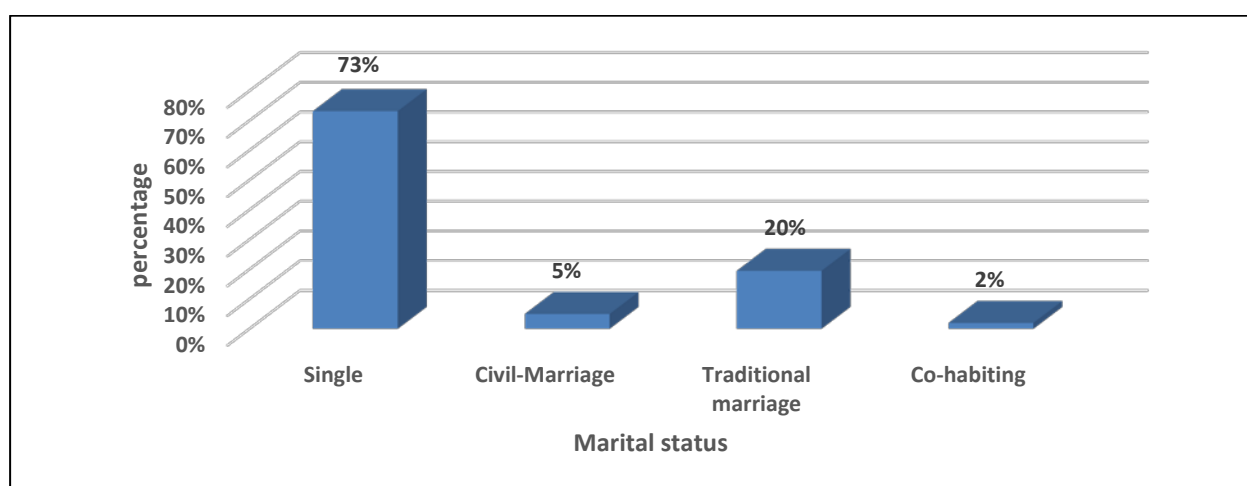


**Figure 4.1: Analysis of age distribution (N=123)**

**4.3.1.2 Marital status analysis (N=123)**

In terms of the marital status 73% (n=90) of the respondents were single, 20% (n=24) were traditionally married, 5% (n=7) were in a civil marriage and 2% (n=2) were co-habiting. The data clearly indicates that most of the respondents who participated in the

study were single mothers (see figure 4.2).



**Figure 4.2: Distribution according to marital status (N=123)**

#### **4.3.1.3 Educational status analysis (N=123)**

The data in table 4.1 indicate that 83% (n=102) of the respondents had a secondary education, 9% (n=12) had a National certificate, 4% (n=5) only had a primary education, 2% (n=2) had Diplomas and only 1% (n=1) had a degree. One respondent (1%; n=1) did not respond to this item. The sample of the study consisted mostly of respondents (95%) who had completed their primary education. However, all the respondents had some form of education so they were able to read and write.

**Table 4.1: Analysis of educational status (N=123)**

<b>Educational status</b>	<b>Frequency</b>	<b>Percent</b>
Primary school	5	4
Secondary school	102	83
National certificate	12	9
Diploma	2	2
Degree	1	1
Non-response	1	1
<b>Total</b>	<b>123</b>	<b>100%</b>

#### 4.3.1.4 Current pregnancy status analysis (N=123)

During sampling, 98% (n=120) of the respondents reported that they were not pregnant. The remaining 2% (n=3) reported that they were pregnant again (see figure 4.3).

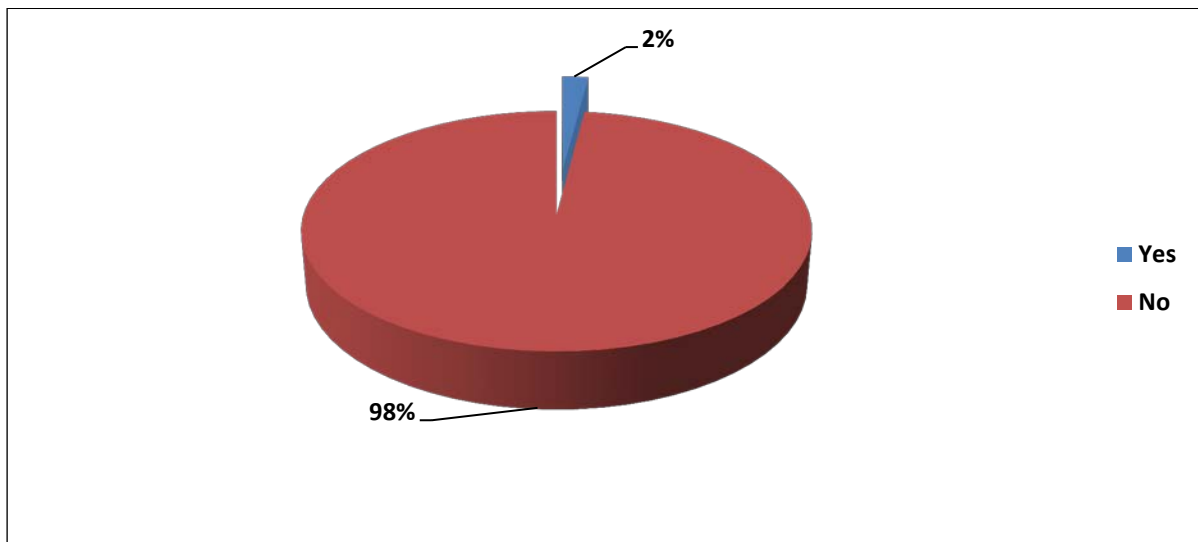


Figure 4.3: Distribution according to pregnancy status

#### 4.3.1.5 Residential type analysis (N=123)

Figure 4.4 indicates that 99% (n=122) of the respondents were living in a formal dwelling and 1% (n=1) living in an informal dwelling. According to Statistic South Africa 91.9% of the population in greater Letaba Sub-District was living in formal houses (Census 2011).

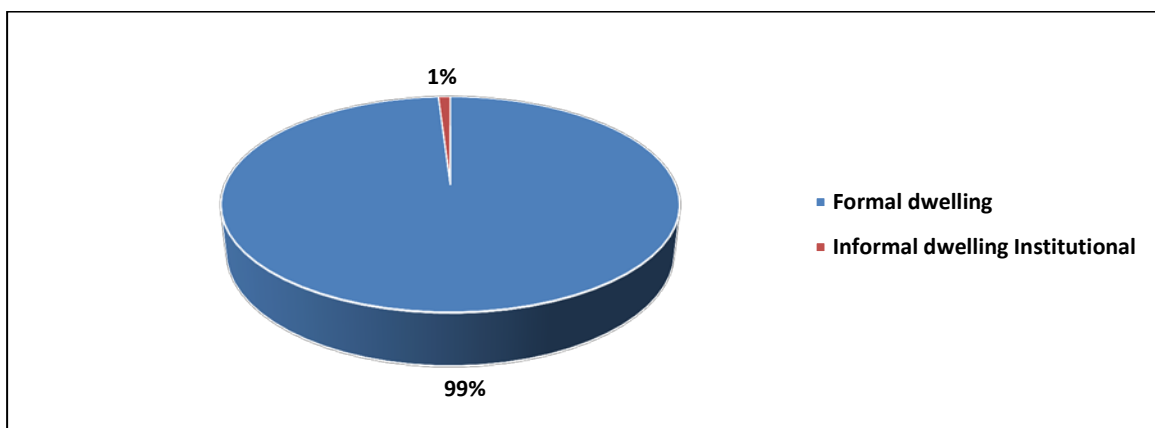


Figure 4.4: Distribution according to residential type

#### 4.3.1.6 Source of income analysis (N=123)

The respondents indicated their source of income as follows, 15% (n=18) received income from employer, 2% (n=3) depended on a grant, 12% (n=15) depended on their husbands income, 51% (n=63) depended on family members and 20% (n=24) had no income. The majority of the respondents depended on their family members or husband for income (see figure 4.5). From the Mopani annual report (2013) it is clear that poverty still affects most people in Greater Letaba Sub-District as 14.2% (n=8407) have no income, and other depend on a grant and family members. An estimated 19.3% (n=989) of females are employed and 12.4% (n=4905) are unemployed (Mopani annual report 2013:15).

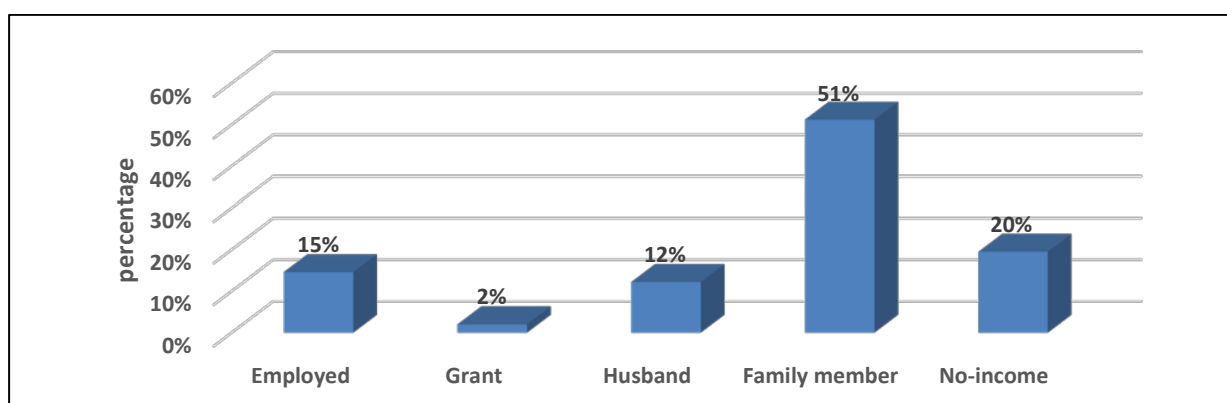


Figure 4.5: Distribution according to source of income (N=123)

#### 4.3.2 Knowledge of HIV positive women on exclusive breastfeeding

The ensuing sections consist of four sub-categories of the 18 items which are more relevant to the knowledge of HIV positive women on exclusive breastfeeding.

This section is divided into four sub-categories which include knowledge of HIV positive women on HIV and AIDS, knowledge of HIV transmission in the context of breastfeeding, knowledge of HIV positive women on infant feeding in the context of HIV transmission and knowledge of HIV positive women on advantages and disadvantages of infant feeding in the context of HIV transmission.

#### 4.3.2.1 Knowledge on HIV and AIDS (N=123)

This subcategory reports on items 7 and 8.

##### 4.3.2.1.1 HIV stands for human immunodeficiency virus

The research results in terms of knowledge on HIV shows that 55% (n=67) of the respondents knew that HIV stands for human immunodeficiency virus, 43% (n=53) of respondents didn't know and 2% (n=3) disagreed that HIV stands for human immunodeficiency virus (see figure 4.6).

##### 4.3.2.1.2 HIV and AIDS are the same

The research results as shown in figure 4.6 indicate that 65% (n=80) of the respondents knew that HIV and AIDS are not the same thing, 23% (n=28) said that HIV and AIDS are the same and 12% (n=15) reported that they don't know. On the other item 55% of the respondents knew what HIV stands for.

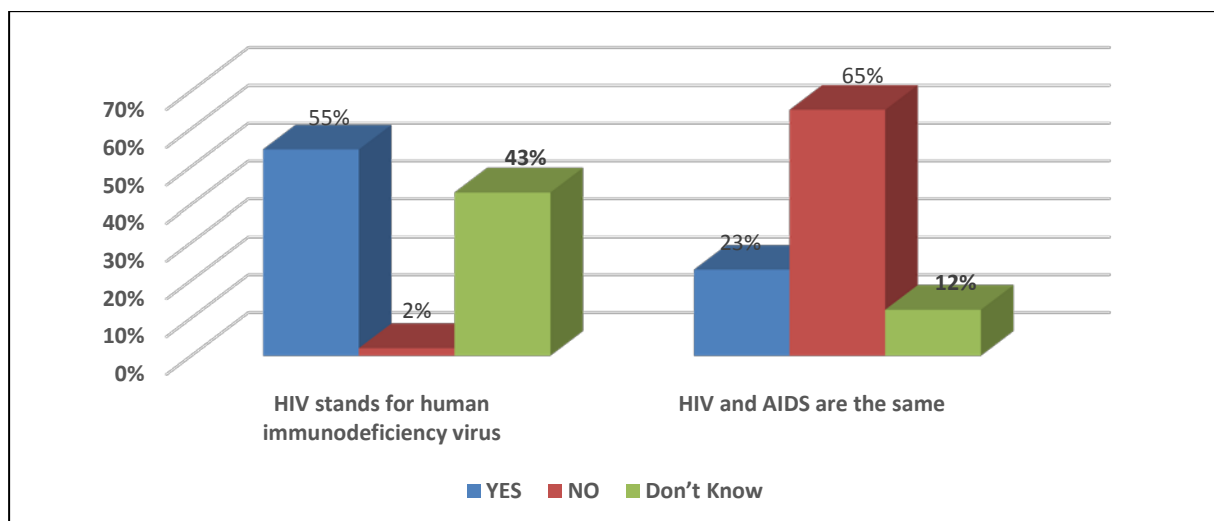


Figure 4.6: Distribution according to knowledge of HIV/AIDS (N=123)

##### 4.3.2.2 Overall knowledge score on HIV and AIDS analysis (N=123)

Table 4.2 indicates that the median score of HIV and AIDS knowledge was 1 and 50% (n=61) of the respondents got 1 out of the 2 items correct. A total of 22 respondents (18%) got all items incorrect and 46 (37%) of the respondents got all items correct.



Using the mean as the most appropriate measure of dispersion in this score, we see that the overall average score is 60%. It can be concluded that the knowledge of women on HIV and AIDS is acceptable.

**Table 4.2: Overall knowledge score on HIV and AIDS**

Total N	Mean	Median	Minimum	Maximum	Percentile 25	Percentile 75
123	1.20	1.00	.00	2.00	1.00	2.00

**4.3.2.3 Knowledge on HIV transmission in the context of infant feeding**

This subcategory reports on items 10, 11, 15, 22 and 24.

*4.3.2.3.1 Mixed feeding increases the risks of HIV transmission as compared to exclusive breastfeeding*

The data indicates that 47% (n=58) of the respondents knew that mixed feeding increases the risk of HIV transmission from HIV positive mother to child, as compared to exclusive breastfeeding, 31% (n=38) disagreed that mixed feeding increases the risk of HIV transmission as compared to exclusive breastfeeding and 22% (n=27) reported that they don't know. The results indicates that 53% (n=65) of the respondents were not knowledgeable on the risks involved during mixed feeding as compared to exclusive breastfeeding (see figure 4.7).

*4.3.2.3.2 HIV positive infants who are formula fed are dying as compared to exclusive breastfed infants*

The data further indicates that 62% (n=76) of the respondents knew that HIV positive infants who are formula fed are dying as compared to exclusive breastfed infants, 27% (n=33) reported that they don't know and 11% (n=14) reported that HIV positive infants who are formula fed are not dying as compared to exclusive breastfed. Overall the results indicate that the majority of the respondents knew that exclusive breastfeeding can reduce infant's mortality and a substantial number 38% (n=47), however, showed that they are not knowledgeable on the benefits of exclusive breastfeeding in reducing

infants mortality (see figure 4.7).

#### *4.3.2.3.3 Feeding infants with other food before six months increases the risk of HIV transmission from the mother to infants*

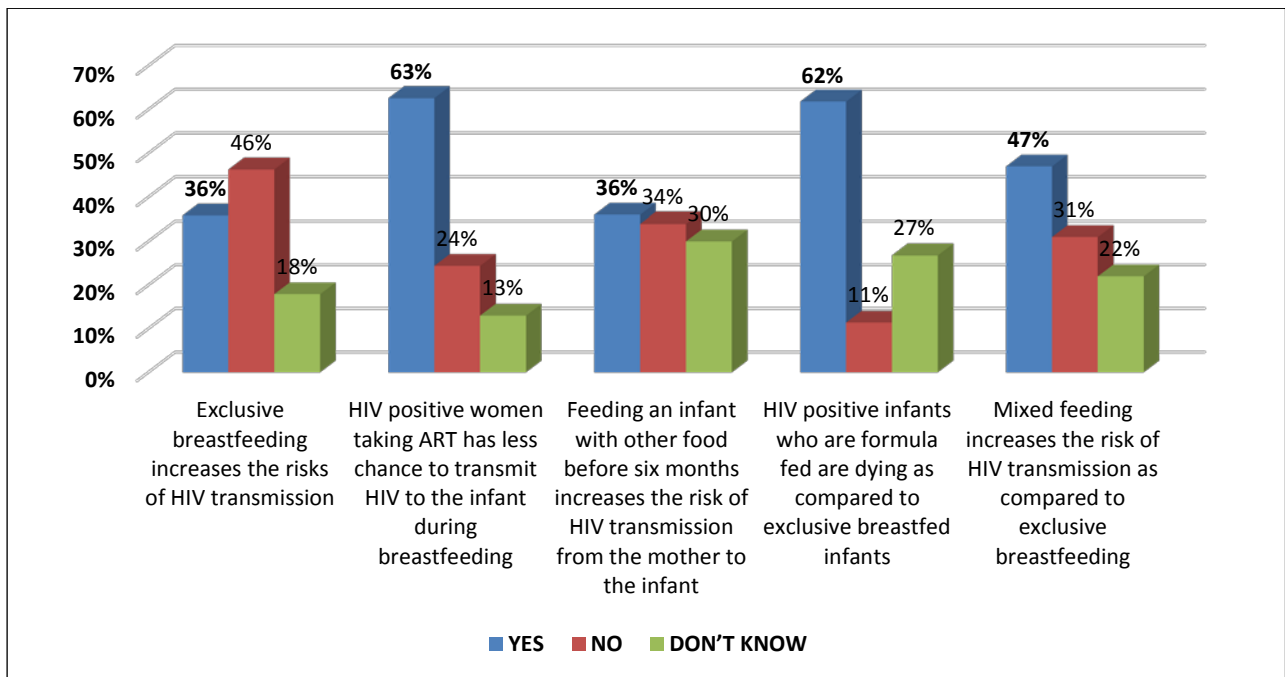
Figure 4.7 indicates that 36% (n=44) of the respondents knew that feeding infants with other food before six months increases the risk of HIV transmission from the mother to infants, 34% (n=42) indicated that feeding infants with other food before six months does not increase the risk of HIV transmission from the mother to the infant and 30% (n=37) reported that they don't know. The overall results of this study in this item indicates that 64% (n=79) don't know the disadvantages of mixed feeding on HIV transmission during breastfeeding.

#### *4.3.2.3.4 ART reduce the risks of HIV transmission during breastfeeding*

Figure 4.7 indicates that 63% (n=77) of the respondents knew that ART reduce the chances of HIV transmission during breastfeeding, 24% (n=30) reported that ART don't reduce the chances of HIV transmission and 13% (n=16) said that they don't know if it reduce or not. The overall results of the study in this item indicates that the majority of the respondents 63% (n=77) realise the benefits of ART in elimination of MTCT of HIV, however, some of the respondents 37% (n=46) are not knowledgeable about the benefits of ART in EMTCT of HIV.

#### *4.3.2.3.5 Exclusive breastfeeding increases the risk of HIV transmission*

The results indicate that 46% (n=57) of the respondents said that exclusive breastfeeding don't increase the risk of HIV transmission, 36% (n=44) they reported that exclusive breastfeeding increases the risk of HIV transmission and whereas 18% (n=22) they don't know if exclusive breastfeeding can increase the risk of HIV transmission. The overall results of the study in this item indicate generally there is low knowledge on transmission of HIV during exclusive breastfeeding, because only 46% (n=57) of the respondents knew that exclusive breastfeeding does not increase the risk of HIV transmission, 54% (n=66) of the respondents were not knowledgeable on the benefits of exclusive breastfeeding in reducing the risk of MTCT of HIV (see figure 4.7).



**Figure 4.7: Distribution according to knowledge of HIV transmission in infants feeding (N=123)**

#### **4.3.2.4 Overall knowledge score on HIV transmission analysis (N=123)**

Table 4.3 further elaborates the results on the overall score on general knowledge on HIV transmission and infants feeding, out of five items, 4% (n=5) of the respondents got all items wrong (score=0) and 6% (n=7) of the respondents answered all items correctly (score=5). The mean knowledge score of the respondents on HIV transmission was 2.54 and the median knowledge score was 3, this indicate that 50% of the respondents got a score above 3 (60%) and also 50% got a score below 3 (60%). Generally the knowledge of the respondents on HIV transmission is acceptable because the median score is 3 (60%) which is above pass mark of 2.5 (50%). Asefa et al (2014:4) conducted a study which shows that 90% of pregnant women had some knowledge on MTCT of HIV; they reported that HIV positive mothers can transmit HIV to their babies during pregnancy, delivery and breastfeeding.

**Table 4.3: Overall knowledge score on HIV transmission in the context of breastfeeding (N=123)**

Total N	Mean	Median	Minimum	Maximum	Percentile	Percentile
123	2.54	3	00	5	2.00	3.00

**4.3.2.5 Knowledge of HIV positive women on infants feeding in the context of HIV (N=123)**

This subcategory reports on items 9, 18, 21 and 23.

**4.3.2.5.1 Mixed feeding means giving infant breastmilk and other food or fluids before six months**

Figure 4.8 indicates that 49% (n=61) of the respondents knew that mixed feeding means giving infant breastmilk and other food or fluids before six months, 33% (n=40) said that they don't know, 18% (n=22) said that giving infant other food or fluids before six months is not mixed feeding. The overall results of the study in this item indicates that 50% (n=61) of the respondents know the meaning of mixed feeding, 50% (n=62) don't know what is mixed feeding.

**4.3.2.5.2 South African government promote exclusive breastfeeding for six months**

Figure 4.8 indicates that 54% (n=66) of the respondents knew that the South African government promote exclusive breastfeeding for six months, 39% (n=48) said that they don't know if the government promote exclusive breastfeeding and 7% (n=9) said that South African government don't promote exclusive breastfeeding. The overall results of study in this item indicates that 46% (n=57) were not aware that the government promote exclusive breastfeeding; this can have a negative influence on women to practice exclusive breastfeeding.

**4.3.2.5.3 Infants can only be given food or fluids only after six months of life**

The data indicate that 77% (n=95) of the respondents knew that an infant can only be given food or fluids only after six months of life, 17% (n=21) said that not only after six

months can the infant receive food or fluids, 6% (n=7) said that they don't know. The overall results in this item indicates that most of the respondents (77%, n=95) were knowledgeable that food and other fluids can only be given after six months of life (see figure 4.8).

4.3.2.5.4 Exclusive breastfeeding means giving infants breastmilk only for six months

The results indicate that 56% (n=69) of the respondents knew what is exclusive breastfeeding, 34% (n=42) said they don't know what is exclusive breastfeeding and 10% (n=12) said that exclusive breastfeeding does not mean giving infants only breastmilk for six months. The finding in this item indicates that 44% (n=42) of the respondents don't know the meaning of exclusive breastfeeding (see figure 4.8).

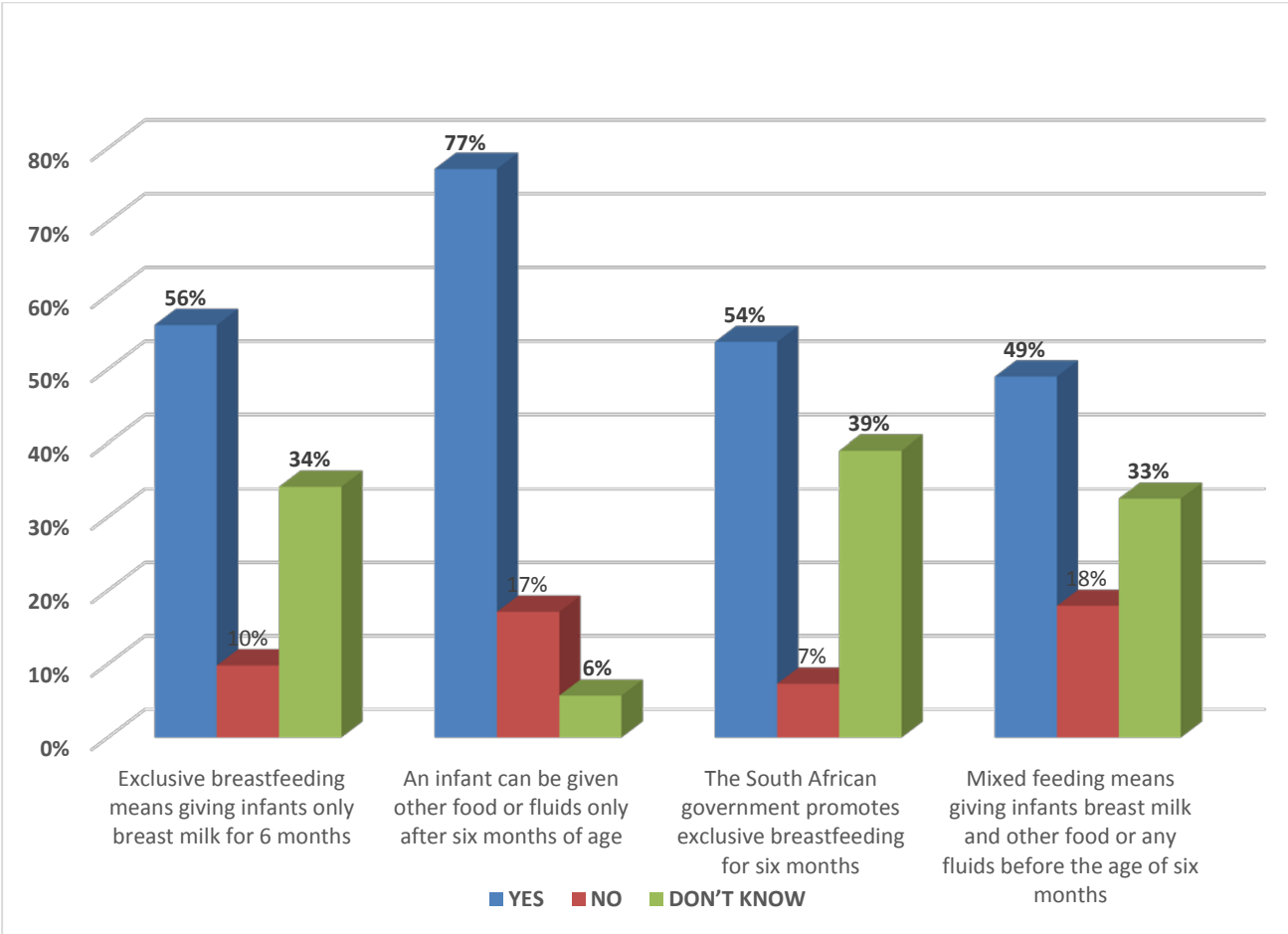


Figure 4.8: Distribution according to knowledge on infants feeding in the context of HIV transmission (N=123)

**4.3.2.6 Overall knowledge score on infants feeding in the context of HIV transmission analysis (N=123)**

Table 4.4 shows that out of four items 7% (n=9) of the respondents got one item right (score=1) and 22% (n=27) got all the items correctly (score=4). There was no respondent who got zero, the mean knowledge score on infants feeding in the context of HIV transmission was 2.80 (70%) and the median knowledge score on infants feeding in the context of HIV transmission was 3.

This indicates that 50% of the respondents got score above 3 (75%) and also 50% of the respondents got score less than 3 (75%). Generally the knowledge of respondents was acceptable on infants feeding in the context of HIV transmission because the median score is 3 which is above the pass mark of 2. A study was conducted by Ndubuka, Ndubuka, Li, Marshall and Ehiri (2013:3) among pregnant HIV positive women, the results indicated that about half of women had some knowledge on infant feeding.

**Table 4.4 Overall Knowledge score on infants feeding option in the context of HIV transmission (N=123)**

Total N	Mean	Median	Minimum	Maximum	Percentile	Percentile
123	2.80	3	1.00	4	2.00	3.00

**4.3.2.7 Knowledge of HIV women on advantages and disadvantages of infant feeding in the context of HIV transmission (N=123)**

This subcategory reports on items 12, 13, 14, 16, 17, 19 and 20.

**4.3.2.7.1 Breastmilk can protect an infant against the infections like diarrhea and respiratory tract infection**

Figure 4.9 indicates that 94% (n=116) of the respondents knew that breastmilk can protect an infant against the infections like diarrhea and respiratory tract infection, 6% (n=7) said that they don't know. The results in this item indicated that the majority of the

respondents acknowledged the benefits of breastmilk in protecting the infants against infections, moreover there was no single respondents who rejected that breast milk can protect the infants against infections.

#### *4.3.2.7.2 Breastfeeding is the cheaper method of feeding the baby.*

Figure 4.9 indicates that 100% (n=123) of the respondents said that breastfeeding is the cheaper method of feeding the baby.

#### *4.3.2.7.3 An immune system of the baby who is breastfed is stronger as compared to a formula fed baby*

The data indicates that 95% (n=117) of the respondents knew that the immune system of the baby who is breastfed is stronger as compared to a formula fed baby, 4% (n=5) of the respondents said that they don't know and 1% (n=1) said that there is no different between the immune system of breastfed and formula fed baby. The result of the study in this item indicates that the majority of respondents knew that the breastmilk build strong immune system of baby than formula fed baby (see figure 4.9).

#### *4.3.2.7.4 Infant who receive breastmilk only will not grow well*

The data indicates that 59% (n=73) of the respondents knew that an infant who receive breastmilk only for first six months of life can also grow well, 39% (n=48) said that the infant who receive breastmilk only for first six months of life won't grow well and 2% (n=2) said that they don't know if an Infant who receive breastmilk only for first six months of life will not grow well. The overall results of study in this item indicates that 41% (n=50) of the respondents were not knowledgeable that breastmilk alone is enough for the infant during the first six months of life, this contribute to mixed feeding practices (see figure 4.9).

#### *4.3.2.7.5 Breastmilk has all the necessary nutrients for the growth of the infants in the first six months of life*

The data on figure 4.9 indicates that 95% (n=117) of the respondents knew that breastmilk has all the necessary nutrients for the growth of the infants in the first six months of life, 4% (n=5) said that breastmilk don't have all the necessary nutrients in the same period and 1% (n=1) said that they don't know if breastmilk contains all the necessary nutrients or not. The results of the study in this item showed that most of respondents (95%, n=117) knew that breastmilk has all the necessary nutrients for the infants.

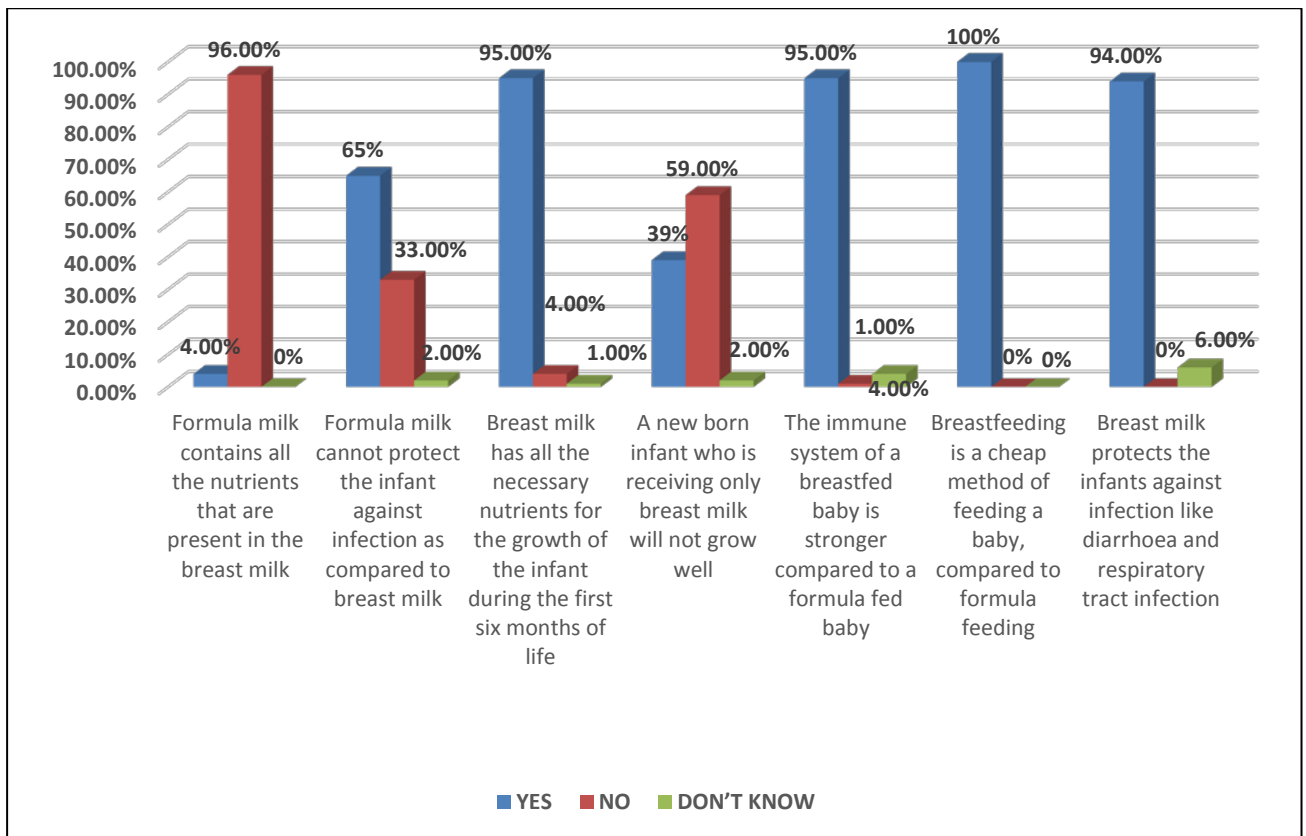
#### *4.3.2.7.6 Formula milk cannot protect the infants against infection as compared to breastmilk*

Figure 4.9 indicates that 65% (n=80) of the respondents knew that formula milk cannot protect the infants against infection as compared to breastmilk, 33% (n=41) said that formula milk can protect against infection as compared to breast milk and 2% (n=2) said that they don't know if formula milk can protect against infection as compared to breast milk not. The overall results of the study in this item indicates that 35% (n=43) of respondents were not aware that the formula milk have no equal protective benefits as compared to breastmilk.

#### *4.3.2.7.7 Formula milk does not contain all the nutrients in the breastmilk*

The majority of the respondents 96% (n=118) knew that formula milk does not contain all the nutrients in the breastmilk, 4% (n=5) said that formula milk contains all the nutrients in the breastmilk. The results of the study in this item indicate that most of the respondents knew that breastmilk cannot be replicated artificially (see figure 4.9).





**Figure 4.9: Distribution according to knowledge on advantages and disadvantages of feeding options (N=123)**

**4.3.2.8 Overall knowledge score on advantages and disadvantages of feeding option analysis (N=123)**

Table 4.5 indicates that out of seven items no one got less than four and the majority of the respondents 37% (n=46) got all seven items correctly, 3% (n=5) got four out of seven. The mean knowledge score on advantages and disadvantages of feeding option is 6.05 (86%) and the median is 6 (86%). The results indicates that 50% of the respondents got score above six (86%) and also 50% of the respondents got score below 6 (86%). The knowledge of the respondents on advantages and disadvantages of feeding option was generally very good because the median score was six which was above the pass mark of 3.5 (50%). Kafulafula et al (2014:5) conducted a study HIV positive mothers indicated that breastfeeding provide nutritional benefits for the infant, moreover is good for bonding. Kuzma (2013:18) conducted a study in Guinea, where the results indicated that the majority of women reported formula feeding is not good. However, the knowledge on the complication that comes with formula feeding was low.

**Table 4.5: Overall Knowledge score on advantages and disadvantages of feeding option in the context of HIV transmission (N=123)**

Total N	Mean	Median	Minimum	Maximum	Percentile	Percentile
123	6.05	6	4.00	7	5.00	7.00

Table 4.6 shows that the median score for all items in section B was 12(67%) and the average score was 12.15 (68%). The minimum score was 4 (22%) and the maximum score was 100%, 25% of the respondents got less than 11 (61%) and 25% of respondents got more than 14 (78%). The researcher observes that the level of knowledge is fair.

**Table 4.6: Overall knowledge score of HIV positive women on exclusive breastfeeding in the context of HIV/AIDS (N=123)**

	Mean	Median	Minimum	Maximum	Percentile 25	Percentile 75	Count
Overall score	12.15	12.00	4.00	18.00	11.00	14.00	123

**4.3.3 Demographic characteristics and overall knowledge score**

Custom tables were used to further describe the relationship between independent and dependent variables. The relationship was described between marital status, educational status, source of income and overall knowledge score of 18 items in section B.

**4.3.3.1 Marital status and overall knowledge score analysis (N=123)**

Table 4.7 compares independent variables and the overall knowledge scores, the median knowledge score of single, traditional marriage and are co-habiting categories were equal to 12.00. This indicates that 50% of the respondents in this group got more than 12 out of 18 and 50% of the respondents got less than 12 as well. The table

indicates that the median knowledge score for the civil married respondents was 13 out of 18. The result of the study indicates that civil married respondents had a better knowledge score as compared to other categories.

**Table 4.7: Analysis of marital status and overall knowledge score (N=123)**

Marital status	Mean	Count	Median	Percentile 25	Percentile 75
Single	12.06	90	12.00	11.00	14.00
Divorced	.	0	.	.	.
Civil-marriage	12.71	7	13.00	11.00	14.00
Traditional marriage	12.33	24	12.00	11.00	14.00
Co-habiting	12.00	2	12.00	9.00	15.00
Widowed	.	0	.	.	.

#### **4.3.3.2 Educational status and the overall knowledge score analysis (N=123)**

Table 4.8 indicates that the category with the highest knowledge median score was those with degrees (15) followed by those with diplomas (14), national certificate (12.25), secondary school (12) and primary school (10) respectively. This indicates that respondents with higher education had a better knowledge scores as compared to other categories. This indicates that educational status is directly associated with the knowledge of HIV and feeding options.

**Table 4.8: Analysis of educational status and overall knowledge score (N=123)**

Educational status	Mean	Count	Median	Percentile 25	Percentile 75
No education	.	0	.	.	.
Primary school	10.40	5	10.00	10.00	11.00
Secondary school	12.17	102	12.00	11.00	14.00
National certificate	12.25	12	12.00	10.50	13.00
Diploma	14.00	2	14.00	13.00	15.00
Degree	15.00	1	15.00	15.00	15.00

#### **4.3.3.3 Source of income and overall knowledge score analysis (N=123)**

Table 4.9 shows source of income against the overall knowledge score, the median score of the respondents who are employed as well as those getting a grant was 11 whilst the median score for those with no income was 12 out of 18 and lastly the median score for respondents who depend on their husbands for income was 13.

**Table 4.9: Analysis of source of income and overall knowledge score (N=123)**

<b>Source income</b>	<b>Mean</b>	<b>Count</b>	<b>Median</b>	<b>Percentile 25</b>	<b>Percentile 75</b>
Employed	11.94	18	11.00	10.00	13.00
Grant	10.67	3	11.00	10.00	11.00
Husband	12.87	15	13.00	12.00	15.00
Community support	.	0	.	.	.
Family member	12.22	63	12.00	11.00	14.00
No income	11.83	24	12.00	11.00	13.00

#### **4.3.3.4 Clusters and overall knowledge score analysis (N=123)**

Cluster analysis is the most commonly used technique to group individuals or objects in such a way that objects in the same group (called a cluster) are more similar to each other than those in other groups. Additionally, after cluster analysis separated the respondents into 3 groups or clusters as earlier highlighted, cluster 1 (n=70) had a median knowledge score of 12.5, cluster 2 (n=24) had a median score of 10 and cluster 3 (n=29) had a median score of 13. It was evident that respondents in cluster 3 had more knowledge than the respondents in other groups.

The researcher then further found that cluster 3 had the majority of (86%, n=24) the respondents who were married, the majority of (86%, n=24) the respondents who had highest level of education as secondary school, the majority of (36%, n=10) the respondents who depended on their husbands for income and the majority of (39%, n=11) the respondents who were in the 32-36 age category. Class 2 consists of women in the age above 37 years, employed, whose highest level of education was secondary school and were single (see table 4.10).

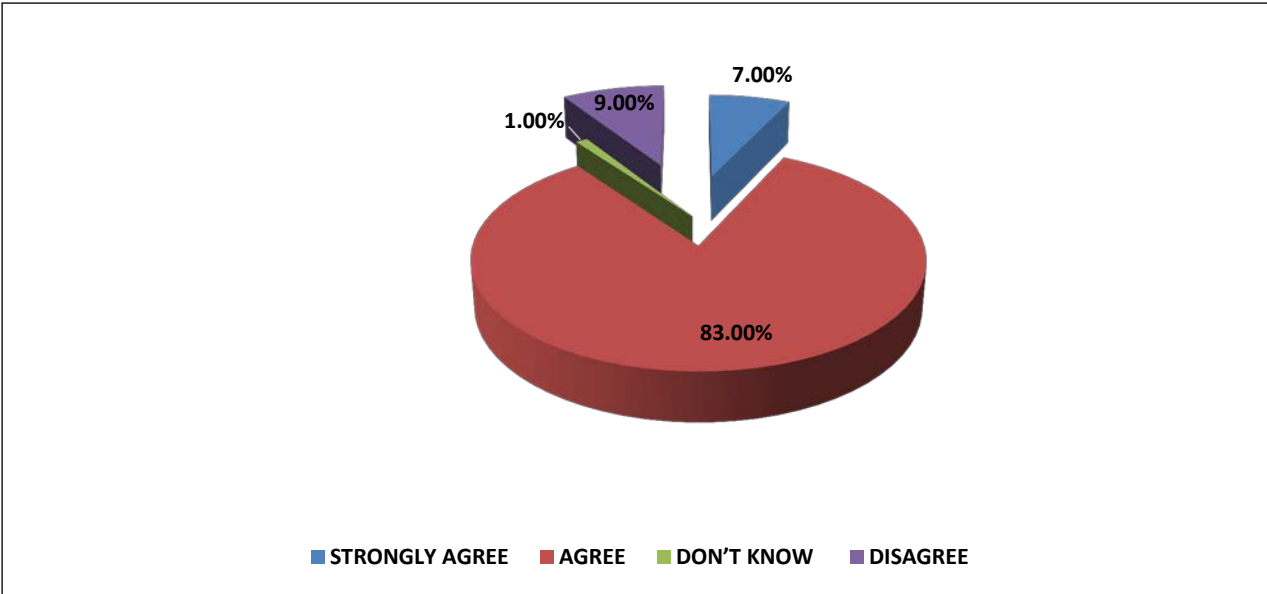
**Table 4.10: Clusters and overall knowledge score (N=121)**

Clusters	Count	Mean	Median	Percentile 25	Percentile 75
Cluster 1.	70	12.61	12.50	11.00	14.00
Cluster 2.	24	9.70	10.00	7.00	12.00
Cluster 3.	29	13.04	13.00	11.50	15.00

**4.3.4 Attitude of HIV positive women on exclusive breastfeeding in the context of HIV/AIDS (N=123)**

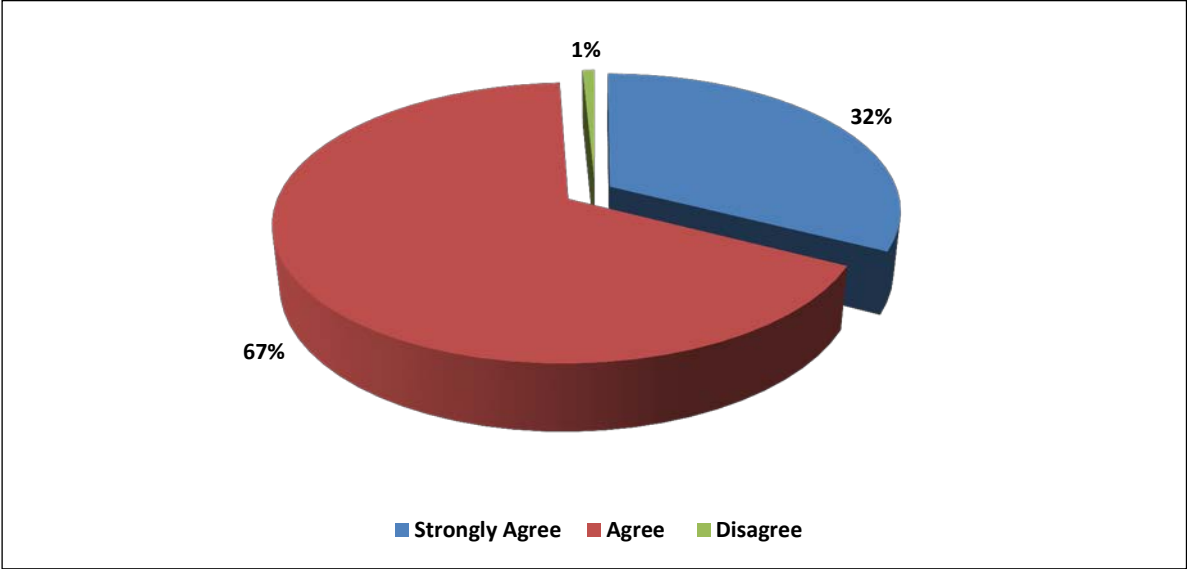
The following section consists of 14 items which are relevant to the attitude of women on exclusive breastfeeding in the context of HIV/AIDS. (Refer to items 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37 and 38 for the following analyses.) The analyses of each item were done with reference to each relevant figure and table 3.2 in chapter 3. The overall attitude score was analysed.

Figure 4.10 indicates that 83% (n=102) of the respondents felt that a women can practice exclusive breastfeeding for six months, 9% (n=11) disagreed, 7% (n=8) strongly agree and 1% reported that they don't know. The results of the study in this item indicate that the average score on the Likert scale for this attitude item was 4 and the median score on the same scale was 4. This shows that the overall attitude on this item was generally positive.



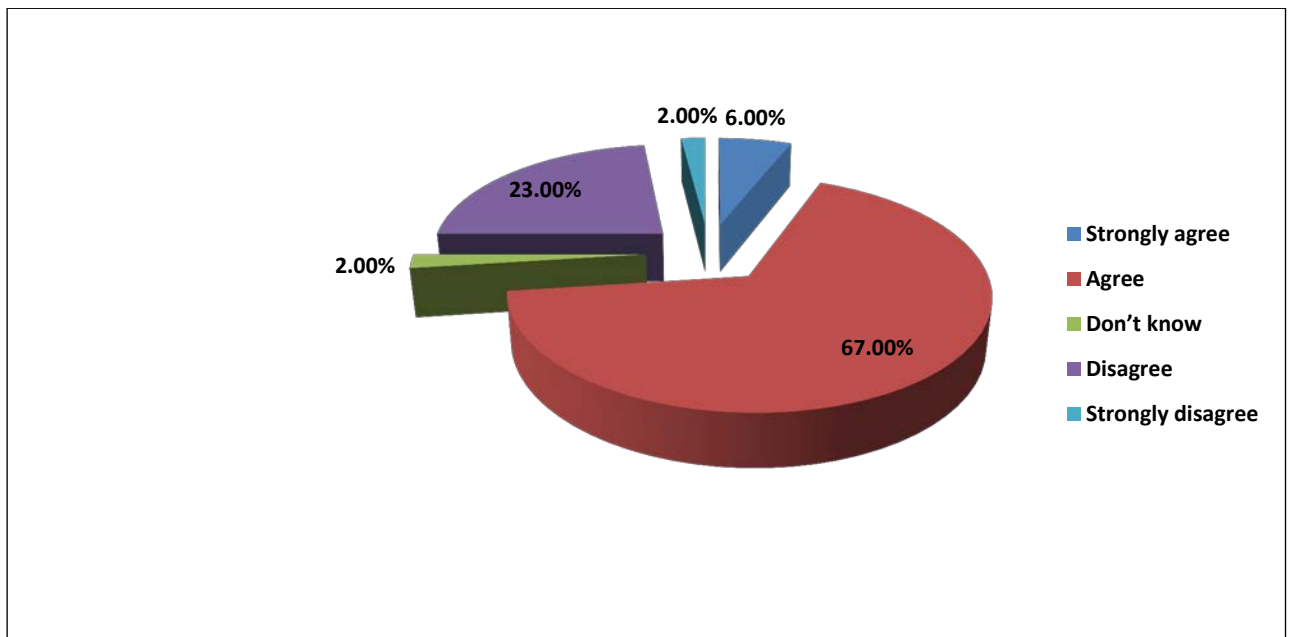
**Figure 4.10: Attitudes towards breastfeeding for six months (N=123)**

The data in figure 4.11 indicates that 67% (n=82) of the respondents agreed that breast milk is better than formula milk when feeding baby, 32% (n=40) strongly agreed and 1% disagreed that breast milk is not better than formula milk when feeding baby. The result of the study in this item indicates that the average score on the Likert scale for this attitude item was 4 and the median score was 4. This shows that the overall attitude on this item is generally positive.



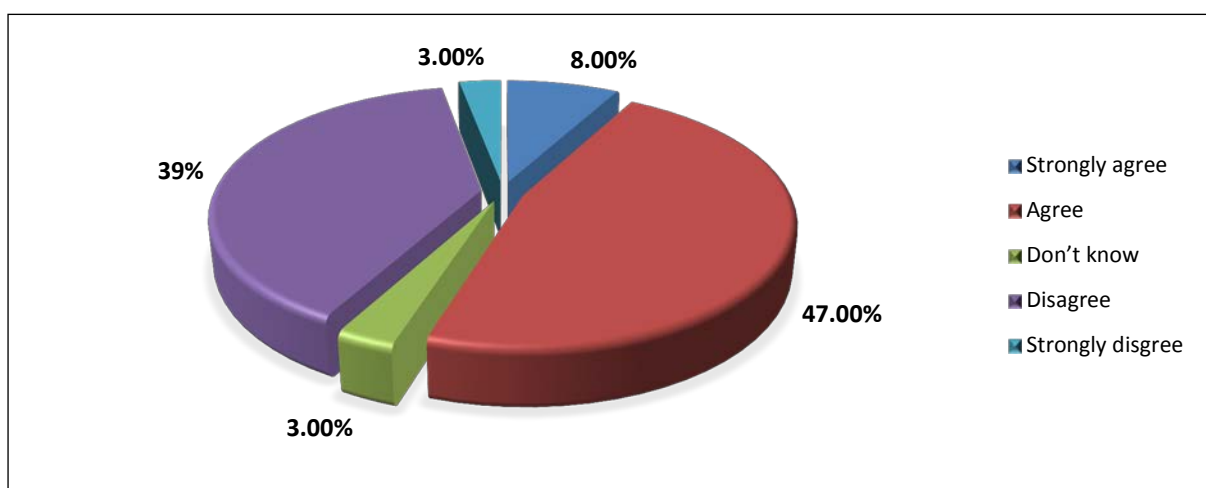
**Figure 4.11: Attitude towards type of feeding (N=123)**

Figure 4.12 indicates that 67% (n=83) of the respondents felt that women have a negative attitude on exclusive breastfeeding, 6% (n=7) strongly agreed, 23% (n=28) disagree, 2% don't know and 2% (N=2) strongly agreed. The result of the study in this item indicates that the average score on the Likert scale for this attitude item was 2 and the median score is 2. This shows that the overall attitude on this item is general positive.



**Figure 4.12: Attitude towards exclusive breastfeeding**

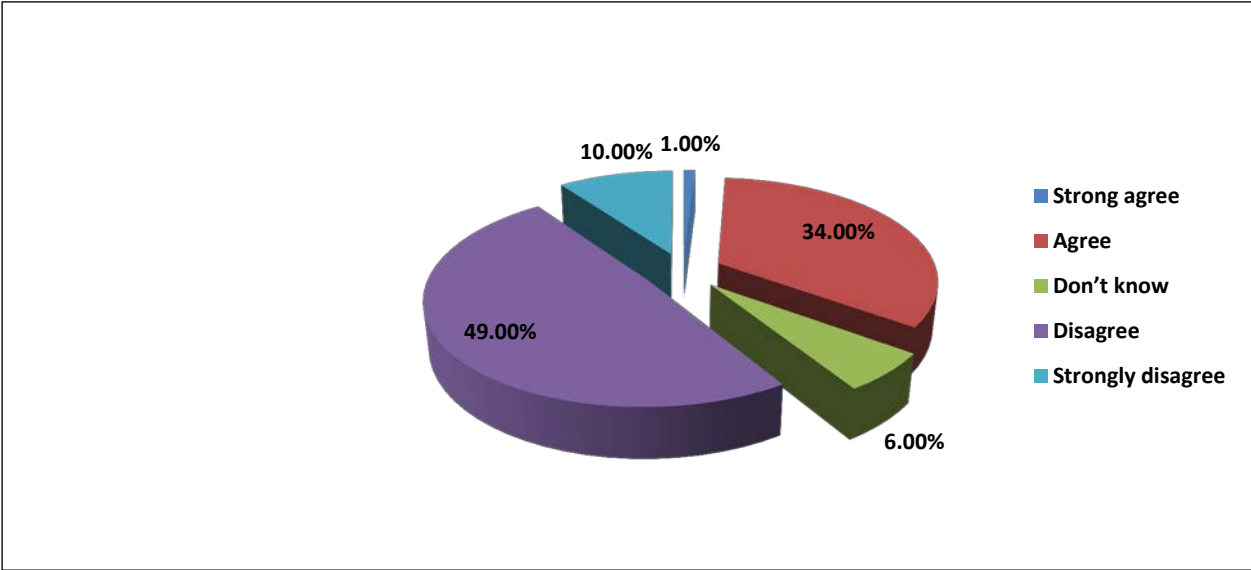
Figure 4.13 indicates that 47% (n=58) of the respondents agreed that HIV positive women should not breastfed because they will infect they baby, 39% (n=48) disagreed, 8% (n=10) strongly agrees, 3% (n=4) strongly disagreed, 3% (n=3) reported that they don't know. The result of the study in this item indicates that the average score on the Likert scale for this attitude item was 3 and the median score was 2. This shows that the overall attitude in this item is generally positive.



**Figure 4.13: Attitude towards exclusive breastfeeding by HIV positive women (N=123)**

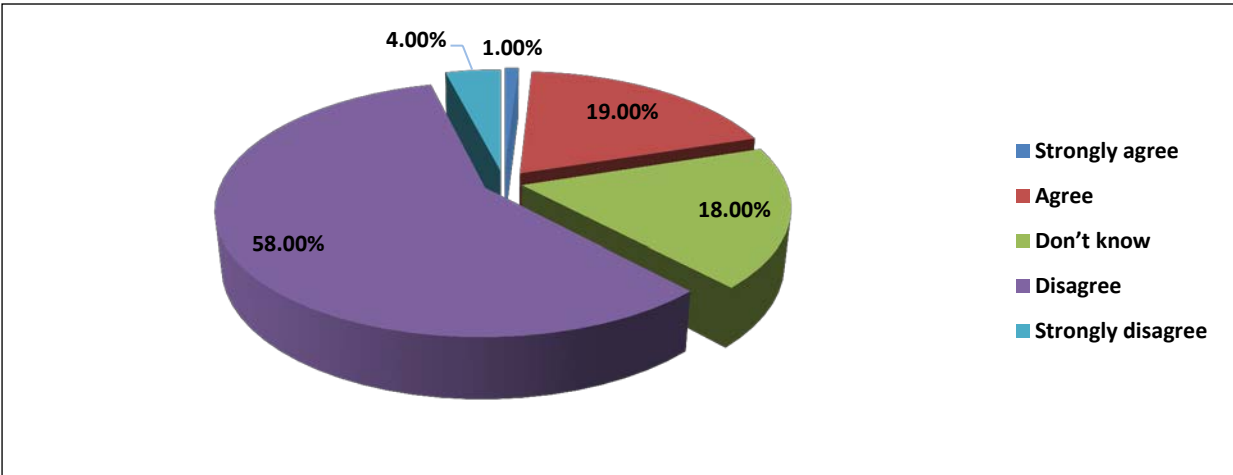
Figure 4.14 indicates that 49% (n=60) of the respondents disagreed that it is good to advice a HIV positive women to exclusive breastfeeding, 1% (n=12) strongly agreed, 34% (n=42), Agreed, 10% (n=12) strongly agreed, 6% (n=7) said they don't know. The

results of the study in this item indicates that the average score on the Likert scale for this attitude item was 3 and median was 2. This shows that the overall attitude on this item is generally negative.



**Figure 4.14: Attitude towards advising HIV positive women to breastfeed (N=123)**

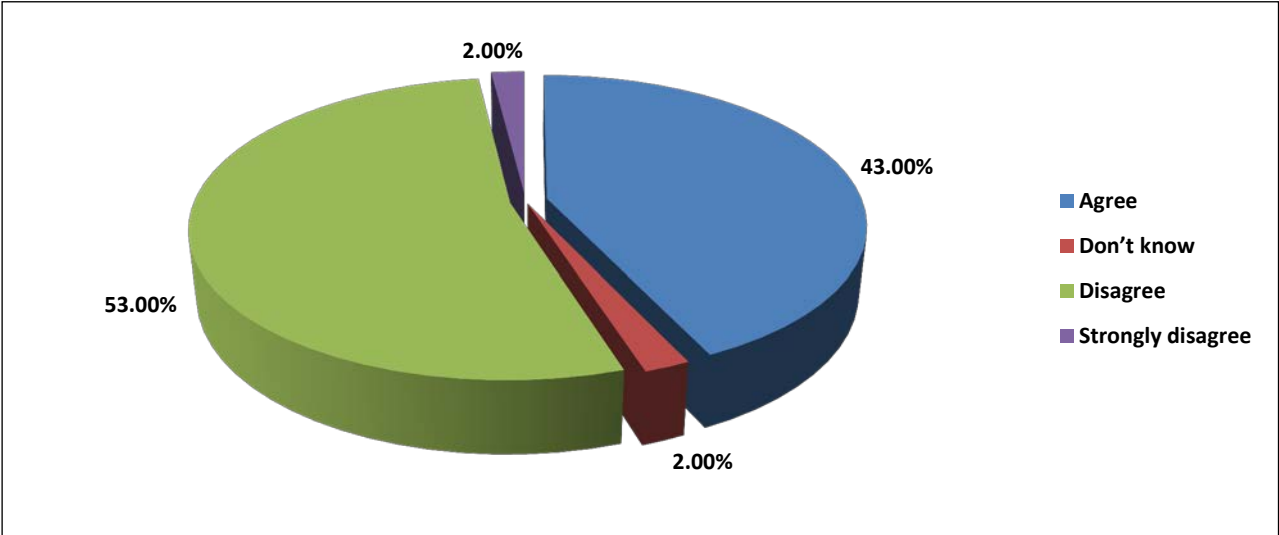
Figure 4.15 below indicates that 58% (n=71) of the respondents disagreed that if government was still supplying formula they would not breastfed, 4% (n=5) strongly disagreed, 19% (n=23) agreed, 1% (n=2) strongly agreed and 18% (n=22) said they don't know. The result of the study in this item indicates that the average score on the Likert scale for this attitude item was 3 and the median was 4. This shows that the overall attitude on this item is generally negative.



**Figure 4.15: Attitudes towards government provision of baby formula (N=123)**

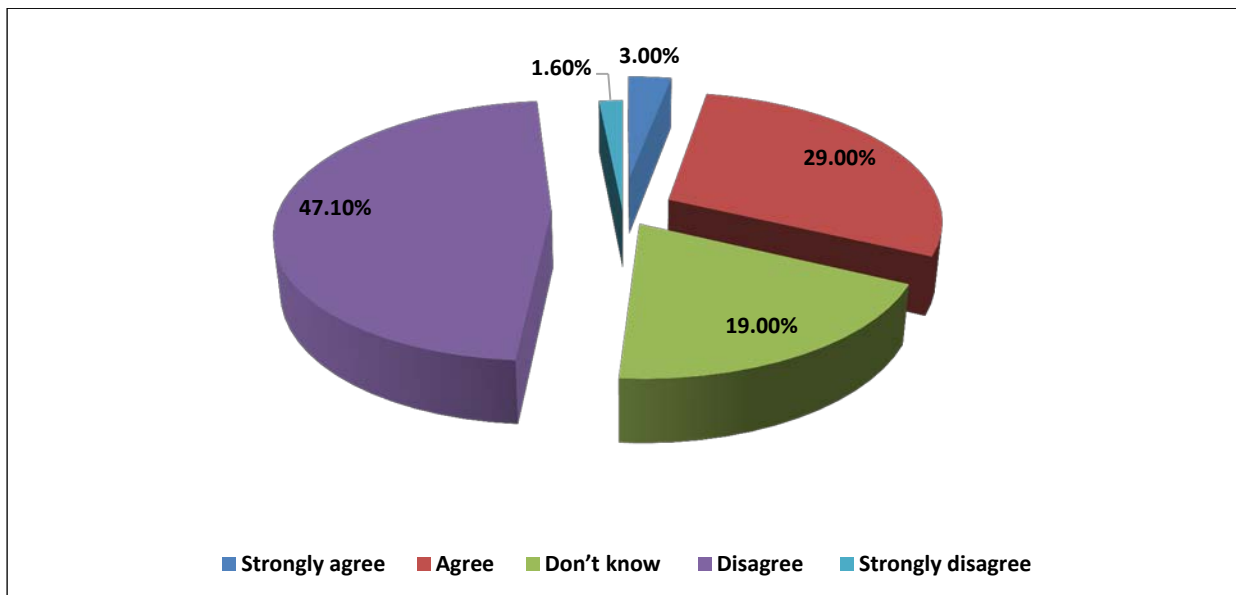


Figure 4.16 indicates that 53% (n=65) of the respondents disagreed that sometimes an infant's needs soft-porridge to eat so that he/she can sleep or get enough food, 2% (n=3) strongly disagreed, 43% (n=52) agreed and 2% (n=3) don't know. The result of the study in this item indicates that the average score on the Likert scale for this attitude item was 3 and the median was 4. This shows that the overall attitude was general negative.



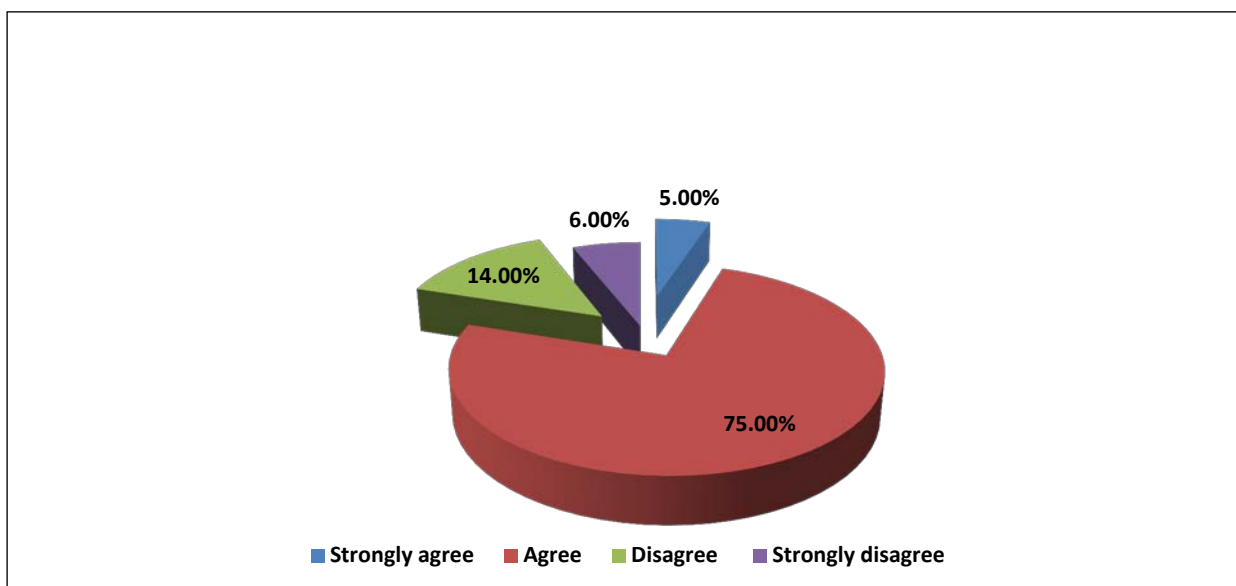
**Figure 4.16: Attitudes towards feeding soft porridge on an infant younger than six months (N=123)**

Figure 4.17 indicates that 47% (n=58) of the respondents disagreed that women are practicing exclusive breastfeeding because they don't have money to buy formula, 29% (n=36) agreed, 19% (n=23) said they don't know, 3% (n=4) strongly agreed and 2% strongly disagreed. The result of the study in this item indicates that the average score on the Likert scale for this attitude item was 3 and the median was 3. This shows that the overall attitude was general neutral.



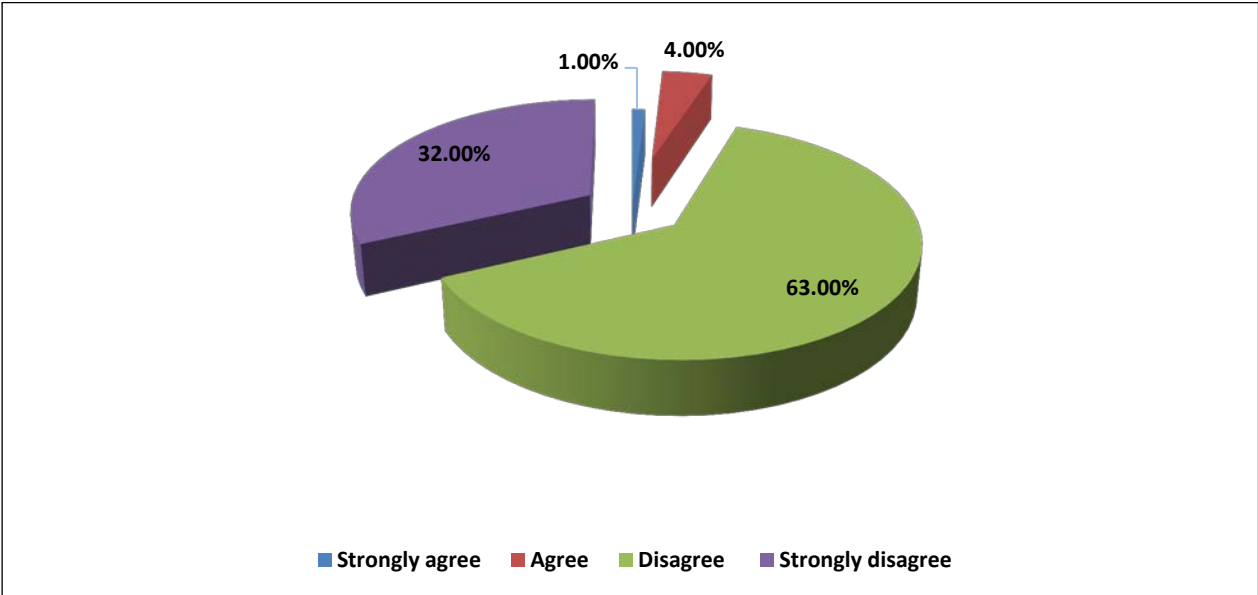
**Figure 4.17: Attitudes towards women practising exclusive breastfeeding for lack of money (N=123)**

Figure 4.18 indicates that 75% (n=92) of the respondents agreed that they can encourage HIV negative women to practice exclusive breastfeeding for six months, 5% (n=6) strongly agreed, 14% (n=17) disagreed and 6% (n=7) strongly disagreed. The result of the study in this item indicates that the average score on the Likert scale for this attitude item was 4 and the median was 4. This shows that the overall attitude in this item was general positive.



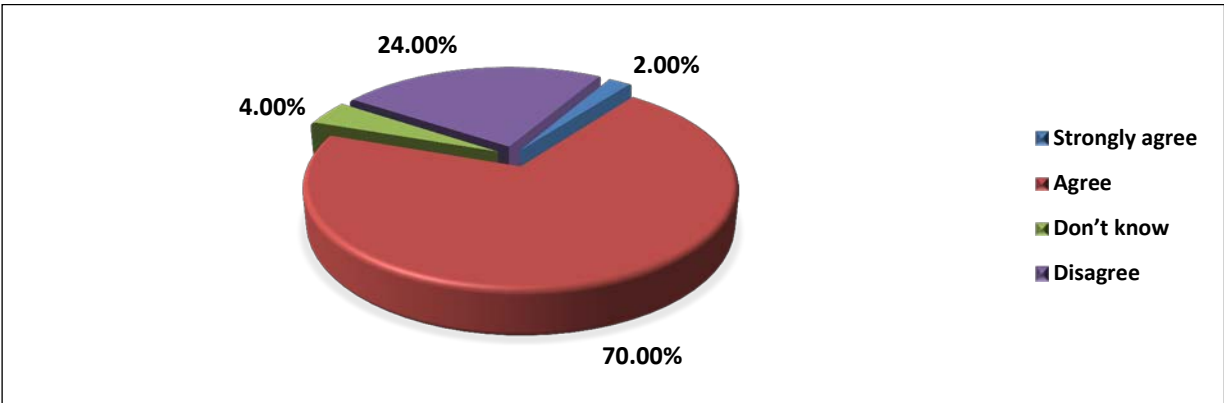
**Figure 4.18: Attitudes towards encouraging HIV negative women to practice exclusive breastfeeding for six months (N=123)**

Figure 4.19 indicates that 63% (n=78) of the respondents disagreed that breastfeeding is time consuming, 32% (n=39) strongly disagree, only 4% (n=5) agreed that is time consuming. The result of the study in this item indicates that the average score on the Likert scale for this attitude item was 4 and the median was 4. This shows that overall attitude was generally negative.



**Figure 4.19: Attitudes towards breastfeeding and time consumption (N=123)**

Figure 4.20 indicates that 70% (n=86) of respondents agreed that HIV positive women should be supplied with formula milk because of the risk of HIV transmission, 2% (n=3) strongly agreed 24% (n=29) disagreed and 4% (n=5) said they don't know. The result of the study in this item indicates that the average score on the Likert scale for this attitude item was 2 and the median was 2. This shows that the overall attitude was generally positive.



**Figure 4.20: Attitude towards the supply of formula to HIV positive women (N=123)**

Figure 4.21 indicates that 63% (n=78) of the respondents disagreed that formula feeding is convenient as compared to breastfeeding, 35% (n=43) agreed that formula feeding is as convenient as breastfeeding, 1% strongly disagreed and 1% strongly agreed. The result of the study in this item indicates that the average score on the Likert scale for this attitude item was 3 and the median was 4. This shows that the overall attitude was general negative.

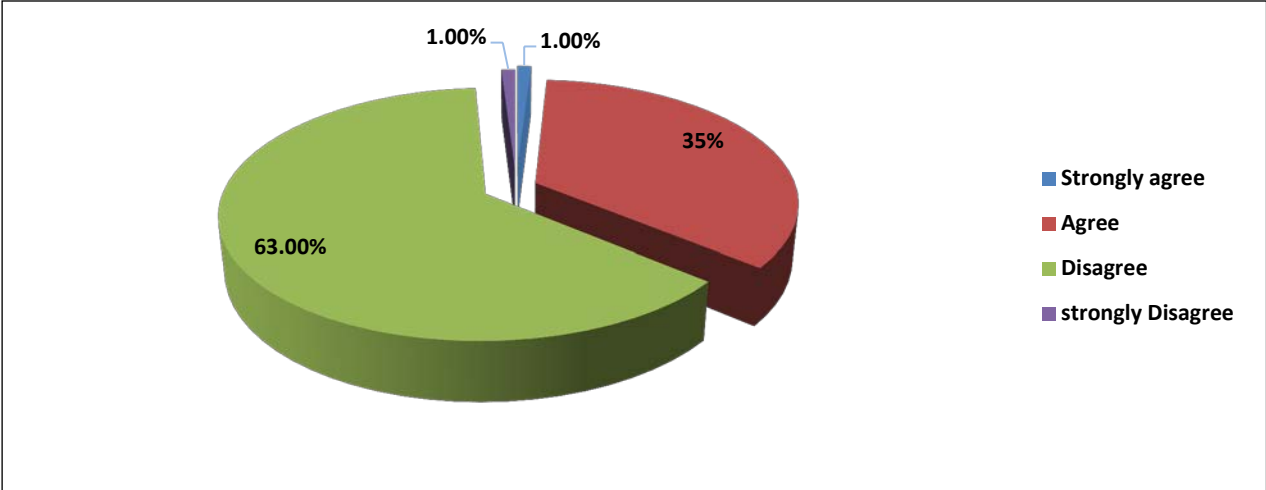
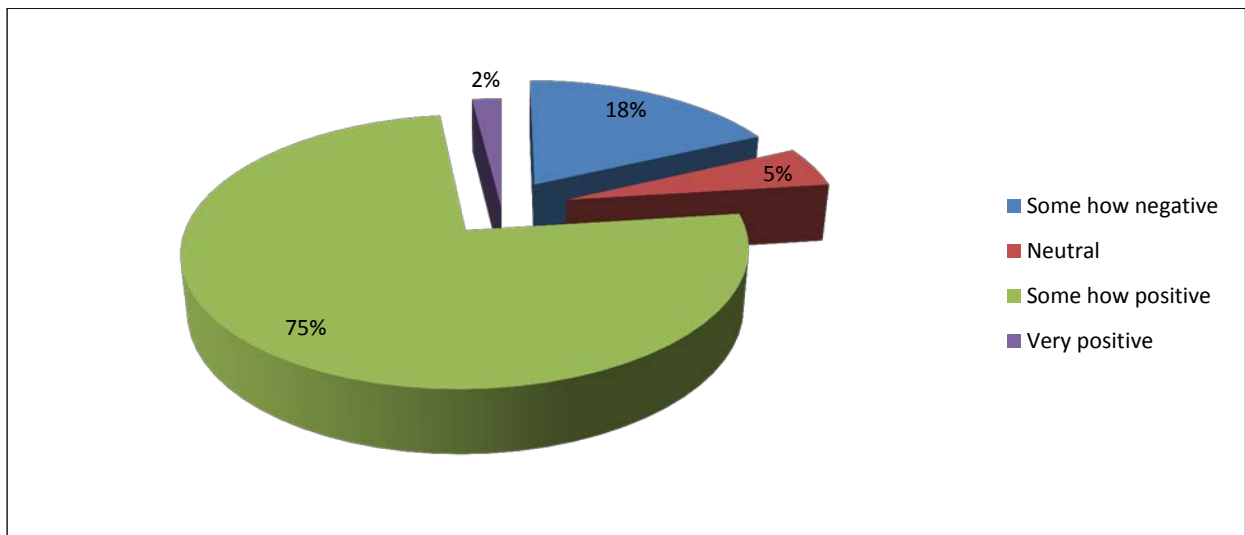


Figure 4.21: Attitude towards the convenience of breastfeeding and formula (N=123)

**4.3.4.1 Overall attitude score on exclusive breastfeeding analysis**

Figure 4.22 indicates that 75% of the respondents somehow have a positive attitude, 2% very positive, and 18% somehow negative and neutral 5%. The results show that women have a positive attitude on exclusive breastfeeding. None of the respondents had a very negative attitude on exclusive breastfeeding.



**Figure 4.22: Overall attitudes towards exclusive breastfeeding (N=123)**

#### ***4.3.4.2 Demographic characteristics and attitude categories***

##### *4.3.4.2.1 Age and attitude categories*

Table 4.11 indicates that the most prevalent age group showing a neutral attitude was the respondents between the ages of 22-26 (3 out of 6) 50%. The most prevalent age group showing a somehow negative attitude was the 32-36 years age group (7 out of 22) 31.8%. The most prevalent age group showing a somehow positive attitude was the 32-36 years age group (24 out of 93) 25.8% and lastly, only 2 of the respondents showed a very positive attitude and came from the 32-36 and the >37 age groups. This generally indicates that positive attitudes are more associated with the elderly age categories.

**Table 4.11: Age categories and attitude category (N=123)**

			Attitude categories				Total	
			Neutral	Somehow negative attitude	Somehow positive attitude	Very positive attitude		
<b>Age categories</b>	17-21 years	Count	1	1	15	0	17	
		Attitude	16.7%	4.5%	16.1%	.0%	13.8%	
	22-26 years	Count	3	4	16	0	23	
		Attitude	50.0%	18.2%	17.2%	.0%	18.7%	
	27-31 years	Count	0	6	23	0	29	
		Attitude	.0%	27.3%	24.7%	.0%	23.6%	
	32-36 years	Count	1	7	24	1	33	
		Attitude	16.7%	31.8%	25.8%	50.0%	26.8%	
	≥37 years	Count	1	4	14	1	20	
		Attitude	16.7%	18.2%	15.1%	50.0%	16.3%	
	<b>Totals</b>		<b>Count</b>	<b>6</b>	<b>22</b>	<b>93</b>	<b>2</b>	<b>123</b>
			<b>Attitude</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

#### 4.3.4.2.2 Marital status and attitude categories

The data in table 4.12 indicates that 90 out of 123 respondents were single and 67 (74.4%) of them showed a somehow positive attitude. The table also shows that 7(5.7%) out of 123 were in a civil marriage and 5 (71.4%) of them showed somehow positive attitudes. 2 (1.6%) out of 123 were co-habiting and all showed somehow positive attitudes. 24 out of 123 were in a traditional marriage category and 19 (79.2%) of them showed somehow positive attitudes. The above results suggest that most marriage categories show somehow positive attitudes especially the traditionally married category with the highest percentage of 79.2% (n=19).

**Table 4.12: Marital status and attitude categories (N=123)**

Independent variables			Attitude categories				Total
			Neutral	Somehow negative attitude	Somehow positive attitude	Very positive attitude	
<b>Marital status</b>	Civil marriage	Count	0	1	5	1	7
		Attitude	.0%	14.3%	71.4%	14.3%	100%
	Co-habiting	Count	0	0	2	0	2
		Attitude	.0%	.0%	100%	.0%	100%
	Single	Count	6	17	67	0	90
		Attitude	6.7%	18.9%	74.4%	.0%	100%
	Traditional marriage	Count	0	4	19	1	24
		Attitude	.0%	16.7%	79.2%	4.1%	100%
<b>Totals</b>		<b>Count</b>	<b>6</b>	<b>22</b>	<b>93</b>	<b>2</b>	<b>123</b>
		<b>Attitude</b>	<b>4.9%</b>	<b>17.9%</b>	<b>75.6%</b>	<b>1.6%</b>	<b>100.0%</b>

*4.3.4.2.3 Educational status and attitude categories*

Table 4.13 indicates that 93 (75.6%) out of 123 of respondents showed somehow positive attitude and the same proportions were evident from all educational status categories. This shows that educational status categories did not have an effect on the attitude category of respondents.

**Table 4.13: Educational status and attitude category (N=123)**

Independent variable			Attitude categories				Total	
			Neutral	Somehow negative attitude	Somehow positive attitude	Very positive attitude		
<b>Educational status</b>	Degree	Count	0	0	1	0	1	
		Attitude	.0%	.0%	2%	.0%	2%	
	Diploma	Count	0	0	2	0	2	
		Attitude	.0%	.0%	2.3%	.0%	1.6%	
	National certificate	Count	1	1	10	0	12	
		Attitude	16.7%	4.5%	10.8%	.0%	9.4%	
	Primary school	Count	0	2	3	0	5	
		Attitude	.0%	9.1%	3.2%	.0%	4.1%	
	Secondary school	Count	5	19	76	2	102	
		Attitude	83.3%	86.4%	81.7%	100.0%	82.9%	
	<b>Totals</b>		<b>Count</b>	<b>6</b>	<b>22</b>	<b>93</b>	<b>2</b>	<b>123</b>
			<b>Attitude</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

#### 4.3.4.2.4 Source of income and attitude categories

Table 4.14 indicates that 93 (75.6%) out of the 123 respondents who showed somehow positive attitudes, Comparable proportions or percentages were shown across employment status categories indicating that employment status categories do not really influence the attitude of the respondents.

**Table 4.14: Source of income and Attitude category (N=123)**

Independent variable			Attitude categories				Total	
			Neutral	Somehow negative attitude	Somehow positive attitude	Very positive attitude		
Source of in-come	Employed	Count	1	5	12	0	18	
		Attitude	16.7%	22.7%	12.9%	.0%	14.6%	
	Family members	Count	4	8	49	2	63	
		Attitude	66.6%	36.4%	52.7%	100.0%	51.2%	
	Grant	Count	0	0	3	0	3	
		Attitude	.0%	.0%	3.2%	.0%	2.5%	
	Husband	Count	0	2	13	0	15	
		Attitude	.0%	9.1%	14.0%	.0%	12.2%	
	No income	Count	1	7	16	0	24	
		Attitude	16.7%	31.8%	17.2%	.0%	19.5%	
	<b>Total</b>		<b>Count</b>	<b>6</b>	<b>6</b>	<b>22</b>	<b>93</b>	<b>2</b>
			<b>Attitude</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

#### 4.3.4.3 Clusters and overall Attitude score analysis (N=123)

After the cluster analysis separated respondents into 3 groups or clusters as earlier highlighted, cluster 1 (n=70) had a median overall attitude score of 37, cluster 2 (n=24) had a median overall attitude score of 36.6 and cluster 3 (n=29) had a median overall attitude score of 39.9. This confirms that cluster 3 with its composition of respondents as earlier described had a more positive attitude towards exclusive breastfeeding (see table 4.15).



**Table 4.15: Clusters and overall attitude score**

Groups		Overall Attitude score				
		Count	Mean	Median	Percentile 25	Percentile 75
Cluster	1	70	36.66	37.00	34.00	41.00
Cluster	2	24	34.70	36.00	30.00	39.00
Cluster	3	29	39.36	39.50	36.50	41.50

#### 4.3.5 Close ended items analysis on breastfeeding and exclusive breastfeeding (N=123)

The data on the table 4.16 indicate that 84.6% (n=104) of the respondents reported that they want to breastfed their baby, 15.4% (n=19) reported that they don't want to breastfed.

**Table 4.16: Respondents' on I want/don't want to breastfeed (N=123)**

Breastfeed	Frequency	Percent
Want	104	84.6
Don't want	19	15.4
<b>Total</b>	<b>123</b>	<b>100.0</b>

Table 4.17 indicates that 60.7% (n=74) of the respondents reported that they want to exclusively breastfed their baby, 39.3% (n=48) they don't want to exclusively breastfed. The results of the study indicates that exclusive breastfeeding is still a challenge to other women (39.3%, n=48). However, majority reported that they can exclusively breastfeed. Agunbiade and Ogunleye (2012:1-6) conducted a study which show that some of the challenges that contribute to low breastfeeding rate are, the baby continue to be hungry after breastfeeding, mother in-law and the neighbors pressurised the women to wean the baby, the baby was not gaining enough weight and breastfeeding was tiring.

**Table 4.17: Respondents' on I want /don't want to exclusively breastfeed (N=123)**

Exclusively breastfeed	Frequency	Percent	Valid percent	Cumulative %
Want	74	60.2	60.7	60.7
Don't want	48	39.0	39.3	100.0
<b>Total</b>	<b>123</b>	<b>99.2</b>	<b>100.0</b>	

#### 4.3.6 Multiple discriminant results analyses

In performing discriminant analysis, the researcher used the independent variables namely: 1) Knowledge on HIV score, 2) Knowledge on HIV transmission 3) General Knowledge on infant feeding options 4) Knowledge on advantages and disadvantages of feeding options and age to discriminate the attitude on breastfeeding options. A step-wise computational approach was used to load the independent variables to determine the best discriminant variable.

The structure matrix table 4.18 shows the resulting discriminant function after step 1 of the procedure. The discriminant weights associated with each variable gave the researcher a sense of the relative importance of each independent variable in categorising attitudes. Knowledge on advantages and disadvantages of feeding options had a discriminant coefficient of 1 followed by HIV knowledge (0.307), Age (-0.96), Knowledge on HIV transmission in infants (0.025) and lastly General Knowledge on infant feeding options. The negative sign means there is a negative impact of age and general knowledge on infant feeding options on the attitude category.

**Table 4.18: Structure matrix**

Variables	Function
	1
Knowledge on advantages and disadvantages of feeding options	1.000
HIV knowledge score	.307
Age	-.096
Knowledge on HIV transmission infants	.025
General knowledge on infant feeding options	-.021
Pooled within-groups correlations between discriminating variables and standardised canonical discriminant functions Variables ordered by absolute size of correlation within function.	
This variable not used in the analysis.	

Table 4.19 further analyses the partial F values resulting from the discriminant analysis which shows that Knowledge on advantages and disadvantages of feeding options was computationally selected as the most powerful predictor of attitude category (maximum F value of 6.213) followed by general knowledge on infant feeding options (F value=1.702). The researcher chooses the partial F values this as the best method to determine relative importance of each independent variable in the discriminant analysis.

**Table 4.19: Variables not in the analysis**

Step		Tolerance	Min. Tolerance	F to Enter	Wilks' Lambda
0	HIV knowledge score	1.000	1.000	.060	.998
	Knowledge on HIV transmission infants	1.000	1.000	.700	.983
	General knowledge on infant feeding options	1.000	1.000	1.702	.959
	Knowledge on advantages and disadvantages of feeding options	1.000	1.000	6.213	.864
	Age	1.000	1.000	1.592	.961
1	HIV knowledge score	.906	.906	.309	.857
	Knowledge on HIV transmission infants	.999	.999	.656	.849
	General knowledge on infant feeding options	1.000	1.000	1.532	.831
	Age	.991	.991	1.038	.841

This is further supported by the Wilk Lambda coefficients that are inversely related to the partial F magnitudes. The table shows that the chosen variable in step 1 (knowledge on advantages and disadvantages of feeding options knowledge) is significantly predicts the attitude category at 5% level of significance (p-value=0.001) (see table 4.20).

**Table 4.20: Wilk lambda coefficients**

Step	Number of Variables	Lambda	df1	df2	df3	Exact F			
						Statistic	df1	df2	Sig.
1	1	.864	1	3	118	6.213	3	118.000	.001

#### **4.4 OVERVIEW OF RESEARCH RESULTS**

As earlier noted, the researcher categorised knowledge test items into four categories, namely, Knowledge on HIV and AIDS, Knowledge on Infant Feeding Options, Knowledge on HIV transmission in the context of breastfeeding, Knowledge on the disadvantages and advantages of breastfeeding. The study results show that the average knowledge on HIV and AIDS was around 60% and this is acceptable. Knowledge on HIV transmission, however, had a similar level with a median of around 60% although the mean was slightly lower at 50.8%. Knowledge on Infant feeding options was acceptable with a median score of 75% and mean of 70%. The knowledge on advantages of breastfeeding had a much higher median score of 86% with a mean score of 85%. Overall, the knowledge of HIV positive women on exclusive breastfeeding in the context of HIV had a median score of 67% and mean score of 68% which is acceptable.

The researcher used an attitude scale to measure the attitude levels of the respondents and the results showed a median attitude score of 37(classified as somehow positive attitude).The researcher classified attitudes according to the attitude scores and found that (75%, n=92) respondents had a somehow positive attitude, (2%, n=2) very positive, and (18%, n=22) respondents had a somehow negative attitude and (5%, n=6) respondents had a neutral attitude.

#### **4.5 CONCLUSION**

This chapter focused on the analysis and interpretation of research findings, the results were presented in tables, graphs and par charts. Chapter 5 will be focusing on conclusion, practical recommendation and further researches.

## **CHAPTER 5**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

The results of the study were analysed and presented in the previous chapter using figures and tables. In this chapter, the researcher presents the conclusions from analysis findings of chapter 4. In this chapter the researcher concluded the findings which address the objectives of the study. The findings of the study also assisted the researcher to understand the underlying attributes to success or failure of infant feeding policies and to inform or recommend intervention strategies targeted for this group of the population.

#### **5.2 RESEARCH DESIGN AND METHOD**

A quantitative, exploratory, descriptive design was adopted in this study. A quantitative approach was used because this approach allows for control in the study, therefore biases were reduced, precision and validity were amplified. The population consisted of HIV positive women above the age of 18 who had babies six months old and younger. Probability sampling was used to sample the sites for inclusion and non-probability convenience sampling was used to select the respondents. Structured questionnaires were used to collect data. To describe relationships between knowledge, attitudes and other demographic characteristics, the researcher employed cluster analysis, a quantitative analysis technique. To determine the knowledge levels and their effect on attitudes, the researcher used another quantitative technique, multiple discriminant analysis. SPSS software version 21.0 was used to analyse data. The total numbers of respondents were 123.

#### **5.3 SUMMARY AND INTERPRETATION OF THE RESEARCH FINDINGS**

The summary and the interpretation of the study findings will be discussed in line with the research question, purpose and objectives of the study.

### **5.3.1 Overall knowledge of HIV positive women on exclusive breastfeeding**

In determining knowledge levels, the researcher's intention was to find out if women have basic knowledge on HIV and AIDS, knowledge on infant feeding options, knowledge on HIV transmission during breastfeeding and knowledge on advantages and disadvantages of breast feeding options. The researcher classified knowledge levels in a way that on a scale from 1-100, if the knowledge score is below 50, it is considered as superficial knowledge or poor knowledge and if the knowledge score is above 50, it is considered as deep knowledge or acceptable knowledge.

#### ***5.3.1.1 Knowledge on HIV and AIDS***

On a scale of 1-100 (percentage) used by the researcher to measure the level of knowledge, the women had a median score of 60%. Based on these findings, the researcher concludes that HIV positive women had knowledge of HIV and AIDS. The findings might be due to repeated health educational messages received by HIV positive women at ART sites monthly. This is contrary to the findings in a study conducted by Ngoma, Roos and Siziya (2015:560) who concluded that women still have insufficient knowledge on even the basic meaning of HIV and AIDS. This conclusion is fundamental for HIV programme because this indicate that HIV positive women have basic information about the disease they are suffering. Moreover it will give them ideas on how to minimise the risks of HIV transmission.

#### ***5.3.1.2 Knowledge on HIV transmission in the context of infant feeding***

The researcher concluded that the respondents were not knowledgeable that mixed feeding increases the risks of HIV transmission as compared to exclusive breastfeeding. Doherty et al (2013:458) conducted a study where mothers also reported lack of knowledge on the benefits of exclusive breastfeeding in reducing HIV transmission. Mothers indicated that they were mixed feeding during six months of life. This is an indication of lack of knowledge on HIV transmission during infant feeding. The finding means that women don't acknowledge the significance of exclusive breastfeeding on EMTCT of HIV. This also result in mixed feeding because women don't see the risks of HIV transmission, as a result more infant gets infected with HIV through breastfeeding. The department of health needs to educate HIV positive women on the risk of mixed

feeding. Exclusive breastfeeding is one of pivotal vehicle in EMTCT of HIV programme. To realise the zero new MTCT of HIV, intervention strategies need to be focused on educating women on the significance of exclusive breastfeeding and HIV transmission.

The respondents were aware that breastfeeding is the best for HIV positive infants as compared to formula feeding. The findings are supported by Muluye et al (2012:241) who indicated that HIV positive women acknowledged the benefits of breastfeeding and they reported that they will follow infant feeding guidelines. The finding indicates that the breastmilk remains valued as a best means of feeding an infant. However, the strategies to improve exclusive breastfeeding will be required to capitalise on this positive findings. These are positive findings that can be worked on to attain the better outcome.

The respondents knew that ART reduces the risks of HIV transmission during breastfeeding. Tesfaye, Tufa, Likisa, Alebachew, Temesgen and Dinsa (2014:4) conducted a study on the knowledge and attitude of HIV positive women on PMTCT. The findings indicated that respondents knew that ART drugs given to HIV-positive pregnant mothers could reduce the risk of HIV transmission. This will encourage women to take ART because it will reduce the risks of them infecting their infant, moreover the mother will also benefit from taking the ART. There is a need to strengthen this knowledge among HIV positive women because it addresses several targets in EMTCT programme which includes, ART initiation among HIV positive breastfeeding women, ART retention and Viral load suppression which reduce the risks of MTCT of HIV transmission.

The overall findings on knowledge levels on HIV transmission on the previously mentioned scale show that respondents have good knowledge. The respondents again had a median score of 60%. The researcher concludes that women have an acceptable knowledge on HIV transmission during breastfeeding. Shisana et al (2014:108) conducted a study which indicated that generally there is a decrease in the knowledge among South Africans; only 26% had accurate information on transmission and prevention of HIV. The researcher's conclusion indicates an increase of 60%, the reasons contributing to this is that respondents were HIV positive women who are exposed to HIV information on monthly bases during monthly ART collection. The conclusion means that HIV positive women have information that could assist them to

make an informed decision on infant feeding option. It is very much important for HIV positive women to have good information on HIV transmission so that they can prevent MTCT of HIV.

#### ***5.3.1.3 Knowledge of HIV positive women on infants feeding in the context of HIV***

Considering that infant feeding knowledge is affected by cultural practices, findings showed that the level of knowledge on Infant feeding options was acceptable with a median score of 75%. The results were in line with the study conducted by Ndubuka et al (2013:2) among pregnant HIV positive women, where the results indicated that about 50% of women had good knowledge on infant feeding. These conclusions mean that the knowledge of HIV positive women on HIV transmission had a good influence on the good knowledge that women have on infant feeding practice. It is imperative for HIV women to have good knowledge on HIV transmission so that they can make the correct infant feeding choices.

#### ***5.3.1.4 Knowledge of HIV positive women on advantages and disadvantages of infant feeding in the context of HIV***

The knowledge levels of respondents on advantages and disadvantages of feeding options were acceptable. The knowledge on advantages and disadvantages of feeding option had a much higher median score of 86%. From these findings, the researcher concludes that breastfeeding is generally acceptable but is difficult to maintain exclusive breastfeeding for 6 months. This contributes to the prevalence of mixed-feed feeding practices which in turn increases the risk of HIV transmission. A separate study by Agunbiade and Ogunleye (2012:1) showed that some of the challenges that contribute to low breastfeeding rates were reported to be babies continue to be hungry after breastfeeding, mother in-laws and the neighbors pressurise the women to wean babies, babies do not gain enough weight and breastfeeding is tiring.

### **5.3.2 Attitude of HIV positive women on exclusive breastfeeding**

The researcher concluded that respondents had a negative attitude toward advising other HIV positive women to practice exclusive breastfeeding. HIV positive women



suggested that they should be supplied with formula milk. The findings are also supported by the study conducted by Swarts et al (2010:476) which revealed that HIV positive women indicated that they will not breastfeed their babies because they do not want to infect the babies. The findings suggest that HIV positive women still have fear of infecting their infants through breastfeeding. This attitude contributes to less intention of exclusive breastfeeding by HIV positive women; because women receive advice from fellow women which can negatively influence them not to breastfeed. Knowledge can influence attitude, so there is a need to strengthen the knowledge of HIV positive women on HIV transmission during breastfeeding.

The respondents were not influenced to formula feed by free supply of formula from the government, they feel is better to breastfeed they babies. The findings are congruent with the study conducted by Kuzma (2013:18) where the results indicated that the majority of women reported that formula feeding is not good. These indicate that infant feeding option is a decision independently taken by the mother. The women need to be prepared and educated about infant feeding during ANC so that women can make an informed decision. The researcher concluded that respondents felt that it is not right to introduce food to infant before six months of age. The findings are supported by a study conducted by Radwan (2013:6-172) which indicated that mothers acknowledged that mixed feeding is not good, but they justified that giving infants water in the first months of life is their traditional practice because it is hot in their region. The knowledge and attitude of mixed feeding is acceptable but interventions are required to ensure implementation is needed.

The respondents felt that breastfeeding is not time wasting, however, respondents felt that formula feeding is more convenient than breastfeeding. In a study conducted by Bonia et al (2013:4) the women reported that formula feeding is convenient compared to breastfeeding, because they have more time to do other duties in the house, look after other children and sleep. This attitude contributes to low breastfeeding practices and mixed feeding. Women need to be educated on benefits of breastfeeding.

In describing the overall attitudes of HIV positive women on exclusive breastfeeding, the researcher used a Likert-type of a scale to measure relative attitude scores assigned to a set of attitude defining questions from the study. The scores ranged from 11 to 55. The findings showed that the overall attitude median score was 39.9. The researcher

concludes this to be a somehow positive attitude. These results are congruent with the study conducted by Modjo and Amanta (2015:107) which concluded that women had a general positive attitude on exclusive breastfeeding. The researcher also concludes that people who are knowledgeable on exclusive breastfeeding were the ones with positive attitudes on exclusive breastfeeding thereby suggesting knowledge and attitude are closely related. Further investigation showed that there are specific knowledge areas that are attitude defining, the researcher conclude that knowledge around advantages and disadvantages of feeding options significantly predicts the attitude at 5% level of significance ( $p\text{-value}=0.001$ ). To influence positive attitudes among women on exclusive breastfeeding, women need be educated on exclusive breastfeeding.

### **5.3.3 Demographic/socio-economic attributes to knowledge on exclusive breast feeding**

The researcher further explored the effect of some demographic attributes on knowledge levels, namely age, marital status, educational status, employment status and source of income. Findings conclude that high levels of knowledge on exclusive breastfeeding in the context of HIV are associated with married people who are not very educated (secondary school as highest level of education), depending on husbands for source of income and in the 32-36 age groups. Afrosea, Banu, Ahmeda, and Khanom (2012:249) conducted a study which concluded that women who had secondary education had a significant higher knowledge level on breastfeeding as compared to other educational categories. The same conclusion are contrary to a study conducted by Hanafi, Shalaby, Falatah and El-ammari (2014:187) which explored the knowledge of women on breastfeeding and the findings concluded that educational status improves the knowledge and practices of breastfeeding

The researcher concluded that employed women were not knowledgeable on breastfeeding which ultimately affect their practice of exclusive breastfeeding. Employed women have less to breastfeed and attend the clinic, where they get the information. Zhang et al (2015:4524) conducted a study which revealed that 16% of women decided to introduce formula feeding because they had to go back to work. Adugna (2014:5) also indicated that most working mothers can afford to buy formula, hence the attitude related to modernity and urbanisation makes them to formula feed. So for them it is not that much important to know much about breastfeeding. The strategies need to focus on

working mother to assist them to cope with work and breastfeeding an infant. Intervention need to reach working mothers at their workplace, because waiting for them to come to the clinic might not happen because they spend most of their time at work.

The researcher concluded that married people are more knowledgeable than single people. The findings are supported by a study conducted by Akinremi and Folake (2015:380) which indicated that the majority (70%) of married respondents had adequate knowledge of exclusive breastfeeding while those of single respondents had inadequate knowledge (67%). Women in the age group between 32-36 years were less knowledgeable than women above 37 years. A study conducted by Kuzma (2013:18) indicated that some of the older mothers reported that it is their culture to breastfeed; hence older women have more knowledge than young ones. The health interventions need to focus more on single mothers and mothers between the ages of 32-36.

#### **5.3.4 Demographic/socio-economic attributes to attitudes on exclusive breast feeding**

The researcher also explored the effect of the same demographic attributes on attitudes. This was the same defining demographic categories associated with high levels of knowledge. The researcher found negative attitude to be also associated with respondents in the age group above 37 years, employed, whose highest level of education is secondary school and single women. The researcher concluded that respondents who are above 37 years, employed and single had a negative attitude on exclusive breastfeeding. Vijayalakshmi and Mythili (2015:367) indicated that employed women feel that formula feeding is better compared to breastfeeding. Contrary to the results Vijayalakshmi and Mythili (2015:367) found that older women had positive attitudes on breastfeeding. Women above 37 years, however, had a good knowledge on exclusive breastfeeding because of their experience with previous children; nevertheless this group also has experience in traditional and cultural beliefs which influenced their attitude on exclusive breastfeeding. Single and employed mothers had negative attitude as well, which is due to lower knowledge level they had on exclusive breastfeeding.

## **5.4 CONCLUSIONS**

In an attempt to address the research objective of determining the knowledge of HIV positive women on exclusive breastfeeding, the study showed lower than expected levels on basic HIV/AIDS knowledge. These suggest that interventions strategies are not focusing on educating the people on the basic knowledge of HIV/AIDS. The prevention of HIV/AIDS depends on the basic information people can have to make an informed decision. The knowledge on transmission of HIV during breastfeeding was acceptable. HIV positive women are encouraged to breastfeed, health education strategy implemented on EMTCT of HIV is working, evidenced by acceptable knowledge on exclusive breastfeeding. The knowledge on infant feeding options and advantages and disadvantages thereof was discovered to be acceptable as well. It is evident that women had an acceptable knowledge on infant feeding; however, there is a need to take this to the next step and ensure that women are putting their knowledge into practice.

Further scrutiny into the results unearthed interesting evidence, that there was a discrepancy in knowledge levels between married and single women, employed and unemployed women, women in the age group of 32-36 years and women above 37 years. The clinics need to identify and focus on single women between the ages of 32-36 to improve their knowledge on exclusive breastfeeding. Single mother need attention from the health care worker, because they don't have that supporting family structure as married mothers.

## **5.5 RECOMMENDATIONS**

The following recommendations were grounded from the discussion.

### **5.5.1 Recommendations for practice**

- Going back to the basics, there is a need to revitalise the use of a health education system on HIV/AIDS as prevention measure. To ensure that information given during educational talks is of good quality, the information need to be standardised and evidence based. Every day clinics need to give health

talks on HIV/AIDS, Sub-District managers need to monitor the implementation quarterly in all facilities (Greater Letaba Sub-District).

- Conduct community mobilisation and awareness campaigns quarterly on evidence based infant feeding practice to reach all community members. This should target HIV positive women between the ages of 32-36 years, single women, elderly women and men in Greater Letaba Sub-District. It is very much important to target elderly women and men because they play a role on the infant feeding practices.
- Implement and monitor HIV/IDS programmes in the work place in all institutions at Greater Letaba Sub-District. Because employed respondents had lower knowledge and negative attitude on exclusive breastfeeding. The programme will assist in educating, support and advocate for breastfeeding mothers and HIV positive mothers.

### **5.5.2 Recommendations for further research**

- A study is required to further explain the relationship between educational, employment status and knowledge, attitude and practices of exclusive breastfeeding among HIV positive.
- A study to describe the relationship between the knowledge of exclusive breastfeeding and the practice of exclusive breastfeeding. Regardless of the good knowledge respondents had on breastfeeding, the intention to exclusively breastfed remains low.
- This study can be repeated to the whole of Mopani district, so that the results can be generalised. More open-ended questions to be used to allow respondents to be free in detailing their responses.

### **5.5.3 Recommendation for policy**

- All institutions including those in private practice need to have a policy that supports breastfeeding and HIV positive mothers. The policy should make provision for mother to go on full pay four months maternity leave. This will support and encourage mothers to breastfeed their infants. It could further

motivate HIV positive mothers to adhere to their ART well, knowing that there is support from the institution.

## **5.6 CONTRIBUTIONS OF THE STUDY**

The study contributed by generating information on the level of knowledge and attitude of women on exclusive breastfeeding in the context of HIV in Greater Letaba Sub-District South Africa. The study will serve as reference to develop specific evidence-based strategic intervention to increase the knowledge of HIV positive women and the community as a whole on HIV transmission and prevention at Greater Letaba Sub-District South Africa.

## **5.7 LIMITATIONS OF THE STUDY**

The following limitations were identified during the course of the study:

- The study did not reach the targeted number of participants, because some of the clients did not want to participate and other did not want to wait for the researcher while attending other respondents. However, the sample size of 123 yielded valid data.
- The study used structured questionnaires which were limiting the respondents who wished to elaborate more on certain items, especially items related to attitude.
- The respondents were collecting ART on the site that was used for data collection; the respondents might have provided a more acceptable response on attitude questions with a fear that the information might be used against them when they came for ART collection. However, the researcher maintained high ethical conduct to limit or prevent this.

## **5.8 CONCLUDING REMARKS**

The findings of the study provided the researcher with adequate evidence to determine the knowledge and attitude of women on exclusive breastfeeding. The knowledge of women on exclusive breastfeeding was acceptable. However, the knowledge of HIV transmission during breastfeeding is still a challenge. The attitude of women on

exclusive breastfeeding was acceptable. Moreover, the knowledge on exclusive breastfeeding has an influence on the positive attitude on exclusive breastfeeding.

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## **INTERNET SOURCE**

([www.Googlemap.co.za](http://www.Googlemap.co.za)) (accessed 2015/03/15).

## **ANNEXURES**

Annexure A: UNISA clearance certificate



**UNIVERSITY OF SOUTH AFRICA**  
**Health Studies Higher Degrees Committee**  
**College of Human Sciences**  
**ETHICAL CLEARANCE CERTIFICATE**

**HS HDC/257/2013**

Date: 27 November 2013 Student No: 4703-487-4  
Project Title: Knowledge and attitudes of HIV positive women on exclusive breastfeeding in Mopani District (Greater Letaba Sub-District), South Africa.  
Researcher: Muditambi Nдавheleseni Nathaniel  
Degree: Masters In Public Health Code: DIS4986  
Supervisor: Mrs MG Makua  
Qualification: M Tech  
Joint Supervisor: -

**DECISION OF COMMITTEE**

Approved



Conditionally Approved



**Prof L Roets**

**CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE**

**Prof MM Moleki**

**ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES**

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES



## Annexure B: Letter to the Provincial Office, Polokwane Department of Health

### LETTER TO THE PROVINCIAL OFFICE POLOKWANE DEPARTMENT OF HEALTH

Muditambi N.N  
Cell No: 0781184247  
Email : muthundinne@gmail.com

P.O BOX 2064  
Ga-kgapane  
0838  
2013/10/18

The Direction  
Research Ethical Committee  
Limpopo provincial Department of Health  
18 College Street  
Polokwane 0699

Dear sir/madam

#### Application for conducting research in Limpopo: Mopani District at Greater Letaba Sub-District

I request for permission to conduct research in the above mentioned area. I am a student who is furthering his studies in Masters of public health at university of South Africa. The purpose of the study is to describe the knowledge and attitude among HIV positive women on exclusive breastfeeding. I request permission to conduct interviews using a standard questionnaire to the clients coming to designated ART sites in three PHC facilities (Shotong, Kgapane and Senobelo).

Enclosed find the research proposal, consent form, questionnaire and approval from UNISA.

Yours sincerely

Muditambi N.N (student)

## Annexure C: Approval Limpopo Department of Health



**LIMPOPO**  
PROVINCIAL GOVERNMENT  
REPUBLIC OF SOUTH AFRICA

### DEPARTMENT OF HEALTH

Enquiries: Latif Shamila

Ref:4/2/2

Muditambi, NN  
University of South Africa  
P.O.Box 392  
UNISA  
0003

Greetings,

**Re: Knowledge and attitudes of HIV positive woman on exclusive breastfeeding in Mopani District (Greater Letaba Sub-District), South Africa.**

The above matter refers.

1. Permission to conduct the above mentioned study is hereby granted.
2. Kindly be informed that:-
  - Further arrangement should be made with the targeted institutions.
  - In the course of your study there should be no action that disrupts the services.
  - After completion of the study, a copy should be submitted to the Department to serve as a resource.
  - The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.

Your cooperation will be highly appreciated.

  
Head of Department

03/03/2014  
Date

18 College Street, Polokwane, 0700, Private Bag x9302, POLOLKWANE, 0700  
Tel: (015) 293 6000, Fax: (015) 293 6211/20 Website: <http://www.limpopo.gov.za>

*The heartland of Southern Africa – development is about people*

## Annexure D: Approval from Department of Health, Mopani District



**LIMPOPO**  
PROVINCIAL GOVERNMENT  
REPUBLIC OF SOUTH AFRICA

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### DEPARTMENT OF HEALTH

#### MOPANI DISTRICT

Ref : 4/2/2  
Enq : Hlongwane R.J.  
Tel : 015 811 6571

Date : 09 April 2014

To : Mr. Muditambi N.N.  
University of South Africa  
P.O. Box 393  
UNISA, 0003

**RE: PERMISSION TO CONDUCT RESEARCHSTUDY IN MOPANI DISTRICT:  
KNOWLEDGE AND ATTITUDES OF HIV POSITIVE WOMEN ON EXCLUSIVE  
BREASTFEEDING IN GREATER LETABA SUB DISTRICT.**

1. The above matter bears reference.
2. Permission to conduct the above mentioned study is hereby granted as per the approval by the Head of Department, letter dated 03/03/2014.
3. Kindly be informed that:
  - Further arrangement should be made with the targeted managers.
  - In the course of your study there should be no action that disrupts the services.
  - After completion of the study, a copy should be submitted to the Department to serve as a resource.
  - The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.

Wishing you the best during your research.

  
District Executive Manager

Date: 9/4/2014

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Private Bag X628, GIYANI, 0826

Tel: 015 811 6500 Fax: (015) 812 3162 Website: <http://www.limpopo.gov.za>



## **Annexure E: Information sheet**

### **RESEARCH SUBJECT INFORMATION**

#### **KNOWLEDGE AND ATTITUDES OF HIV POSITIVE WOMEN ON EXCLUSIVE BRAESTFEEDING IN MOPANI DISTRICT (GREATER LETABE SUB-DISTRICT), SOUTH AFRICA**

Hello my name is Muditambi Nathaniel I am a student at the University of South Africa, registered for Masters of public health. As required by the university I have to do a research so that I can complete my studies, so the topic is as indicated above.

#### **Why am I doing the study?**

Mother to child transmission still a challenge in South Africa also in Mopani District , Mother to child transmission of HIV rate is at 3,4 % . Many children are still dying of HV and Aids related condition and most of these deaths are preventable. The department of health has terminated the supply of formula milk to the hospital and clinics in the quest to promote breastfeeding, because breast milk has more nutrients and protect the baby from infection and illness than formula milk. Many studies have shown that exclusive breastfeeding among HIV positive mother can reduce the chance of HIV transmission during breastfeeding. The Knowledge and attitudes of mothers on exclusive breast-feeding are among many contributing factors which influence the choice of the mother weather to formula and breastfeed their babies.

#### **What will happen during the study?**

If you agree to participate you will be given a consent form to sign and I will ask you questions using a standard questionnaire, which will take about 20-30 minute. You are free to answer any how but also I will not force you to answer a question that you are not comfortable with. I will like to hear from you after the interview how you feel.

#### **What will happen if I do not want to join the study?**

Nothing will happen if you don't want to be part of the study, you will receive the same respect as those who did participate, and no information about you will be recorded.

**What are the benefits of participating in the study?**

The findings from the study will assist identifying the level of knowledge and attitudes of HIV positive woman on exclusive breastfeeding. The results will influence the development of new or improvement of strategic management of people living with HIV and AIDS.

**What are the risks and discomforts of participating?**

There is no physical harm associated with the study, but very minimal psychological stress that one might experience. If during the interview you experience psychological stress you are welcome to terminate the process.

**Confidentiality**

If you decide to participate, you are allocated a study number for identification purposes in my study records. Therefore there is no name attached to the information collected in the questionnaire. The information recorded can never be directly linked to you and will not be used for any purpose other than the described research. All information will be kept strictly confidential at any time and no other person than the study members has access to this information.

Thank you kindly for your time and your consideration is highly appreciated

**FOR MORE INFORMATION AND QUESTION REGARDING THE STUDY CONTACT**

Researcher (student) - Mr. Muditambi Nathaniel 0781184247

Supervisor – Ms Makua Memme 0723726573

UNISA – 0124296303

**Annexure F: Consent form**

**CONSENT FORM**

**KNOWLEDGE AND ATTITUDES of HIV POSITIVE WOMEN ON EXCLUSIVE  
BRAESTFEEDING IN MOPANI DISTRICT (GREATER LETABE SUB-DISTRICT),  
SOUTH AFRICA**

**Respondent:**

Name.....signature.....Date.....time....

**Person conducting informed consent:**

Name.....signature.....Date.....Time...

**Witness:**

Name.....signature.....Date.....Time...

**I give consent to respondent in this study. The researcher is allowed to  
telephonically contact me, for any reason concerning the study**

Researcher (student) - Mr. Muditambi Nathaniel 0781184247

Supervisor – Ms Makua Memme 0723726573

UNISA – 0124296303

# **QUESTIONNAIRE**

**KNOWLEDGE AND ATTITUDES OF HIV POSITIVE WOMEN ON  
EXCLUSIVE BREASTFEEDING IN MOPANI DISTRICT (GREATER  
LETABA SUB-DISTRICT), SOUTH AFRICA**

Study number:

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## SECTION A

### DEMOGRAPHIC DATA

Mark on the appropriate block

1.	State your age	In years .....		4
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2.	Marital status	Single	1		5
		Divorced	2		
		Civil marriage	3		
		Traditional marriage	4		
		Co-habiting	5		
		Widowed	6		

3.	Highest educational status	No education	1		6
		Primary school	2		
		Secondary school	3		
		National certificate	4		
		Diploma	5		
		Degree	6		

4.	Are you currently pregnant	Yes	1		7
		No	2		

5.	Residential type	Formal dwelling	1		8
		Informal dwelling	2		

6.	Source of income	Employed	1		9
		Grant	2		
		Husband	3		
		Community support	4		
		Family member	5		
		No income	6		

## SECTION B

### KNOWLEDGE OF EXCLUSIVE BREAKSTFEEDING

7.	HIV stands for human immunodeficiency virus	Yes	1		10
		No	2		
		Don't know	3		
8.	HIV and AIDS are the same	Yes	1		11
		No	2		
		Don't know	3		
9.	Exclusive breastfeeding means giving infants only breast milk for 6 months	Yes	1		12
		No	2		
		Don't know	3		
10.	Exclusive breastfeeding increases the risks of HIV transmission	Yes	1		13
		No	2		
		Don't know	3		
11.	HIV positive women taking ART has less chance to transmit HIV to the infant during breastfeeding	Yes	1		14
		No	2		
		Don't know	3		
12.	Formula milk contains all the nutrients that are present in the breast milk	Yes	1		15
		No	2		
		Don't know	3		
13.	Formula milk cannot protect the infant against infection as compared to breast milk	Yes	1		16
		No	2		
		Don't know	3		
14.	Breast milk has all the necessary nutrients for the growth of the infant during the first six months of life	Yes	1		17
		No	2		
		Don't know	3		
15.	Feeding an infant with other food before six months increases the risk of HIV transmission from the mother to the infant	Yes	1		18
		No	2		
		Don't know	3		

16.	A new born infant who is receiving only breast milk will not grow well	Yes	1		19
		No	2		
		Don't know	3		
17.	The immune system of a breastfed baby is stronger compared to a formula fed baby	Yes	1		20
		No	2		
		Don't know	3		
18.	An infant can be given other food or fluids only after six months of age	Yes	1		21
		No	2		
		Don't know	3		
19.	Breastfeeding is a cheap method of feeding a baby, compared to formula feeding	Yes	1		22
		No	2		
		Don't know	3		
20.	Breast milk protects the infants against infection like diarrhoea and respiratory tract infection	Yes	1		23
		No	2		
		Don't know	3		
21.	The South African government promotes exclusive breastfeeding for six months	Yes	1		24
		No	2		
		Don't know	3		
22.	HIV positive infants who are formula fed are dying as compared to exclusive breastfed infants	Yes	1		25
		No	2		
		Don't know	3		
23.	Mixed feeding means giving infants breast milk and other food or any fluids before the age of six months	Yes	1		26
		No	2		
		Don't know	3		
24.	Mixed feeding increases the risk of HIV transmission as compared to exclusive breastfeeding	Yes	1		27
		No	2		
		Don't know	3		

## SECTION C

### ATTITUDE TO EXCLUSIVE BREASTFEEDING

**SA** = Strongly Agree

**A** = Agree

**DK** = Don't Know

**D** = Disagree

**SD** = Strongly Disagree

Mark on the appropriate block

25.	A woman can practice exclusive breastfeeding for six months	SA	1
		A	2
		DK	3
		D	4
		SD	5

	28
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26.	Breast milk is better than formula milk when feeding babies	SA	1
		A	2
		DK	3
		D	4
		SD	5

	29
--	----

27.	Women have a negative attitude to exclusive breastfeeding	SA	1
		A	2
		DK	3
		D	4
		SD	5

	30
--	----

28.	HIV positive women should not practice exclusive breastfeeding at all because they will infect their babies	SA	1
		A	2
		DK	3
		D	4
		SD	5

	31
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29.	It is good to advise HIV positive women to practice exclusive breastfeeding	SA	1
		A	2
		DK	3
		D	4
		SD	5

	32
--	----



30.	If the government was still supplying formula milk I would not breastfeed	SA	1
		A	2
		DK	3
		D	4
		SD	5

	33
--	----

31.	Sometimes an infant younger than six months needs soft-porridge to eat so that he/she can sleep or get enough food	SA	1
		A	2
		DK	3
		D	4
		SD	5

	34
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32.	Women are practicing exclusive breastfeeding because they don't have money to buy formula milk	SA	1
		A	2
		DK	3
		D	4
		SD	5

	35
--	----

33.	You encourage HIV negative women to practice exclusive breastfeeding for six months	SA	1
		A	2
		DK	3
		D	4
		SD	5

	36
--	----

34.	Breastfeeding is time wasting	SA	1
		A	2
		DK	3
		D	4
		SD	5

	37
--	----

35.	HIV positive women should be supplied with formula milk because of the high risk of HIV transmission when breastfeeding	SA	1
		A	2
		DK	3
		D	4
		SD	5

	38
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36	Breastfeeding is convenient but not as good as formula feeding	SA	1
		A	2
		DK	3
		D	4
		SD	5

	39
--	----

37 I want  / don't want  to breastfeed  
because.....  
.....  
.....  
.....  
.....

38 I want  / don't want  to exclusively breastfeed  
because.....  
.....  
.....  
.....

**Thank you for your participation**

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**Annexure H: Editing letter**

**GILIJASOL EDITING  
EDITOR'S CONFIRMATION LETTER  
TO WHOM IT MAY CONCERN**

I hereby state that I have edited the document:

**KNOWLEDGE AND ATTITUDES OF HIV POSITIVE WOMEN ON EXCLUSIVE  
BREASTFEEDING IN MOPANI DISTRICT (GREATER LETABA SUB-DISTRICT),  
SOUTH AFRICA**

Submitted in fulfillment of the requirements for the degree of

**MASTER OF PUBLIC HEALTH**

at the

**UNIVERSITY OF SOUTH AFRICA**

by

**Muditambi Nathaniel Nndavheleseni**

**Supervisor**

Ms MG Makua

**Co-supervisor**

Professor GH van Rensburg

*Disclaimer*

*At time of submission to student, language editing and technical care was attended to as requested by student and supervisor. Any corrections and technical care required after submission is the sole responsibility of the student.*

Kind Regards

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DATE: 13 February 2016