DEMOGRAPHIC PROFILE OF PREGNANT HIV-POSITIVE WOMEN IN POSTMASBURG, SOUTH AFRICA

By

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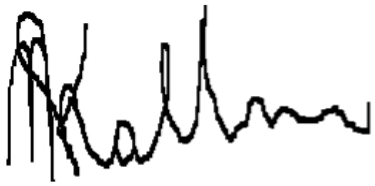
DECLARATION

I, Dr Kabasele Muboyayi Hubert KALONJI, hereby declare that this dissertation is my own work, in design and in execution, and that all materials contained herein has been dully acknowledged. I am submitting it for the degree of Master of Public Health. Neither the whole work nor any part of it has been, is being, or shall be submitted for any other degree at this university, any other university or institution for tertiary education or examining body.



29/03/2011

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DEDICATION

This work is dedicated to my parents, Christine Mbombo and Donatien Kabasele Muboyayi. Without them, this dissertation would not be.

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ABSTRACT

Background: South Africa hosts the largest number of pregnant HIV-positive women, accounting for almost 15% of the global total. Many amongst these HIV-positive pregnancies are unplanned and may be related to reproductive unmet needs, sexual risky behaviours, and/or community, contextual and individual factors that may determine and/or make these HIV-infected women to fall pregnant. The occurrence of an HIV-positive pregnancy in our region implies however the practice of unprotected sex, and is associated with the risk of reinfection with a different strain of HIV as well as with the risk of HIV transmission to an uninfected male partner and to the offspring. Knowing the demographic profile of HIV-infected women who become pregnant and experience parenthood as well as the circumstances of occurrence of their pregnancies is necessary for developing policies and interventions aimed at addressing the reproductive needs of this subpopulation, thus preventing HIV-positive unintended pregnancies as well as the horizontal and vertical transmission of HIV.

Objectives: This study had three objectives. The first objective was to describe the demographic profile of pregnant HIV-positive women attending antenatal care (ANC) in public sector clinics in Postmasburg, South Africa. The second study objective was to determine the proportion of these pregnant HIV-infected women who were aware of their HIV-positive status prior to the occurrence of their current pregnancy. Lastly, the third objective sought to describe the circumstances of occurrence of their current pregnancy.

Methodology: We used a quantitative descriptive design to collect data on 41 consecutive pregnant HIV-positive women who attended ANC at three public sector clinics in Postmasburg, from September to December 2010. Participants were administered a structured pre-tested questionnaire in their home language by trained interviewers. The study instrument was designed to collect data related to participants' socio-demographic characteristics, the time-period of HIV-

positive diagnosis relative to their current pregnancy, and the circumstances of occurrence of their current pregnancy.

Results: The analyses of the study results showed that pregnant HIV-positive women attending ANC in Postmasburg were likely to be young (mean age, 27.71 ± 5.72 years), never married (56.10%), Afrikans (65.9%) and Setswana speakers (58.52%) of low socioeconomic status, with no or one child (65.85%). The majority of participants (63.4%) were from a predominantly informal settlement; 78% were unemployed while 61% were either devoid of any income or were living with Rands 500 or less. Sex mixing was common in the 15-19 years-old, involving 80% of respondents of this age category. Most of respondents (78.05%) became aware of their HIV-positive diagnosis during their current pregnancy that was unplanned in 73.17%. The study findings also revealed low levels of pregnancy intendedness (31.71%), hormonal contraceptives use (24.9%) and condoms uptake (34.15%), with high rates of condoms failure among users (87.12%). Respondents also reported other circumstances of occurrence of their current pregnancy, including, irregular condoms use (14.29% of condom users), partner refusal to use condom (10%), stopping contraceptives use because of side effects (50% of users), partner's pressure (12% of participants), coerced sex (2.4%) and having had sex under the influence of alcohol (2.4%).

Conclusion: These results highlight the need for improving the reproductive health services that are offered to HIV-positive individuals. Integrating PMTCT and Family planning services, training health workers in issues related to the reproductive rights and reproductive health of HIV-infected individuals, systematically offering HIV counseling and testing to women of childbearing age who come into contact with health facilities for any reason and adequately informing HIV-positive women of childbearing age about available reproductive options, planned conception and safer motherhood, are necessary for preventing unintended HIV-positive pregnancies as well as the horizontal and vertical transmission of HIV.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANC = antenatal care

ARVs = Antiretrovirals

DOH = Department of Health, South Africa

DRC = Democratic Republic of the Congo

HAART = Highly active antiretroviral treatment

HIV = Human immunodeficiency virus

MDGs = Millenium Development Goals

MREC = Medunsa Research and Ethics Committee

MCREC = Medunsa Campus Research and Ethics Committee

MTCT = Mother-to-child transmission of HIV

NSHPC = National Study of HIV in Pregnancy and childhood

PMTCT = Prevention of mother-to-child transmission of HIV

R = Rands

UK = United Kingdom

USA = United States of America

UNAIDS = Joint United Nations Programme on HIV/AIDS

VCT = Voluntary counseling and HIV testing

WHO = World Health Organisation

WITS = Women and Infants Transmission Study

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

About 33.3 million people were living with HIV at the end of 2009, with sub-Saharan Africa accounting for 68 percent of the global total (Unaids, 2010b:23). Home of 80% of the world's HIV-infected women (Kaida et al, 2010), this region also hosted an estimated 91% of incident paediatric HIV infections that globally occurred in 2008 (Unaids and WHO, 2009:21). Overall, 60% of adult HIV-infected individuals in sub-Saharan Africa are women.

Typically, girls and younger women are disproportionately affected relative to men of the same age category, with the 15-24-years old females being three times more likely to be HIV-infected than their counterpart males in Southern Africa where live 40 percent of the global total of HIV-infected women (Unaids, 2010b:28; Unaids and WHO, 2009:22). Similar results were reported from Eastern Africa, especially in Kenya and Tanzania (Unaids and WHO, 2009:22). In South Africa where one in three women aged 25-29 years is HIV-infected (Unaids, 2010a:26; Shisana et al, 2008), the 15-24 year-old women accounted for 90% of the adult incident HIV infections, in 2005 (Rehle et al, 2007).

1.1.1 Fertility intentions and childbearing in HIV-positive individuals

Available data indicate that 80 to 90 percent of HIV-positive women are diagnosed during their childbearing age (Craft et al 2007; Bendimo-Rung et al, 2005), and many among them will continue to experience parenthood (Myer et al, 2010; Townsend et al, 2008a; Suryavanshi et al, 2008; Bryant et al, 2007; van Benthem et al, 2000), or will want to have children (Cooper et al, 2009; Myer et al, 2007; Sowell et al, 2002; Chen et al, 2001). Studies conducted in Burkina Faso (Nebie et al, 2001), in the Democratic Republic of the Congo (Ryder et al, 1991) and in Rwanda (Allen et al, 1993) that aimed at discouraging future childbearing in HIV-positive women have failed to decrease fertility rates among this subpopulation, although these women received HIV counselling, condoms and contraceptives, and were warned against the possible negative impact of the pregnancy on their health and the risk of both

giving birth to an HIV-infected child and that of infecting an HIV-negative male partner. Fertility rates remained high in these cohorts, even equating those of the general population, in Burkina Faso.

Sub-Saharan Africa remains by far the region where most of the HIV-positive pregnancies occur. Nineteen of the top twenty countries that host about 90 percent of all HIV-positive pregnant women reported from low- and middle-income countries are found in this region (WHO et al, 2008:80). Home of only 0.7% of the Global population, South Africa, for example, hosted 15% of all HIV-positive pregnancies that occurred in low- and middle-income countries in 2007 (WHO et al, 2008:80).

1.1.2 Factors contributing to fertility intentions and childbearing in HIV-infected people

Evidence from both developed and developing countries has shown that socio-demographic factors (e.g. young age, marital status, race, duration and stability of the relationship, income level, education level and employment status) as well as the increasing availability of the highly active antiretroviral therapy (HAART) may play a role in HIV-positive pregnancy intentions and actual childbearing (Myer et al, 2010; Homsy et al, 2009; Cooper et al, 2009; Bryant et al, 2007; Craft et al, 2007). Gender role orientation and high community and societal expectations for parenthood are also influential, especially in sub-Saharan Africa where having children is perceived as a social requirement for married couples (Cooper et al, 2007; Chen et al, 2001).

Personal desires for motherhood often outweigh the risk related to HIV infection and HIV transmission, especially in communities where a woman feels fulfilled and respected only if she has children. Pregnancy also constitutes a coping strategy for dealing with a recent child loss (Cooper et al, 2009; Suryavanshi et al, 2008; Chen et al, 2001; Nebie et al, 2001), ‘with the complexities of a life caught up in poverty’ (Chen et al, 2001), or a motivation for fighting against HIV-infection and living a normal life (Cooper et al, 2007; Chen et al, 2001).

Data from sub-Saharan Africa have also shown strong HIV-positive males’ desires for fatherhood that were higher than in women (Cooper et al, 2009; Myer et al, 2007; Homsy et al, 2009; Oladapo et al, 2005). Thus, partner pressure may also constitute an important proximate determinant of the higher fertility rates reported in HIV-positive women in this region.

1.1.3 HIV-positive pregnancies and public health

Pregnancy occurring in HIV-positive women is however associated with a potential risk of re-infection with a different strain of HIV and with the risk of transmitting HIV to the offspring and to an uninfected male partner. Peltzer and colleagues have found that only 65.8% of pregnant HIV-positive women who were counselled on safe sex during antenatal care practiced protected sex during pregnancy, while 34.2% did not, thus putting themselves at risk of re-infection in the event the partner was also HIV-positive and putting an uninfected male partner at risk of HIV transmission (Peltzer et al, 2009).

The average prevalence of HIV sero-discordance in sub-Saharan Africa may be as high as 49% (Lingappa et al, 2008). Available data indicate that HIV transmission rates among steady monogamous heterosexual partners are high in this region, being up to 62% in Lesotho, 30% in Ghana, 50 to 65% in Swaziland, 43% in Uganda and 27 to 53% in Rwanda (Unaids and WHO, 2009:30). These figures suggest that pregnancy in an HIV-positive woman put an uninfected male partner at risk of HIV infection, especially in our settings where the occurrence of pregnancy in an HIV-positive woman requires the practice of unprotected sex, because of the limited availability and limited access to the techniques of assisted fertility such as sperm washing, insemination using a donated sperm or donated ovum (Savasi et al, 2008; Ohl and Partisani, 2007; Gilling-Smith et al, 2006). Unprotected sex in the absence of any intervention (e.g. HAART with suppressed viral load for a prolonged period of time) carries a pooled per act risk of female-to-male HIV transmission of 0.38% (Boily et al, 2009).

Unintended pregnancies rates also remain high amongst these HIV-positive women, especially in those who did not disclose their HIV-positive status to the male partner (Suryavanshi et al, 2008; Nebie et al, 2001; Desgrées-du-Loũ et al, 2001; Ryder et al, 1991). Bedimo-Rung and colleagues (2005) reported unintended pregnancy rates of about 88 percent in American HIV-positive women. Higher rates were reported from South Africa where 100% of HIV-positive women not receiving HAART have had unintended pregnancies, far more than the 30% of unintended pregnancy rates in those who were receiving HAART (Cooper et al, 2009). These high rates of unintended pregnancies, especially in women on HAART who receive regularly HIV

counselling and support suggests the existence of possible sexual risky behaviours, unmet reproductive needs and/or community, contextual and individual factors that may determine and/or make HIV-positive women to fall pregnant.

Various determinants of the adult HIV transmission may also be proximate determinants of fertility and HIV-positive unintended pregnancies. Intimate-partner violence, contraceptive sabotage by the male partner and pregnancy coercion have been found associated with unintended pregnancy in Colombia, in India and in the United States (Miller et al, 2010; Stephenson et al, 2008; Pallitto and O'Campo, 2004). Community violence may also constitute an important risk factor, especially in South Africa where young women living in communities where the prevalence of sexual violence was high were more prone to have unprotected sex, to become HIV-infected and to experience unintended pregnancy than those from communities where the prevalence of sexual violence was lower (Speizer et al, 2009). Situational characteristics of heterosexual intercourse (e.g. substance misuse, coerced sex, transactional sex for food or money), poverty, single marital status, lower educational level attainment, low income, sex mixing and marriage expectations, are also often associated with condom non-use, HIV infection and unintended pregnancy (Speizer et al, 2009; Weiser et al, 2007; Dunkle et al, 2004a; Gregson et al, 2002; Mbizvo, 1997).

Unintended pregnancies bear a higher risk of vertical transmission of HIV (Townsend et al, 2008b) and adverse pregnancy outcomes such as premature delivery, low birth weight, maternal death, abortion, etc (Santelli et al, 2003; Mbizvo et al, 1997). Without effective interventions, South Africa will continue to experience about 35,231 unintended HIV-positive births every year (Reynolds et al, 2008), despite the fact that a body of evidence from sub-Saharan Africa and from South Africa has shown that preventing unintended HIV-positive pregnancies with contraceptives is more cost effective for preventing mother-to-child-transmission of HIV (MTCT) than the use of antiretrovirals (Kaida et al, 2010; Hladik et al, 2009; Reynolds et al, 2008; Reynolds et al, 2006).

Mother-to-child transmission of HIV constitutes a major public health concern, especially in South Africa where the paediatric HIV is fuelling the under five-years-old mortality, making this country to account among the only 12 countries in the

world where mortality rates in children have increased since the adoption of the United Nations' Millennium Development Goals (MDGs) in 2000 (Chopra et al, 2009).

1.2 PROBLEM STATEMENT

South Africa has experienced the world's fastest HIV epidemic, with the prevalence of HIV among attendees of antenatal care (ANC) sharply increasing from 0.7% in 1990 to 30.2% in 2005, before stabilizing around 29 percent since 2006 (Unaids, 2010a:21; DOH, 2010:28). This country is home of both the world's largest number of HIV-positive people (5.6 million in 2009, almost 17% of the global total) and the world's largest number of pregnant HIV-positive women—about 300 000 HIV-positive pregnancies occur every year in South Africa (Unaids, 2010c:75; Chopra et al, 2009; WHO et al, 2008:80).

1.2.1 Demographic profiling

Although almost one in three South African pregnant women is HIV-infected, little is known about the demographic profile of these pregnant HIV-positive women, despite the fact that several sociodemographic characteristics play an important role in both pregnancy intentions and actual childbearing. Demographic profiling is about combining several demographic characteristics of a defined population, for getting the typical picture of this aggregate (http://en.wikipedia.org/wiki/Demographics). Knowing the demographic profile of pregnant HIV-positive women is important for developing effective policies and interventions aimed at addressing the reproductive needs of this subpopulation. Lack of knowledge in this field, especially in South Africa, hampers the development of these policies and interventions.

Data from national registries that were developed within specific active surveillance programs (e.g. the Pediatric HIV Surveillance Program in Barbados and the National Study of HIV in Pregnancy and Childhood (NSHPC) in the United Kingdom and Ireland) that aimed at monitoring the mother-to-child transmission of HIV, have made it possible to get the typical picture of pregnant HIV-positive women in these countries (Kumar and Bent, 2003; Townsend et al, 2008a). For example, Kumar and Bent described HIV-positive women who experienced pregnancy and delivery in Barbados as younger, multiparous, more likely to be cohabiting or living with their

mother or both parents, more often unemployed and often engaged in relationship with older male partners (Kumar and Bent, 2003). Such active surveillance systems are however lacking in sub-Saharan Africa and in South Africa.

Multisites prospective longitudinal studies conducted in the USA (Blair et al, 2004; Bryant et al, 2007) and Europe (van Bethem et al, 2000) have also contributed to improving the knowledge of the demographic profiles of pregnant HIV-positive women in these areas.

1.2.2 Inconsistencies, conflicts and knowledge's gap in the sub-Saharan literature

Although several prospective studies of incident HIV-positive pregnancies were conducted in sub-Saharan Africa, little is known about the demographic profile of HIV-infected women in this region. Ryder and colleagues did not provide the demographic characteristics of HIV-positive women who experienced a subsequent or a repeat HIV-positive pregnancy during the two studies they conducted in the Democratic Republic of the Congo (Ryder et al, 1991; Ryder et al, 2000). Studies from other sub-Saharan countries have yielded data that were either incomplete or conflicting. For example, a higher educational level was found to be the only sociodemographic characteristic predictor of subsequent pregnancy in Ivory Cost (Desgrées-du-Loû et al, 2001), a finding that contradicts data from Rwanda where the level of educational attainment was not associated with incident pregnancy in both HIV-positive and HIV-negative women (Allen et al, 1993). Some authors have failed to establish a relationship between sociodemographic characteristics and incident HIV-positive pregnancies in sub-Saharan Africa (Nebie et al, 2001) while others have shown this relationship (Myer et al, 2010).

Furthermore, most of these sub-Saharan studies of HIV-positive incident pregnancies were conducted in urban areas and within specific HIV programmes that provided HIV counselling, support and/or treatment to participants, and may not provide accurate information on naturally occurring demographic characteristics of the study population. In addition to conflicting results, their findings may also not reflect the demographic profile of pregnant HIV-positive women from rural areas.

Evidence from South Africa is still lacking, despite the involvement of this country in the recently published multisites, multicountry study that involved seven sub-

Saharan African countries (Myer et al, 2010). This study was restricted to pregnant or recently post-partum HIV-positive women receiving PMTCT services along with their HIV-infected children and the male partners who agreed to enter the program (Myer et al, 2010). Three South African centres were selected for this study, and all of them were located in urban areas, including Baragwanath Hospital in Soweto, Langa Clinic in Cape Town and Ekuphileni Clinic/Cato Manor in Durban. Socio-demographic data were presented as regional aggregates despite several differences across participant countries in terms of HIV epidemiology, national income and development levels, cultural norms, national adult HIV prevalence, racial and ethnic components, as well as religion-related issues.

1.2.3 Knowledge's gap in the South African literature

At the country level, studies have focused, until now, either on pregnancy desires and intentions of HIV-infected individuals (Cooper et al, 2009; Myer et al, 2007; Cooper et al, 2007) or on HIV-positive pregnancy's outcomes (Rollins et al, 2007). Studies of fertility desires and intentions are however context driven, and may not explore situational characteristics of occurrence of pregnancy such as coerced sex, rape, sexual intercourse under influence of alcohol or drugs. They may also not be able to explore the male partner's reproductive control through pregnancy coercion and birth control sabotage.

Furthermore, evidence has shown that motivation for childbearing constitutes an individual response to particular circumstances of one's life (e.g. age, marital status, quality and/or stability of a relationship, health status, previous adverse pregnancy outcome, HAART use and duration) that may change throughout the course of HIV infection (Cooper et al, 2009; Homsy et al, 2009; Cooper et al, 2007; Oladapo et al, 2005; Chen et al, 2001). Data from the United States have shown that about 22% of women who desired children had tubal ligation and that 20% of men who desired children but did not intend to have them where less likely to be in relationship, or were likely to be in relationship with a partner who either did not desire to have children, or could not conceive because of a tubal ligation (Chen et al, 2001).

These women may have sought tubal ligation by the time their particular circumstances of life (e.g. health status, future expectation, relationship status, unemployment) were against future childbearing and may actually want to have

children because these circumstances have changed (Chen et al, 2001). Overall, 40% of HIV-infected men and 30% of HIV-positive women who desired to have children in Chen's study did not expect to have them at all.

Discrepancies between fertility desires and fertility expectations was also reported from South Africa where only a minority of HIV-positive men and women who desired to have children intended to have them in a near future. Amongst participants who wanted to have children in a cross-sectional study conducted in Cape Town, only 10 percent of respondents intended to have children immediately; 6 percent of them wanted to have children in the next 12 months, while 48% might want to have them sometimes in the future and 34 percent were unsure about translating their actual fertility intentions into childbearing in the future (Cooper et al, 2009).

Chen's (2001) and Cooper's (2009) findings make it difficult to relate the actual childbearing as observed in longitudinal prospective studies with fertility intentions that were investigated 'in terms of the stated desire to have a child in the future using a cross sectional design' (Myer et al, 2007). They make it also difficult to relate the demographic profile of non-pregnant HIV-positive women obtained from studies related to pregnancy desires and intentions to that of pregnant HIV-positive women.

High rates of unintended pregnancies among HIV-positive women also make it difficult to describe the demographic profile of pregnant HIV-positive women from studies of fertility desires and intentions. Lastly, South African studies of fertility desires and intentions targeted Xhosa speakers HIV-infected men and women living in urban areas, while South Africa is both a multiracial and multiethnic country, with a broad rural area.

The demographic profile of pregnant HIV-positive women may vary across 'cultural backgrounds that link parenthood to adult identity' and across races (Chen et al, 2001) but also between urban and rural areas. 'Cultural differences in perceived barriers to parenthood' were suggested by evidence from the USA where African-American men and women were by far more likely to expect children than other racial components (Chen et al, 2001). The practice of the 'lobola' in the South African and Malawian context for example, has practical implications in terms of fertility, since it implies the transfer of a 'woman's reproductive capacities from her own lineage to that of her husband's agnatic lineage' (Kishindo, 1995).

That is why we have conducted this exploratory quantitative study whose purpose was to describe the demographic profile of pregnant HIV-positive women attending ANC in public sector clinics in a rural area, in Postmasburg, in Northern Cape. These clinics are serving three townships whose inhabitants are predominantly Africans and coloured.

1.3 STUDY RATIONALE

An estimated 300,000 HIV-positive women fall pregnant every year in South Africa, giving birth to approximately 50,000 HIV-infected children (DOH, 2010:56; Chopra et al, 2009; Prendergast et al, 2007). Many among these HIV-positive births are unintended (Reynolds et al, 2008). Despite the wide availability of the PMTCT services in almost all South African primary health care facilities, the overall national transmission rates of HIV from an HIV-infected mother to her child remains high—16%, based on Spectrum modelling or 11%, based on national data from PCR testing (UNAIDS, 2010a:26).

HIV-positive pregnancies are associated with a high maternal mortality rate that is tenfold higher than that of South African HIV-negative women, while the paediatric HIV epidemic is fuelling the under-five years old mortality rates that has increased relative to 1990, thus putting this country at risk of failing to reach both the MDG 4 (e.g. reducing by two-thirds the under-five years old mortality rates by 2015 relative to 1990) and the MDG 5 (e.g. decreasing the maternal mortality by three quarters by 2015 relative to 1990 and achieving universal access to reproductive health services) (Chopra et al, 2009; Prendergast et al, 2007). The paediatric HIV occurs through MTCT in more than 90 percent of cases. The excess maternal mortality rate, paediatric HIV and under-five excess mortality due to HIV may be prevented through better understanding of HIV-positive women's health reproductive needs. Hence, we have found necessary to conduct this study that sought to describe the demographic profile of pregnant HIV-positive women and the circumstances of occurrence of their current pregnancy.

1.4 STUDY SIGNIFICANCE

A better knowledge of the demographic profile of pregnant HIV-positive women as well as a better understanding of the circumstances of occurrence of their pregnancies is necessary for developing policies and interventions aimed at

providing better reproductive health services to this subpopulation. The results of this study are important for: (a) health workers who manage pregnant HIV-positive women and who are thus well placed for counselling them in safer motherhood and prevention of unintended pregnancies through early introduction of contraceptives in the immediate post-partum; (b) policy-makers who may perceive the need for integrating PMTCT services and family planning services as an effective strategy for curbing the paediatric HIV epidemic and decreasing the excess maternal mortality due to HIV; (c) HIV care and VCT services which are well placed for providing HIV-positive women of childbearing age early and accurate information about reproductive health options, HIV-positive pregnancy and prevention of both sexual and vertical transmission of HIV.

1.5 METHODOLOGY

1.5.1 Study aim

The aim of this study was to determine the demographic profile of pregnant HIV-positive women attending ANC in publicly funded clinics in Postmasburg.

1.5.2 Study questions

The study sought to answer the following three questions:

1.5.2.1. What is the demographic profile of pregnant HIV-positive women attending ANC in public sector clinics, in Postmasburg?

1.5.2.2. What is the proportion of pregnant HIV-positive women who knew their diagnosis prior to their current pregnancy?

1.5.2.3. What are the circumstances for the occurrence of their pregnancies?

1.5.3 Study objectives

The study had the following three objectives:

1.4.3.1. To describe the demographic characteristics of HIV-positive pregnant women attending antenatal care in public sector clinics in Postmasburg.

1.4.3.2 To determine the proportion of these pregnant HIV-positive women who knew their diagnosis prior to their current pregnancy.

1.4.3.3 To determine the circumstances of occurrence of their current pregnancy

1.6 STUDY DELINEATION

The focus of this descriptive study is pregnant HIV-positive women attending ANC in public sector clinics in Postmasburg, who were diagnosed HIV-positive either before their current pregnancy or during it. The study will investigate their demographic profile, the circumstances of occurrence of their current pregnancy, and will determine the proportion of participants who were aware of their HIV-positive status before the occurrence of their current pregnancy.

1.7 STUDY LIMITATIONS

The main limitations of this study are related to the sample and to the settings. Attendees of public sector ANC clinics are not necessarily representative of all pregnant HIV-positive women. The study findings may not be generalized to all pregnant HIV-positive women since the source population is formed by HIV-positive women of childbearing age living in the same areas than eligible participants, but who would attend public sector ANC clinics if they fall pregnant.

Second, the study was conducted in a remote rural area, and its results may also not be generalized to all pregnant HIV-positive women, especially those living in urban areas.

1.8 REPORT OUTLINE

This chapter 1 provided the reader background information about HIV-infection epidemic, fertility expectations in HIV-positive women, as well as issues related to HIV-positive incident pregnancies. The study problem, its rationale and significance were also discussed to allow the reader get a better understanding of the nature of the study, its purpose, objectives and research questions. Some definitions are given below to clarify the meaning of terms and concepts we are going to use in this dissertation.

The rest of the dissertation is divided into four more chapters. Each chapter is subdivised into several sections, starting with an introduction section that announces the main content of the chapter and ending with a conclusion that summarizes what was explained, presented and/or discussed in the chapter. That is why the chapters' overview below will focus only on sections related to the main content of each chapter.

Chapter 2 focuses on a review of the existing literature, discussing important findings, pointing out knowledge gaps in the literature, as well as conflicts and inconsistencies between studies' results. The chapter examines studies on incident HIV-positive pregnancies, their determinants and outcomes in section 2.2. The following section (2.3) discusses studies related to fertility desires and intentions, their determinants and outcomes. The demographic profile of pregnant HIV-positive women is the focus of section 2.4.

Chapter 3 describes and discusses the methodology that was followed for addressing the research questions and yielding reliable and valid results. The section 3.2 of this chapter explains why a descriptive design was used; it also justifies the choice of a structured questionnaire as the research instrument. Research procedures are then explained in details and discussed in depth where indicated in section 3.3, including the settings, study population, sample, instrument, pilot study, eligibility criteria, recruitment, data collection, data analysis, reliability and validity. The last section (3.4) of the chapter explains what investigators did to conform to the Helsinki's ethical principles throughout the conduct of this research.

Chapter 4 focuses on data analysis with the software Excel, EpiInfo and Stata 10.0 and on the study results. The study participants are described in section 4.2 and the following section presents the results per study objective in three separate subsections.

Chapter 5 discusses in depth the main research findings per study objective, making comparisons with data from the existing literature in section 5.2. The study limitations are then discussed in section 5.3, including those related to the study design (e.g. a descriptive study), the size and representativeness of the sample, as well as the possible social desirability bias. Conclusions about the study objectives and study problem are drawn under section 5.4. Lastly, several recommendations for policy-makers, health workers and further research are made in the last section (5.5) of the chapter.

1.9 DEFINITION OF TERMS AND CONCEPTS

1.9.1 Demographic characteristics

Wikipedia defines demographic characteristics as population characteristics that are used in demographics to develop a demographic profile. The most commonly used demographic variables include: age, sex, race/ethnicity/immigration status, location of residence, socioeconomic status, religion, nationality, occupation, education, family size, marital status, ownership's (home, car, pet, etc.), parenting status, language, mobility (in terms of travel time to work or number of vehicles available), life cycles (fertility, mortality, migration) (http://psychology.wikia.com/wiki/Demographic_characteristics).

1.9.2 Demographic profile

The demographic profile refers to as a combination of several demographic variables; it 'provides enough information about the typical member' of a group or population, 'to create a mental picture of this aggregate' (http://psychology.wikia.com/wiki/Demographic_characteristics).

1.9.3 Lobola

Lobola constitutes a bride price that legitimizes marriage in several African communities. According to Kishindo, "Lobola effectively transfers a woman's reproductive capacities from her own lineage to that of her husband's agnatic lineage" (Kishindo, 1995).

1.9.4 Paradigm

The definition of paradigm includes the following components: (a) what is to be observed and scrutinized; (b) the types of questions that should be asked for answering the research question; (b) the way these questions must be structured; (d) how to interpret the study findings; (e) how the study should be conducted (http://en.wikipedia.org/wiki/Paradigm).

1.9.5 Intended pregnancy

Is a pregnancy that was conceived when a baby was desired (Santelli et al, 2003Kaufmannn et al, 1997).

1.9.6 Unintended pregnancy

An unintended pregnancy refers to a pregnancy that has been either unwanted (i.e. a baby is not wanted at any time) or mistimed (i.e., conception occurred earlier than desired) (Santelli et al, 2003; Kaufmann et al, 1997).

1.9.7 Planned pregnancy

A planned pregnancy is the one that occurred when a woman who intended to become pregnant purposefully underwent sexual intercourse during her fertile period [Bitto et al, 1997].

1.9.8 Unplanned pregnancy

A pregnancy is said to be unplanned if conception occurred in any of the following circumstances: (a) the parturient was using a contraceptive method for preventing pregnancy; (b) the parturient did not want to fall pregnant but did not use contraceptives in order to avoid falling pregnant unintentionally (Santelli et al, 2003; Bitto et al, 1997).

1.9.9 Subsequent pregnancy

A subsequent pregnancy is a pregnancy that occurred after a woman has learned she was HIV-positive (Bedimo-Rungo et al, 2005; Kumar and Bent, 2003).

1.9.10 Repeat pregnancy

A repeat pregnancy is a pregnancy that occurred after the parturient has experienced at least one subsequent pregnancy (Suryavanshi et al, 2008).

1.9.11 Pregnancy coercion

Pregnancy coercion refers to various strategies used by the male partner including, “verbal demands, threats and physical violence to pressure their female partners to become pregnant” (Miller et al, 2010).

1.9.12 Birth control sabotage

Birth control sabotage refers to several forms of direct acts made by the male partner in order to prevent the female sexual partner from using contraception, including “flushing birth control pills down the toilet, intentional breaking of condoms and removing contraceptive rings or patches” (Miller et al, 2010).

1.9.13 Transactional sex

'Transactional sex was defined as sex with a non-primary partner that was mostly motivated by material gain. Material gain included provision of food, cosmetics, clothes, transportation, items for children or family, school fees, somewhere to sleep, or cash' (Dunkie et al, 2008b).

1.9.14 Sex mixing

Sex mixing describes a sexual relationship between partners whose age difference is 5 years or more (Shisana et al, 2008; Gregson et al, 2002). It is common to qualify as intergenerational sexual relationship that between a 15-19 years-old individual with a partner 5 years or more, older.

1.10 CONCLUSION

Sub-Saharan Africa is the region the most affected by HIV epidemic, accounting for two-thirds of the global total. Women are particularly vulnerable to HIV infection in this region, making up 60% of the regional total. Fertility rates and pregnancy intentions remain high in these HIV-positive women, with also higher rates of reported unintended pregnancies. These HIV-positive pregnancies are unfortunately associated with the risk of HIV re-infection with a different strain, as well as that of vertical and horizontal transmission of HIV. Since the sociodemographic characteristics play an important role in fertility rates and prevalent fertility intentions of HIV-positive women, we have found it necessary to describe the demographic profile of pregnant HIV-positive women as well as the circumstances of occurrence of their current pregnancies, for developing effective policies and interventions aimed at addressing the specific reproductive needs of this subpopulation.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

More than 80 percent of HIV-positive women are diagnosed during their childbearing age (Craft et al, 2007; Bedimo-Rung, 2005). Evidence from developed and developing countries has shown that the prevalence rates of pregnancy intentions as well as the incidence rates of HIV-positive pregnancies remain high in this subpopulation. This chapter examines the profile of pregnant HIV-positive women and some of the factors that motivate HIV-positive women to either fall pregnant or want to have children. The first section of this literature review (2.2) focuses on incident pregnancies in HIV-infected women, their determinants and outcomes. The prevalence of fertility desires and intentions, their determinants and outcomes are examined in the next section (2.3). The third section of the review (2.4) discusses the demographic profile of pregnant HIV-positive women. The last part of this chapter (2.5) provides a summary of the literature review under the subheading conclusion.

2.2 INCIDENT PREGNANCY IN HIV-POSITIVE WOMEN

2.2.1 Studies from outside sub-Saharan Africa

HIV-positive pregnancy rates remain high in developed countries, although they are lower than in HIV-uninfected women (Massad et al, 2004; De Vincenzi et al, 1997). High rates of amenorrhea, decreased sperm production in infected male partner, and sexual inactivity (or decreased coital frequency) account among the factors of this decreased pregnancy rate (Kaida et al, 2006). The proportion of women who were sexually inactive in a French cohort study for example, increased from 5% before HIV-diagnosis to 20% after HIV-diagnosis (De Vincenzi et al, 1997). A multicenter European cohort involving HIV-positive women from 12 countries has however found only a modest decrease in pregnancy rate during the first four years following HIV diagnosis that dropped from 8.6 per 100 women years before HIV-infection to 8.2% following HIV infection (van Bethem et al, 2000). These results conflict data from the French study, where the pregnancy incident rate dropped ‘from 20.4 per 100 person-

years in the year preceding HIV diagnosis to 7.9 per 100 person-years after HIV diagnosis ($p < 0.001$)' (De Vincenzi et al, 1997).

Significantly different trends in HIV-positive incident pregnancies were reported from the United Kingdom and Ireland, where a change in the demographic profile of HIV-positive women resulted in a dramatic increase in HIV-positive pregnancies between 1990 and 2006 (Townsend et al, 2008a), thus pointing demographics as an important determinant of incident pregnancy in HIV-positive women. During this period, the proportion of HIV-positive women born in sub-Saharan Africa but living in the UK and Ireland significantly increased from 43.5% in 1990-1993 to 78.6% in 2004-2006. These women had acquired HIV infection from heterosexual sex. As a consequence, the proportion of women who acquired HIV through injecting drug plummeted from 49.2% to 3.1% during the same period. The proportion of HIV-positive women born in Asia and that of those born in Caribbean or of black Caribbean ethnicity also increased during the period under investigation (Townsend et al, 2008a).

The impact of HAART use on incident pregnancy rates has yielded conflicting results in developed countries, especially in the United States, where about 25% of HIV-positive women continue to fall pregnant, after being aware of their HIV-positive diagnosis (Bryant et al, 2007; Craft et al, 2007; Kline et al, 1995). Although HIV-positive incident pregnancy rates significantly increased in this country during the HAART era relative to the pre-HAART period, Blair et al (2004) have found that the incident pregnancy rates were higher (7.5 per 100 women-years) in persons not receiving HAART than in those who were prescribed this treatment (4.8 per 100 women years). The large, multisite prospective study of repeat pregnancy in HIV-infected women conducted in six US mainland and Puerto Rican sites, the first ever conducted study to examine 'trends over time in the incidence of repeat pregnancies among HIV-1-infected women', has also found that 'the hazard rate for repeat pregnancy among women not using ARVs remained significantly higher than that of women receiving either combination ARV regimens or HAART' (Bryant et al, 2007). An early study in Europe did not find an impact of HAART on the HIV-positive incident pregnancy rate (van Bethem et al, 2000).

2.2.2 Studies from sub-Saharan Africa

Naturally occurring pregnancies in HIV-positive women have been associated with the risk of HIV transmission to the male partner and to the offspring. Issues related to incident HIV-positive pregnancies and heterosexual transmission of HIV in discordant couples have however, received little attention in sub-Saharan Africa and elsewhere. Only one study was conducted in Kinshasa, in the Democratic Republic of the Congo (DRC), where Ryder et al (2000) enrolled, during the late 1980s, 178 HIV-serodiscordant married couples recruited from employees of a large textile factory and a large commercial bank. Married partners were aware of the HIV status of each other and received couple counselling at each scheduled monthly visit throughout the follow up period. Couples intending to have children were counselled to have unprotected sex only during the monthly period of the woman increased fertility. The pregnancy incidence rates in this study were 8.6 per 100 per 100 women-years in the group male HIV-positive/women HIV-negative at baseline and 6.8 per 100 women-years in the group males HIV-negative/women HIV-positive at baseline. The prevalence of HIV infection at the two businesses places was higher among workers in managerial positions than among lower level employees (5.0% vs 3.0%; $p<0.0001$) (Ryder et al, 1990).

Ryder and colleagues (1991) conducted a second study in Kinshasa, also during the late 1980s, but in a different setting, the General Hospital of Kinshasa, a health facility that was serving low-socioeconomic patients. Participants were HIV-positive and HIV-negative women recruited in the immediate post-partum. Although they were warned against the negative effect of the HIV infection on their health and the health of their children, and were offered a full range of contraceptive methods, fertility rates (unadjusted 19.01 per 100 women per year; adjusted 24.50 per 100 women year) in HIV-positive women were three times higher than those of the businesses' places study where the most affected people were from higher socioeconomic groups. Male partners were unaware of the HIV-positive status of the parturient in the study conducted at the General Hospital of Kinshasa, with about 97% of HIV-positive participants being unwilling to disclose their HIV-positive status (Ryder et al, 1991). The overall uptake of birth control in this study remained very low, with more than 75% of participants not consistently using any form of birth control during the last two years of follow up (Ryder et al, 1991). These Congolese

studies point to demographics, non-disclosure of HIV-positive status and lower uptake of contraceptive as determinants of fertility among HIV-positive women.

High HIV-positive incident pregnancy rates were also found in studies conducted in Burkina Faso (Nebie et al, 2001), Ivory Cost (Desgrées-du-Loû et al, 2001), and Rwanda (Allen et al, 1993). The HIV-positive incident pregnancy rate of 12.3 per 100 women-years reported from Burkina Faso was similar to that of the general population, despite the fact that these women were discouraged against future childbearing and received condoms and hormonal contraceptives at each scheduled follow up visit (Nebie et al, 2001). The impact of HIV-positive diagnosis on fertility rates 'was negligible' in Rwanda where 43% of HIV-positive women fell pregnant during the follow up period (Allen et al, (1993). The uptake of condoms and hormonal contraceptive remained also very low in Ivory Cost and Rwanda.

Natural fertility rates reported in Burkina Faso, at the General Hospital of Kinshasa in the Democratic Republic of the Congo, and in Rwanda, occurred within HIV-programmes that intended to discourage future childbearing in HIV-positive women aware of their HIV-positive status, because of the risk of HIV transmission to the offspring and to the male partner, but also because of the possible negative impact of the HIV infection on the health of the parturient (Nebie et al, 2001; Allen et al, 1993; Ryder et al, 1991). Unlike these studies, the open cohort intervention study that took place in Ivory Cost enrolled HIV-positive women from participants of a double-blinded placebo-controlled randomized trial that aimed at evaluating the tolerance and efficacy of a short course of Zidovudine for preventing the mother-to-child transmission of HIV (Desgrées-du-Loû et al, 2001). HIV-positive women who enrolled in this study were not counselled against future childbearing, but were encouraged to use contraceptive to avoid unplanned pregnancies. The fertility rates were 16.5 per 100 woman-years, of which 51% were unwanted, giving rise to higher rates of voluntary induced termination of pregnancy, that involved 68% of these unwanted pregnancies (Desgrées-du-Loû et al, 2001).

Although highly antiretroviral treatment (HAART) is progressively becoming widely available in sub-Saharan Africa, little is known about its effect on HIV-positive incident pregnancies in this region (Kaida et al, 2006). Limited evidence from recently published prospective studies has suggested a significant association

between HAART and fertility rates in HIV-positive women (Myer et al, 2010; Homsy et al, 2009). HIV-positive incident pregnancy rate significantly increased from 3.46 per 100 women-years before initiation of HAART to 9.5 per 100 women-years at 24 months following initiation of HAART, in a Ugandan cohort of HIV-positive women (Homsy et al, 2009). Similar results were also reported in a multicenter prospective study that was conducted within the Mother-to-Child HIV transmission-Plus (MTCT-Plus) Initiative in seven sub-Saharan countries, including Ivory Cost, Kenya, Mozambique, Rwanda, South Africa, Uganda and Zambia (Myer et al, 2010). The overall incident pregnancy rates were 9.0 per 100 women-years in HIV-positive women receiving HAART, against 6.5 per 100 women-years in those who were not receiving this treatment. The highest pregnancy rates (21.68 pregnancies per 100 women-years) were found in Rwanda, thus confirming earlier findings of Allen and colleagues (1993) during the late 1980s. The lowest crude rates of incident pregnancy (3.29 pregnancies per 100 women years) occurred in South Africa. Fertility rates ranged from 6 to 9 per 100 women years in other countries involved in this prospective study (Myer et al, 2010), possibly reflecting either the geographical differences in pregnancy rates or the difference in HIV prevalence between these countries. This may also 'reflect variation in patient demographics and/or access to contraception and related counselling' (Myer et al, 2010).

2.2.3 Determinants of incident pregnancy in HIV-positive women

Several factors may determine HIV-positive women to fall pregnant, including sociodemographic factors, personal desires for parenthood, family pressures and community expectation for childbearing, health status and HAART. Conflicting results have been reported across countries and continents about the association of sociodemographic factors and subsequent or repeated pregnancy in HIV-positive women. For example, Massad et al (2004) in the USA and Nebie et al (2001) in Burkina Faso have failed to establish a relationship between sociodemographic characteristics and incident HIV-positive pregnancy, while this association although established, did not reach the significance level in a multicountry study conducted in sub-Saharan Africa (Myer et al, 2010), thus calling for further investigations aimed at capturing the demographic profile of pregnant HIV-positive women.

2.2.3.1 Sociodemographic determinants

a. Age

Incident HIV-positive pregnancy has been found associated with young age in both developed and developing countries, especially in the USA, Europe, sub-Saharan Africa, India and Barbados (Myer et al, 2010; Suryavanshi et al, 2008; Bryant et al, 2007; Kumar and Bent, 2003; van Bethem et al, 2000). Although an average of 25% of American HIV-positive women become pregnant after being aware of their HIV-positive diagnosis (Bryant et al, 2007; Craft et al, 2007; Kline et al, 1995), this percentage may be as high as 39.5% in the under 30 years-old (Craft et al, 2007), with HIV-positive incident pregnancy rates peaking to 18.1% per 100 women-years in the 15-24 years old, almost three times higher than the fertility rates of the 25-34 years American HIV-positive women (Blair et al, 2004). Similar results were also reported in sub-Saharan Africa where women younger than 25 years have more than twice the rate of incident pregnancies of the 35 years old or older HIV-positive women (Myer et al, 2010). Pregnancy occurrence becomes less likely with increasing age (Myer et al, 2010; Blair et al, 2010), except in the United Kingdom where the increase in HIV-positive fertility rates were paralleled by an increase in the median age of parturient (Towsend et al, 2008a).

b. Marital status

Being married and/or cohabiting constitutes a risk factor for falling pregnant in sub-Saharan Africa (Myer et al, 2010; Homsy et al, 2009; Allen et al, 1993) and in Europe (van Bethem et al, 2000) but not in the USA where studies have either failed to establish an association between incident HIV-positive pregnancy and marital status or have shown instead that a positive and significant association exists between a single marital status and new pregnancies that occur in this subpopulation (Bedimo-Rung et al, 2005; Massad et al, 2004). Single American HIV-positive women are 11.5 times more likely to fall pregnant than non-single (Bedimo-Rung et al, 2005). Higher fertility rates have been also reported among previously married (e.g. widowed and divorced) European HIV-positive women (van Bethem et al, 2000).

c. Family size

A few studies have established a relationship between subsequent pregnancy and family size. European HIV-positive women who become pregnant were less likely to have already experienced parenthood while American and Rwandan pregnant HIV-positive women had fewer than four children (De Vincenzi et al, 1997; Allen et al, 1993).

d. Race/ ethnicity

Fertility rates among HIV-positive women increased in the United Kingdom and Ireland between 1990 and 2006, as a result of a marked 'africanisation' of this subpopulation. The proportion of HIV-positive women born in Africa sharply increased during this period to reach almost 80% in 2004-2006 (Townsend et al, 2008a). Similar trends were also observed with HIV-positive women born in Asia and black of Caribbean ethnicity.

Issues related to the association between race/ethnicity have however, generated conflicting results in the USA where Massad and colleagues (2004) have found that ethnicity was not predictor of HIV-positive incident pregnancy, while Bryant et al (2007) have found that Hispanic ethnicity was protective against the occurrence of repeated pregnancies in HIV-infected women. Data from sub-Saharan Africa where almost all studies were conducted in urban areas are still lacking.

e. Education level

High education level tripled the risk of subsequent pregnancy in Ivory Cost (Desgrées-du-Loû et al, 2001). This finding was conflicted by data from the USA (Bryant et al, 2007; Bendimo-Rung et al, 2005) and from sub-Saharan Africa (Myer et al, 2010) that suggest an association between a lower educational level attainment and incident pregnancy in HIV-positive women.

f. Geographical determinants

There are geographic variations in reported fertility rates among HIV-positive women in Europe (van Bethem et al, 2000) and in sub-Saharan Africa (Myer et al, 2010), but not in the USA where study sites 'did not predict conception' (Massad et al, 2004). Where regional variations were present this may reflect differences in fertility rates in

the general population (van Bethem et al, 2000), or 'in demographics and/or access to contraception and related counseling' (Myer et al, 2010). Typically, fertility rates were twice higher in Central and Northern Europe than in Southern Europe (van Bethem et al, 2000), and seven times higher in Rwanda than in South Africa (Myer et al, 2010). Whether the observed fertility rates differences across sub-Saharan Africa countries may reflect differences in HIV prevalence calls for further investigations.

g. Gap in the literature

No studies have reported a significant association between subsequent pregnancy and income level, although receiving public assistance was predictor of repeat pregnancy in American HIV-positive women (Bryant et al, 2007). Anecdotal evidence from Barbados suggested an association between unemployment and HIV-positive pregnancy, although this association has not been reported yet elsewhere. Myer and colleagues have however reported lower rates of pregnancy in employed sub-Saharan HIV-infected women and in those having access to electricity and pipe water, but this association did not reach the significance level (Myer et al, 2010).

2.2.3.2 Adverse pregnancy outcome

A body of evidence indicates that the risk of starting a new pregnancy is increased in HIV-positive women who have experienced a negative pregnancy outcome such as the delivery of a stillborn baby, an abortion or a miscarriage (Homsy et al, 2009; Suryavanshi et al, 2008; Desgrées-du-Loû et al, 2001; Nebie et al, 2001).

2.2.3.3 Contraceptive and condom use

Higher rates of unintended pregnancies have been reported in HIV-infected women (Myer et al, 2010; Bedimo-Rung, 2005). Lower uptake of contraceptive and inconsistent use of condom accounted among the causes of these high rates of unintended pregnancies, even in HIV-infected women who did not want to have children (Homsy et al, 2009; Bedimo-Rung et al, 2005; Desgrées-du-Loû et al, 2001; Ryder et al, 1991). Bedimo-Rung (2005) and colleagues have pointed out that 'the concept of "planning" a pregnancy may be irrelevant in this subpopulation as certain areas, such as knowledge, access and support for use of contraception, the value of pregnancy timing and supportive relationships with partners are either absent, under transformation or not perceived as under women's own control.' Issues related to

gender power imbalance and contraception sabotage by the male partners have however received little attention in the existing literature.

2.2.3.4 Health status

Being in good health condition by the time of conception, as signified by a body mass index of 18.5 or higher, lower viral load and higher CD4 count levels were significantly associated with incident HIV-positive pregnancy (Homsy et al, 2009; Bryant et al, 2007; Bedimo-Rung et al, 2005).

2.2.3.5 Drug use

Drug use has been reported in some studies from Europe and USA as associated with the occurrence of new pregnancies in HIV-infected women aware of their HIV-positive status (Bedimo-Rung et al, 2005; De Vincenzi et al, 1997). Evidence, however is lacking where the predominant route of HIV transmission is through heterosexual sex. A sharp decrease in the proportion of HIV-positive women who acquired HIV through injecting drug was paralleled by a significant increase in fertility rates in the United Kingdom and Ireland (Townsend et al, 2008a).

2.2.3.6 Highly Active Antiretroviral Therapy (HAART)

HIV infection decreases fertility rates through various ways, including decrease in sexual activity, decrease in fertility desires as the disease advances to AIDS, decreased or disturbed spermatogenesis, lower rates of partnership, etc. The impact of HIV infection on fertility at the country level is however prevalence driven, as the estimated population-attibutable decline in total fertility is about 0.37% 'for each point of HIV prevalence' (Lewis et al, 2004). In the absence of HAART, fertility rates in HIV-infected women are 25% to 40% lower in HIV-infected women than in those who are not (Kaida et al, 2008; Allen et al, 1993; Ryder et al, 1991).

HAART has transformed HIV-infection from a deadly condition into a chronic manageable disease, improving spermatogenesis, health status and life expectancy of HIV-infected people, raising hope and fertility desires, increasing sexual activity and fostering partnership acquisition, thus ultimately conducing to conception and parenthood (Myer et al, 2010; Homsy et al, 2009; Kaida et al, 2008). Fertility rates have significantly increased in the USA during the HAART era, although pregnant

HIV-positive women were less likely to be using HAART at baseline (Bryant et al, 2007; Blair et al, 2004). Evidence from sub-Saharan Africa although limited, has shown that HIV-positive pregnancy rates were strongly associated with HAART (Myer et al, 2010; Homsy et al, 2009). This association remained however weaker and did not reach the significance level in some sub-Saharan countries such as Rwanda where the fertility rates were the highest, Uganda and Ivory Cost (Myer et al, 2010). A stronger and significant association was reported in South Africa where fertility rates were the lowest, but also in Kenya and Zambia (Myer et al, 2010).

Kaida et al (2008) have pointed out that the real impact of HAART on fertility rates should be measured against changes in other determinants of fertility, such as 'altered contraceptive or sexual practices', 'availability of treatment to prevent mother-to-child transmission', cultural differences and social expectations for childbearing, which are context driven. For example, recent sexual activity has been found significantly associated with fertility desires but not with HAART use, according to data from a study conducted in Brazil, South Africa and Uganda (Kaida et al, 2008).

2.2.4 Outcomes of incident pregnancy in HIV-positive women

HIV-positive pregnancy raises public health concerns because of the associated risks of vertical (e.g. mother-to-child) and horizontal (e.g. sexual transmission to uninfected partner) transmission of HIV, maternal death and orphanhood, as well as risk of spontaneous abortion, stillbirth, delivery of low-birth-weight baby and premature delivery, especially before the HAART era (Townsend et al, 2008a; Rollins et al, 2007; Kaida et al, 2006; Ross et al, 2004; Ellis et al, 2002; Brocklehurst and French, 1998). In the absence of any intervention (e.g. antiretroviral therapy, safer infant feeding and safer obstetrical practices), the risk of transmitting HIV to offspring is about 30%, 'with the risk during pregnancy ranging from 5-10%, 10-20% during labour and delivery and 10-20% through mixed feeding' (DOH, 2008:12). Evidence from developed countries has shown that this risk may be decreased down to 1% (Townsend et al, 2008). The estimated MTCT rate in South Africa is 16% (Unaids, 2010a:26).

HAART has proven effective in improving HIV-positive pregnancy outcomes (Aebi-Popp et al, 2010; Massad et al, 2004). HAART is however associated with increasing

risk of premature delivery and severe prematurity (Aebi-Popp, K et al, 2010; Machado et al, 2009; Thorne et al, 2004).

2.3 FERTILITY DESIRES AND INTENTIONS IN HIV-POSITIVE WOMEN

Evidence from studies specifically targeting pregnant HIV-positive women is lacking in South Africa where studies have mostly focused on fertility desires and intentions of HIV-positive men and women (Cooper et al, 2009; Cooper et al, 2007; Myer et al, 2007). These studies have proven useful in providing information related to respondent's and partner's desires for parenthood, as well as family pressures and community expectations for childbearing. They may also be useful for investigating the impact of HIV on fertility (van Bethem et al, 2000).

2.3.1 Prevalence of fertility desires and intentions

Data from developed countries indicate that the prevalence of fertility desires and intentions may range from 29% to 38% in the USA (Sowell et al, 2002; Chen et al, 2001). Higher prevalence rates were reported from sub-Saharan Africa where up to 63.3% of HIV infected individuals want to have children (Beyeza-Kasheysya et al, 2010; Cooper et al, 2009; Myer et al, 2007; Oladapo et al, 2005). The lowest fertility desires prevalence rates were however reported in rural Uganda where only 3.2% of HIV-positive women and 19.9% of their partner males desired to have children (Homsy et al, 2009).

2.3.2 Determinants of fertility desires and intentions

Sociodemographic factors have been found to play an important role in motivations for childbearing. Oladapo et al (2005) have pointed out that motivation for childbearing constitutes an individual response to particular circumstances of one's life such as 'age, marital status, level of education, income, ethnic background, number of surviving children and high social values placed on childbearing' (Oladapo et al, 2005). This motivation may become activated in desires to have children and then transformed into fertility intentions, which are, in turn, transformed into actual childbearing, if they are of 'sufficient intensity' and, depending on the actual childbearing context such as 'the presence of a partner, partner's fertility desires, stability of the union or threat of marital disruption' (Oladapo et al, 2005).

Similarly, Chen and colleagues have found several predictors of fertility desires or intentions amongst American HIV-infected individuals, including 'race, number of living children, health status and partner's HIV status' (Chen et al, 2001). Personal and cultural traits affect fertility desires, while timing and situational factors determine fertility intentions (Chen et al, (2001).

South African HIV-positive women who desired to have children were young, childless or had fewer than two children, and were in a stable relationship of less than five years (Myer et al, 2007). Fertility intentions were also high if these HIV-positive women didn't have a biological child with their current partner. Participants in this South African study were predominantly from low socioeconomic status environment. Similar results were reported from Nigeria where pregnancy intentions were lower in women with higher monthly income. The odds of fertility desires in Nigeria were significantly reduced with increasing age of respondents and time since diagnosis of HIV infection (Oladapo et al, 2005). Social pressures may also play an important role in the desire for parenthood, especially in sub-Saharan Africa where having children is perceived as a social requirement for married couples (Cooper D et al, 2007).

2.3.3 Outcomes of fertility desires and intentions

How fertility desires and intentions translate into actual childbearing and whether the demographic profile of the HIV-positive women who wants to have children matches the demographic profile of the pregnant HIV-positive woman as reported by studies on incident pregnancies remain controversial for several reasons. First, a large proportion of pregnancies occurring in HIV-positive women are unplanned (Cooper et al, 2009; Bendimo-Rung et al, 2005; Desgrées-du-Loû et al, 2001). Second, neither all desires are transformed into intentions, nor all intentions lead to pregnancy because the context that motivated these childbearing desires and intentions may change over the natural history of HIV infection, including during pregnancy (Myer et al, 2010; Chen et al, 2001). Third, only a few HIV-positive individuals want to have children in a near future, thus making it difficult to relate the 'actual fertility patterns observed longitudinally' with fertility intentions that were investigated 'in terms of the stated desire to have a child in the future using a cross-sectional design' (Myer et al, 2007).

Evidence related to fertility desires and intentions outcomes remains however scarce in sub-Saharan Africa and elsewhere. The first ever published study in this field intended to analysis 'trends in pregnancy incidence, desire for children and sexual activity over time among' a cohort of Ugandan HIV-positive women following HAART initiation (Homsy et al, 2009). Desires for children and sexual activity significantly increased throughout the follow up, being paralleled by an increase in HIV-positive incident pregnancy (Homsy et al, 2009). This suggests that within the particular context of this study that involved rural HIV-positive individuals with very low prevalence of fertility desires and intentions at baseline, a determinant of fertility desires may also activate the translation of fertility intentions into actual childbearing, thus providing an opportunity to compare the profile of the HIV-positive woman intending to give birth to that of the one who falls pregnant.

2.4 DEMOGRAPHIC PROFILE OF PREGNANT HIV-POSITIVE WOMEN

Little is known about the demographic profile of the pregnant HIV-positive woman, especially in South Africa and in sub-Saharan Africa. Data from the literature suggest that this demographic profile may vary, depending on the setting and the country's main route of HIV transmission (Townsend et al, 2008a). Pregnant HIV-positive women are likely to be living in Africa, or to be predominantly black in the USA and United Kingdom and Ireland (WHO et al, 2008::80; Townsend et al, 2008a; Massad et al, 2004). Living in Central and Northern Europe has also been associated with the likelihood of HIV-positive pregnancy, relative to inhabitants of the Southern Europe (van Benthem et al, 2000).

A study conducted in Barbados has found that pregnant HIV-positive women were likely to be younger, multiparous, unemployed, involved with an older sexual partner and living either with their parents, or with the baby's father (Kumar and Bent, 2003). Young age has been a constant across studies, except in the UK and Ireland, where an increase in incident HIV-positive pregnancy was paralleled by an increase in the median age of parturient from 27.2 years in 1990-1993 to 30.2 years in 2004-2006 (Townsend et al, 2008a) and in Ivory Cost where no statistical differences were observed in terms of age (≥ 25 years versus 15 – 24 years) between HIV-positive women who became pregnant and those who did not (Desgrées-du-Loû et al, 2001).

Marital status has been yielded conflicting results, with married and cohabiting women being likely to fall pregnant in sub-Saharan Africa and Europe (Myer et al, 2010; van Bethem et al, 2000; Allen et al, 1993), while American HIV-positive women were predominantly single (Bedimo-Rung et al, 2005; Blair et al, 2004). HIV-positive women who became pregnant in Ivory Cost (Desgrées-du-Loû et al, 2001), and in the WITS prospective study conducted in the United States by Bryant and colleagues (2007), were unlikely to be statistically different from those who did not become pregnant in terms of marital status.

Pregnant HIV-positive women may have been exposed previously to pregnancy, but had fewer than four children (Bryant et al, 2007; Massad et al, 2004; Allen et al, 1993). Data from Europe suggest however that these women were 'less likely to have already given birth before the first HIV-positive test' (De Vincenzi et al, 1997). Parity was not associated with the likelihood of pregnancy in Ivory Cost and in Burkina Faso (Desgrées-du-Loû et al, 2001; Nebie et al, 2001).

The demographic profile of pregnant HIV-positive women is thus not consistent across sub-Saharan African countries and across continents. Thus highlighting the need for conducting studies focusing on this subpopulation for informing policies and decision-makers.

2.5 CONCLUSION

HIV infection mostly affects women in their reproductive age. Desires for childbearing remain high in this subpopulation, despite the risk of HIV transmission to the offspring and to the male partner. Data from longitudinal studies have shown that Incident HIV-positive pregnancy rates are high, although they are lower than in HIV-negative women. Various determinants of the incident pregnancies have been identified, including sociodemographic characteristics, HAART, previous pregnancy adverse outcome and lower uptake of contraceptive and condom. Many among these incident pregnancies remain however unplanned, thus highlighting the need for studying the demographic profile of the HIV-positive woman who becomes pregnant in order to develop policies aimed at addressing the reproductive needs of this subpopulation. Data related to this demographic profile of the pregnant HIV-positive woman are currently lacking in South Africa.

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

The purpose of this study was to describe the demographic profile of pregnant HIV-positive women attending ANC in publicly funded clinics, in Postmasburg. This chapter details the methodology we have used for addressing the three study questions. The first and main question this study intended to answer to was as follows: 'What is the demographic profile of pregnant HIV-positive women in Postmasburg?' Because the demographic profile constitutes a combination of several demographic characteristics aimed at getting a typical picture of the population under study (http://en.wikipedia.org/wiki/Demographics), data were collected on the demographic characteristics of participants for answering this question. The second research question sought to determine the proportion of pregnant HIV-positive women who knew their HIV-positive diagnosis prior to their current pregnancy. The last question sought to describe the circumstances of occurrence of respondents' current pregnancy. We have found a descriptive design suitable for answering these research questions, with a structured questionnaire as the research instrument. We justify below the choice made for a descriptive design. We then detail the research procedures we have applied throughout the research process, prior to discussing the ethical issues related to this study.

3.2 JUSTIFICATION FOR THE PARADIGM AND METHODOLOGY

3.2.1 The choice of the study design

A demographic profile of pregnant HIV-positive women could be established with data from an active surveillance system. This system would routinely collect data on demographic characteristics of all pregnant HIV-positive women. A national or provincial electronic registry would gather these data that would provide a more accurate demographic picture of the pregnant HIV-positive women because it would be population-based. Studies conducted in Barbados (Kumar and Bent, 2003) and in the UK and Ireland (Townsend et al, 2008a) were based on the country national active surveillance system. We would have used a retrospective design or a prospective one for describing the demographic profile of HIV-positive women who

become pregnant. A prospective design is time-consuming and costly. It would be difficult to carry out for a dissertation at a master level. A retrospective design would be more appropriate. Unfortunately, there is no currently such a kind of surveillance system and registry in South Africa.

Cross-sectional study measures outcome and exposure (e.g. risk factors) in a defined population at the same point in time; thus providing "a 'snapshot' of the outcome and the characteristics associated with it, at a specific point in time" (Levin, 2006). A cross-sectional study design may be descriptive or analytical. An analytical cross-sectional design investigates the relationship between risk factors and disease, while the purpose of a cross-sectional descriptive design is to describe a defined population or a subgroup within this population by collecting data on the frequency and distribution of 'an outcome and a set of risk factors' (Levin, 2006). A descriptive cross-sectional design could be used for this research, but we have chosen a descriptive design for several reasons, as explained below.

A descriptive design measures variables as they naturally exist in a defined population or a subgroup within the population of interest, aiming 'to obtain separate descriptions for each variable' involved in the phenomenon under study (Gravetter and Forzano, 2009:352). A descriptive design was thus suitable for answering research questions that sought to describe the demographic characteristics of pregnant HIV-positive women who were attending ANC in publicly-funded clinics in Postmasburg (Terre Blanche M, et al 2006:167; Leedy and Ormrod, 2010:204). As pointed out by Gravetter and Forzano (2009:184), a research design is usually determined by the research questions and the kind of answer the investigators intend to obtain.

Second, little was known about the demographic profile of pregnant HIV-positive women in sub-Saharan Africa and in South Africa. No study was conducted in this field in South Africa, and evidence from sub-Saharan studies of incident HIV-positive pregnancies either lacked this information or provided incomplete and conflicting data (Myer et al, 2010; Nebie et al, 2001; Ryder et al, 2000; Allen et al, 1993; Ryder et al, 1991). A descriptive design was thus indicated because profiling pregnant HIV-positive women in South Africa was not done before and this study constitutes an early investigation in this field. For the same reasons, a case-control and prospective

longitudinal designs that aim at establishing a relationship between the disease and risk factors were not suitable for this exploratory study.

Third, a descriptive study allowed us to investigate the variables of interest using one group—pregnant HIV-positive women attending ANC clinics in Postmasburg, while a descriptive cross-sectional design would require two groups and a sample size that we would not be able to reach in our settings.

Since a descriptive study describes variables without attempting to establish a relationship between them, the design involved one group whose demographic characteristics were investigated along with the circumstances of occurrence of their current pregnancy. The focus of the study methodology was more on the external validity because the study did not intend to establish relationships between variables. External validity mostly depends on the way participants are selected and recruited, as well as on the participation rates.

3.2.2 The choice of the study instrument

The best way for receiving information about the demographic characteristics of participants, the circumstances of their current pregnancy as well as the time of their HIV-positive diagnosis relative to their current pregnancy was through self-reported data, a well established strategy that has proven effective in surveys. A structured questionnaire was used for eliciting these responses because 'closed-ended questions are easier to answer and analyze' (Hulley et al, 2007:242). Data can be readily transferred from the questionnaire to the computer because of the uniformity of answers (Rea and Parker, 2005:42).

A fixed set of alternative answers also clarify the meaning of the questions, and has proven effective for minimizing both the recall bias and the social desirability bias. 'Sensitive issues are frequently better addressed by asking questions with a preestablished, implicitly "acceptable" range of alternative answers rather than by asking someone respond with specificity to an issue that might be considered particularly personal' (Rea and Parker, 2005:43). An alternative answer 'other' was added for items we were unsure the set of answers was exhaustive. Lastly, the questionnaire was administered instead of being self-administered because interview yields higher response rates (Leedy and Ormrod, 2010:188) but also because the

group of participants was expected to be small and readily reachable within a limited geographical area.

3.3 RESEARCH PROCEDURES

3.3.1 Study design

A descriptive study using one group of pregnant HIV-positive women was used for this study. The justification for using this design was given under section 3.2.

3.3.2 Study settings

The study was conducted in Postmasburg, a rural area in Siyanda district, in Northern Cape, which lies mid-way between Kimberley and Upington. Three public sector clinics are serving the inhabitants of the three townships - Boichoko, Newtown and Postedene townships – of Postmasburg. Boichoko is a predominantly formal township, Newtown a predominantly informal township and Postedene that was until two years ago a 100 percent formal township, is currently experiencing the development of an informal settlement at one of its borders, which represents approximately 15% of this area. Black people make up 99% of inhabitants of Boichoko township, 45% of Newtown and 8% of Postedene. Coloured make up 92% of inhabitants of Postedene township, 55% of Newtown and 1% of Boichoko. The most spoken languages in this area are Afrikaans (e.g., 96% of people in Postedene, 62% in Newtown and 1% in Boichoko) and Setswana (e.g. 82% and 35% in Boichoko and Newtown, respectively). The prevalence of HIV among attendees of ANC in Siyanda district was 12.4% in 2009 (DOH, 2010:52). The estimated number of adult HIV-positive women in Postmasburg is 4000. The clinic serving inhabitants of Newtown is called Postmasburg clinic.

3.3.3 Study population

For this study the population consisted of 41 pregnant HIV-positive women attending ANC clinics (i.e. 26 from Postmasburg clinic, 12 from Boichoko clinic and 3 from Postedene clinic) whose attendees provide more than 95% of deliveries occurring in Postmasburg Hospital but also because they would be easily accessible during their routine ANC visits. ANC also constitutes the main entry point of the PMTCT programme, which is implemented in almost all publicly funded clinics in South Africa. Attendees of these clinics are systematically offered HIV counselling and testing that was advantageous, because many among pregnant HIV-positive women

were only diagnosed during pregnancy. Lastly, recruiting from public ANC clinics was suitable for investigating naturally occurring characteristics because the attendance is usually broad, including HIV-positive women who knew their HIV status, those who were receiving HAART and those who were not, pregnant HIV-positive women unaware of their diagnosis, as well as HIV-negative individuals.

3.3.4 Study sample

No sampling was done because all pregnant HIV-positive women who were attending ANC at Postmasburg clinics from September 20, 2010 to December 20, 2010 were included in this study. This was done in order to minimize both sampling and selection biases. All forty-one eligible participants were approached and were enrolled after they had shown their interest in participating in the study and after they had given the researcher their informed consent in writiting to participate in this study.

3.3.5 Study instrument

The study instrument was a 31 items structured questionnaire. The questionnaire was aligned with the study objectives including: (a) to describe the demographic profile of pregnant HIV-positive women attending ANC in Postmasburg's clinics; (b) to determine the proportion of these women who knew their HIV-positive diagnosis prior to their current pregnancy; and (c) to determine the circumstances of occurrence of their current pregnancy. The instrument was thus purposefully divided into three components. The first part asked questions related to the participants' demographic characteristics such as age, race, relationship characteristics (e.g. marital status, relationship status, relationship duration if applicable), home language, employment status, occupation, family size (e.g. number of living children), place of living, education level, and income characteristics (e.g. income level, main source of income).

The second component sought to determine the proportion of participants who were aware of their HIV-positive diagnosis before their current pregnancy. Participants were asked whether they were informed of their HIV-positive status before or during the current pregnancy. The third part of the structured questionnaire asked questions related to the circumstances of occurrence of the participants' current pregnancy including disclosure to the male partner, pregnancy intentions, proximate

determinants of fertility (e.g. contraceptive and condom use), proximate determinants of unintended pregnancies such as substance misuse, coerced sex, non-disclosure of the HIV-positive status to the partner and transactional sex, as well as knowledge of the partner HIV status.

Although external validity was more relevant to this descriptive study than internal validity, the measurements made for answering the study questions required that the instrument should be able to yield reliable and valid results. That is why the instrument was piloted-test and necessary steps were taken for ensuring its validity and reliability as explained under these subheadings.

3.3.6 Pilot study

A pilot study was conducted using 16 non-pregnant HIV-positive women to test the appropriateness and clarity of questions, the accuracy of translation, and the clarity of instructions. Participants were also asked to comment on the questions, to provide their feelings about the nature, the appropriateness and the wording of the questions. Pregnant HIV-positive women were not used during the pilot-test because of the smallness of the expected sample. We could not afford losing 15 to 20 potential participants while the study expected to enrol between 30 to 40 participants during the three months of data collection. Feedback from interviewers was provided during a meeting that took place after the pilot study had been completed.

The instrument was also pre-tested using one expert on the field of HIV as well as several female health workers of childbearing age who were living in the same areas than the potential participants but also those who were used to provide routine care either to pregnant or to HIV-infected individuals.

Following pilot-testing, the instrument was improved, and the number of items was increased from 26 to 31 questions. The accuracy of translation of some questions in Afrikaans and Setswana was significantly improved after the pilot-test and the number of questions related to proximate determinants of pregnancy was increased, to allow more choices in alternative answers.

Lastly, in addition to the ‘Guidelines for interviewers’ developed by the main investigator before the pilot study, written instructions were given after each branching question in the definite questionnaire, to ensure the follow-up questions

were asked to all applicable participants, and were not asked to those to whom they were not applicable.

3.3.7 Inclusion criteria

Eligibility criteria for inclusion in the study were as follows: (a) Being pregnant HIV-positive woman at the time of recruitment; (b) being attendee of ANC in a public sector clinic in Boichoko, Newtown or Postedene townships; (c) willing to give informed consent.

3.3.8 Exclusion criteria

Excluded participants included those that were unable/unwilling to give the informed consent and those that were not pregnant at the time of conducting the study.

3.3.9 Recruitment

Eligible participants were recruited at Boichoko, Postedene and Postmasburg clinics, during their routine ANC appointment. The sister doing ANC approached consecutive pregnant HIV-positive women attending her clinic and informed them that a study had been taking place at the clinic. She provided the name of the main investigator as well as that of the interviewer. Potential participants were informed that the investigators were especially interested in pregnant HIV-positive women willing to participate in this study and willing to provide the information needed for this study that was related to them. Eligible participants who agreed to meet the investigators were then scheduled for an interview during their following routine ANC appointment.

Participants who responded to their scheduled interview were administered the informed consent in a private room allocated by the clinic, in order to ensure confidentiality and participants' privacy. Only those who agreed to sign the consent form underwent the administered interview.

3.3.10 Data collection

Data were collected from September 20, 2010 to December 20, 2010 using a structured questionnaire. The questionnaire was administered in the home language of participants in a separate private room allocated by the clinic. Data were both numerical and categorical, the latter being either nominal or ordinal. Data were coded using a code sheet, entered into an Excel spreadsheet and cleaned up by the

main investigator. Cleaning involved checking data that were entered for impossible codes, missing data, typing mistakes and the genuineness of outliers. Data analysis commenced after the dataset was cleaned up.

3.3.11 Data analysis and interpretation

Data were analysed with the software Excel, STATA 10.0 and Epi-Info 3.5. Raw data were organized, summarized and displayed using descriptive statistics, including frequencies distribution, tables and graphs. Summary statistics (means, median, standard deviation, and range) were used for continuous variables and percentages/ proportions for categorical variables.

3.3.12 Reliability and validity of the study

3.3.12.1 Reliability

A reliable questionnaire yields consistent findings across various samples, so that 'differences in results come from differences between participants, not from inconsistencies in how the items are understood or how different observers interpret the responses' (Boynton and Greenhalgh, 2004). The following approaches were used for ensuring the reliability of the instrument.

All participants were asked the same questions and were required to choose among the same alternative answers. Precise and clear written instructions were given to interviewers on how to administer the structured interview and on how to check the completeness of the questionnaire at the end of the interview. These instructions were included in the questionnaires and in the 'guidelines for interviewers' to ensure consistency in the way interviewers were asking questions from one respondent to another, but also consistency in the way the questionnaire was administered and the participants' answers recorded from one interviewer to another (Olsen and St George, 2004). That is what several authors call standardizing the measurement methods (Hulley et al, 2007:40; Boynton and Greenhalgh, 2004). For this purpose, Boyton and Greenhalgh define a standardised questionnaire as the one 'that is written and administered so that all participants are asked precisely the same questions in an identical format and responses recorded in a uniform manner.'

Interviewers were selected based on their education level as well as their sensitivity, awareness and knowledge on the topic under study. Several professional nurses

and assistant nurses volunteered for interviewing participants. Five assistant nurses were selected as interviewers and three professional nurses as field supervisors (one per clinic).

Interviewers were trained before the pilot study and the main study to ensure they understood the study and had a good command of the study instrument. They were actively involved in the improvement of the instrument following the pilot-test.

Questions and answers were worded as written in the structured questionnaire and in the order scheduled in the instrument. This uniform wording of items and alternative answers would ensure reproducibility of the study findings. Where the respondents were required to specify their answer, instructions were given to interviewers to report the answers as worded by the respondents. No probing was allowed to prevent interviewer bias and ensure consistency in the use of the instrument from one interviewer to another, yielding only answers solicited by the instrument.

A ‘completeness form’ called ‘check list’ was developed and attached to each questionnaire. It had to be filled at the end of each interview, before the participant was released. The interviewer had to check if every question was asked and if it was answered. Reasons for not asking a question (e.g. branching question not applicable to the particular participant) or for not having received an answer to a question that was asked (e.g. participant did not remember the answer or refused to provide an answer, participant’s answer not applicable to the alternative answers of the item) had to be reported in the column ‘comment’.

A close supervision of interviewers was ensured by the main investigator, including visits in the clinics and checking of the already filled questionnaires for completeness. The main investigator attended several interviews and was called most of the time at the end of interviews, prior to the filling of the ‘completeness form’.

A pilot study of the questionnaire was conducted and the feedback from interviewers and interviewees was included in the questionnaire before the main study was conducted.

3.3.12.2 Validity

The pilot study was conducted not only for improving the reliability of the instrument, but also son content validity. A valid instrument is the one that measures what it intends to measures. For this purpose, not only the characteristics designed for this descriptive study were selected for describing the demographic profile of HIV-positive pregnant women who were attending ANC in publicly funded clinics in Postmasburg, but the questionnaire itself was purposefully administered in the home language of participants. Validity is central to the research design. For this descriptive design external validity was more relevant because the study did not seek to establish any relationship between variables. 'Demographic profiling is essentially an exercise in making generalizations about groups of people', according to Wikipedia (http://en.wikipedia.org/wiki/Demographics).

To ensure the external validity of this study the following steps were taken in terms of participants' selection and recruitment, as well as participation rates.

Participants selection: All consecutive eligible participants who attended ANC in the selected clinics during the period of data collection were recruited to participate in the study. This means that all potential participants were given an equal chance to be selected if we consider that the source population was formed by HIV-positive women of childbearing age living in the same areas then the potential participants and we would have attended ANC in the selected clinics if they did fall pregnant.

Data collection: Data were collected during a sufficient length of time (three months) to allow a wider recruitment of all the accessible population and minimize threats due to seasonal variations in ANC's attendance. This contributed to minimizing both sampling and selection biases.

In order to minimize threat to external validity due to lower participation rates, the structured questionnaire was administered instead of being self-administered. Second, a professional nurse was appointed as field supervisor at each clinic to ensure that all eligible participants were approached and that those who accepted to meet the investigators were scheduled for the interview at their following routine ANC attendance, in the event they would give written consent to enter the study. Third, participation rates forms were developed and handed to sisters doing ANC to

facilitate reporting at the end of ANC visits, thus allowing the main investigator to intervene if rates of participation were not optimal.

To ensure optimal recruitment, potential participants were introduced to the study using an information sheet that provided information required for a good understanding of the study, its purpose, reasons for choosing only pregnant HIV-positive women as participants, and the expected benefits of the study. The information sheet explained how participants' privacy would be respected and how confidentiality would be ensured throughout the study process.

Data were coded and cleaned up prior to data analysis, to ensure the validity of findings presented.

3.4 ETHICAL CONSIDERATIONS

The Helsinki Declaration for ethical principles for health research were adhered to throughout this study, including principles of respect, beneficence and justice.

a. The proposal was reviewed and approved by the Medunsa/Campus Research and Ethics Committee (MCREC)–University of Limpopo.
b. After the police clearance was issued by the MCREC permission to conduct the study was granted by the Northern Cape's Deputy General-Director for Health and Acting Head of the provincial Department of Health.
c. The principle of respect requires that researchers provide to potential participants information related to the study in order to inform their decision to enrol or not in the study. It also requires that investigators maintain confidentiality throughout the research process. For this purpose, all eligible participants were administered the informed consent, including information related to the nature of the study, its purpose and methodology. Only eligible participants who accepted to participate in the study were enrolled after they had signed the written informed consent form. Furthermore, the consent form and the structured interview were administered in a private room allocated by the clinic, to ensure privacy and confidentiality. Confidentiality of information received was maintained throughout the process of data collection, analysis and storage. No identifying information such as name, surname, address, etc

was kept on the questionnaires and participants were allowed to use a convenient name on the consent form.

d. The principle of beneficence requires that the research benefits to participants and to the community. These benefits should outweigh the risks of the research that should be minimal. Participants were informed that the results of the study would be shared with them and with the receiving health facilities. They were also informed that the results of the study might inform policies and interventions aimed at improving the reproductive heath services that would be offered to HIV-positive women of childbearing age. As explained above, breaches of confidentiality were also prevented because they would bring about stigma and discrimination against participants.
e. Because these pregnant HIV-positive women are also vulnerable population, several safeguards were adopted in order to prevent them from becoming exploited by the researcher. First, potential participants were informed that this study was not part of their routine ANC and that their participation was voluntary. Refusal to participate in the study would not compromise the health care services that were routinely provided to them. Second, the informed consent was administered in their home language to make sure they had a good understanding of the nature of the study and its purpose prior to making the decision to enrol in the study. Enabling these vulnerable populations to make an informed and free consent to enter the study was also conform to the requirements of the ethical principle of justice that exacts a fair distribution of the benefits and burdens of the research.
f. Attempt was made to ensure all items were answered without pressuring participants to answer questions they were unwilling to respond to.

3.5 CONCLUSION

The purpose of this study was to describe the demographic profile of HIV-positive women who were attending ANC in Postmasburg. A descriptive design was used because it appeared to be the most suitable for answering the research questions. Data were collected using an administered structured questionnaire that was piloted-test for ensuring both its reliability and validity. Necessary steps were taken for ensuring the external validity of the study, including thorough participants' selection and recruitment, as well as optimal participation rates.

CHAPTER 4

DATA ANALYSIS AND RESULTS

4.1 INTRODUCTION

This descriptive study sought to describe the demographic profile of pregnant HIV-positive women in Postmasburg. This chapter analyzes data that were gathered using an administered structured questionnaire. Data were analyzed using the software Excel, Epi-Info 3.5 and Stata 10. Raw data were organized, summarized and displayed using descriptive statistics, including frequencies distribution tables and graphs (e.g. histograms and box plot whiskers for continuous variables; bar charts and pie charts for categorical and nominal variables). Summary statistics such as means or mode, standard deviation or range were used for continuous variables. Percentages/proportions were used for categorical variables. There were no missing data. Study findings are presented below, grouped by research question.

4.2 STUDY PARTICIPANTS

Forty-one potential participants were approached during the study period and all of them accepted to participate in the study and signed the informed consent. The participation rate was thus 100%. The research sample was thus made up of 41 pregnant HIV-positive women aged of 17 to 39 years, who were diagnosed HIV-positive either before or during their current pregnancy. Participants were recruited from September 20, 2010 to December 20, 2010, during their routine ANC visits at Boichoko, Postedene and Postmasburg clinics, in Postmasburg. Eligible participants were identified and approached at each clinic by the sister doing ANC. Those who expressed an interest in participating in the study were administered the informed consent form by the interviewers in a private room allocated at each clinic.

Respondents were administered a 31 items structured questionnaire that was aligned with the study objectives, including: (a) to describe the demographic profile of participants; (b) to determine the proportion of these women who knew their HIV-positive diagnosis prior to their current pregnancy; and (c) to describe the circumstances of occurrence of their current pregnancy. All items were answered by all applicable participants.

4.3 STUDY RESULTS

Forty-one participants were enrolled in the study, including 26 (63.4%) from Postmasburg clinic, 12 (29.3%) from Boichoko clinic and 3 (7.3%) from Postedene clinic.

4.3.1 Respondents' demographic profile

The first research question was as follows: 'What is the demographic profile of pregnant HIV-positive women in Postmasburg'? Respondents were asked questions related to the following demographic characteristics: age, race, marital status, relationship status, duration of relationship, employment status, income, education level, place of living, family size, number of pregnancies, number of previous HIV-positive pregnancies, and the partner's age.

4.3.1.1. Respondents' age characteristics

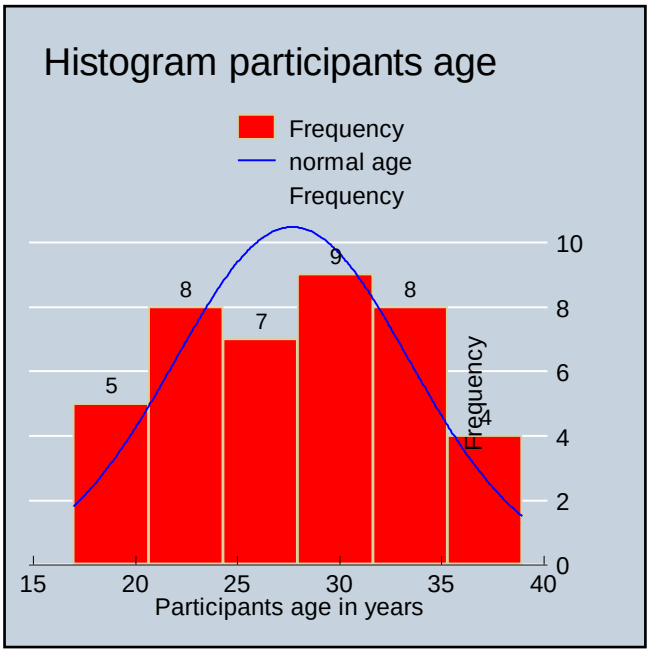

Figure 1: The histogram of participants' age showing a normal distribution of this characteristic around the means (N=41).

We can see from the histogram (figure 1) that the characteristic respondents' age was almost normally distributed around the means thus allowing the use of the means age and standard deviation as measures of central tendency. Figure 2 displays the age parameters (e.g. means, median, standard deviation, minimum age and maximum age) of the 41 participants who were enrolled in this study.

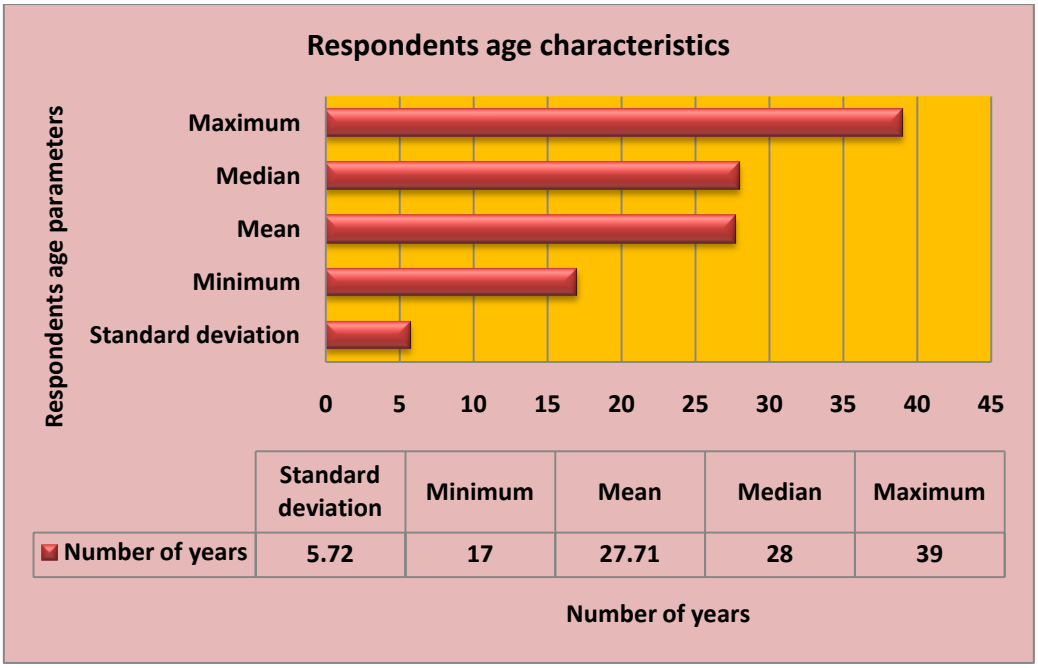

Figure 2: Bar chart showing respondents' age parameters such as the means, median, standard deviation, minimum age and maximum age (N=41).

The means age of the sample was 27.71 ± 5.72 years. The youngest participant was 17 years old and the oldest was 39 years old.

Table 1: Frequencies, percentages and cumulative percentages of respondents' age categories (N=41)

Age category in years	Frequency	Percentage	Cumulative percentage
15 - 19	5	12.20%	
20 - 24	8	19.52%	31.72%
25 - 29	10	24.39%	56.11%
30 - 34	13	31.71%	87.82%
35 - 39	5	12.20%	100.02%
Total	41	100.02%	100.02%

Almost one third of these pregnant HIV-positive women were between the ages of 30-34 years old. This constitutes by far the most important age group that was followed by the 25-29 years old (24.39% of the total). The lowest percentages were found in the Oldest (35-39 years old) and youngest (15-19 years old) age groups. The under 30 years old made up more than half of the sample (56.11%).

4.3.1.2. Respondents' race

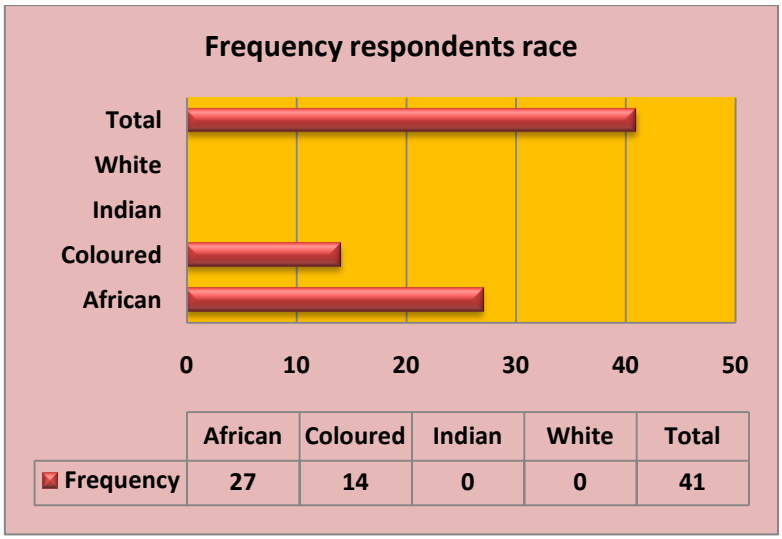

Figure 3: Bar-chart showing frequencies of respondents' race (N=41)

Figure 3 shows that Africans (24 out of 41 participants) were almost twice more numerous than Coloured (17 participants), making up 65.9% of the sample. There were no Indians or White pregnant HIV-positive women enrolled in this study.

4.3.1.3. Respondents' relationship characteristics

Under this subheading we analyze findings related to the marital status of participants, their relationship status, and the duration of this relationship.

a. Marital status

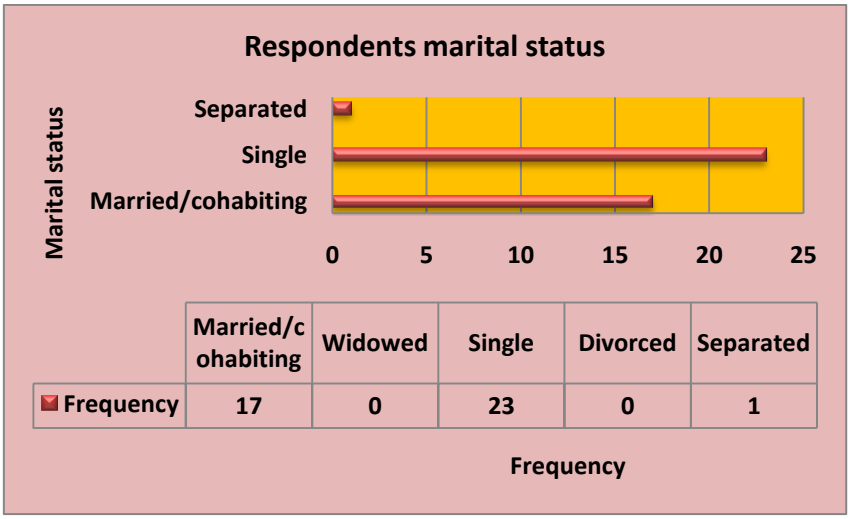

Figure 4: Bar Chart displaying frequencies of participants' marital status (N=41).

The sample was made up of mostly never married (singles) and married/cohabiting respondents. The bar chart (figure 4) of marital status shows that 23 participants were single and 17 were married or cohabiting.

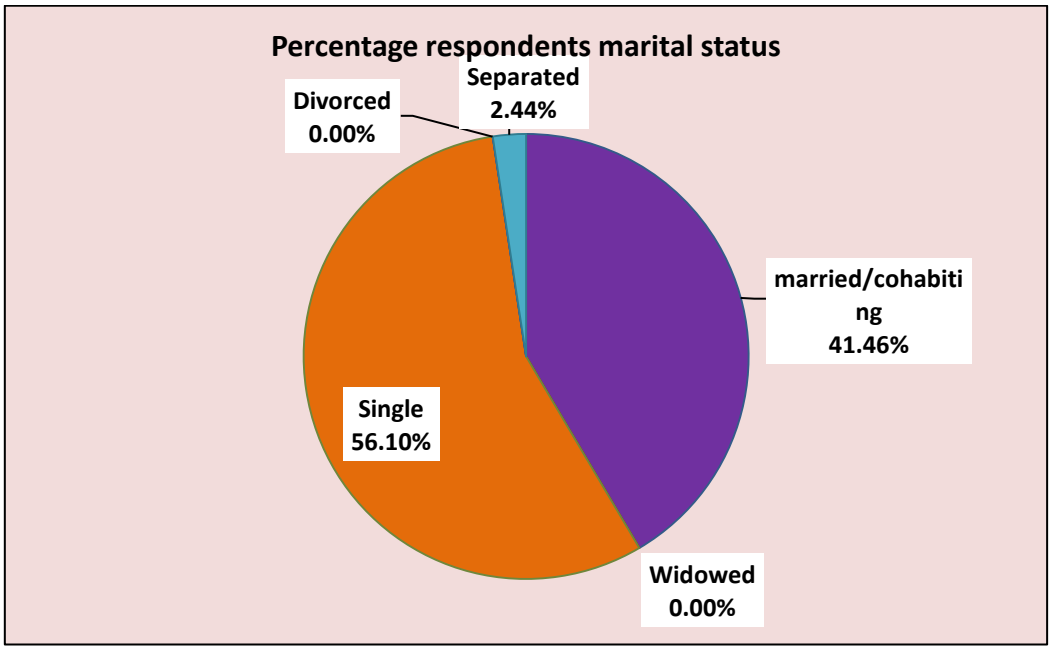

Figure 5: Pie chart showing percentages of participants' marital status categories (N=41)

Figure 5 shows that never married made up 56.10% of the sample, followed by married/cohabiting HIV-positive pregnant women (41.5% of the total).

b. Relationship status

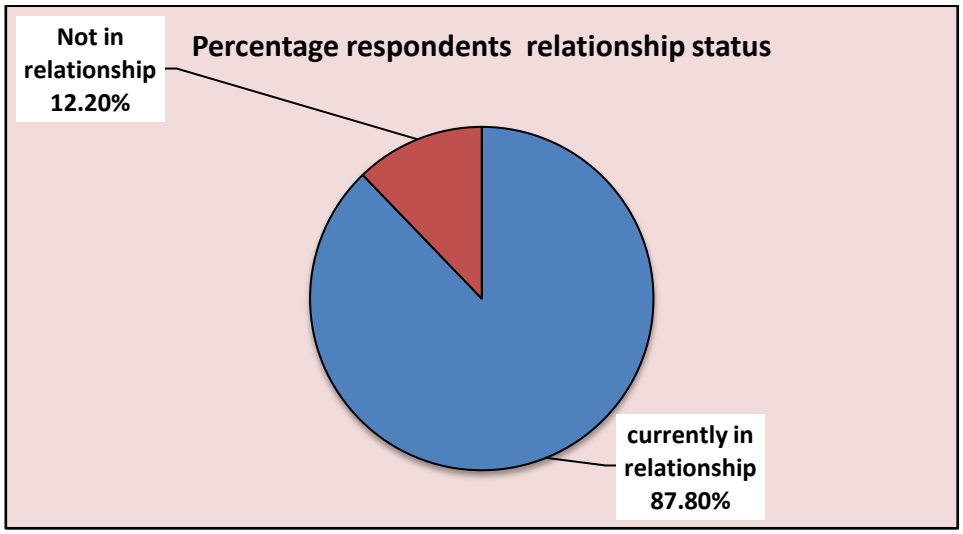

Figure 6: Pie –chart of the sample's components per relationship status (N=41)

Almost 88% of participants were in relationship at the time of interview as displayed by figure 6.

c. Respondents' duration of relationship

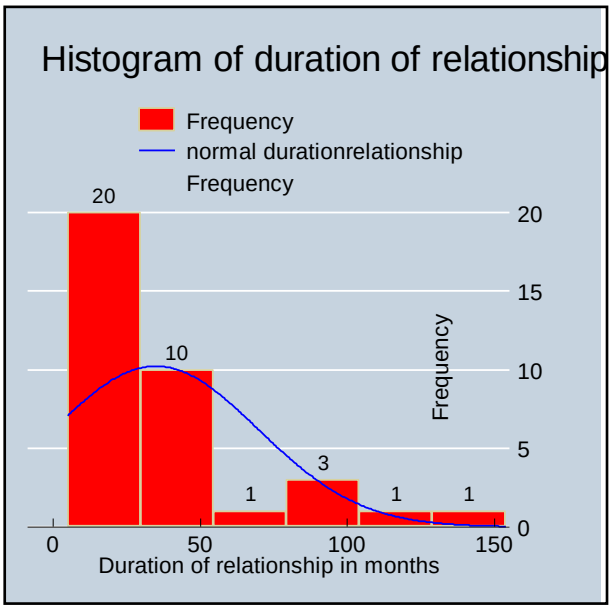

Figure 7: Histogram of respondents' duration of relationship (N=36).

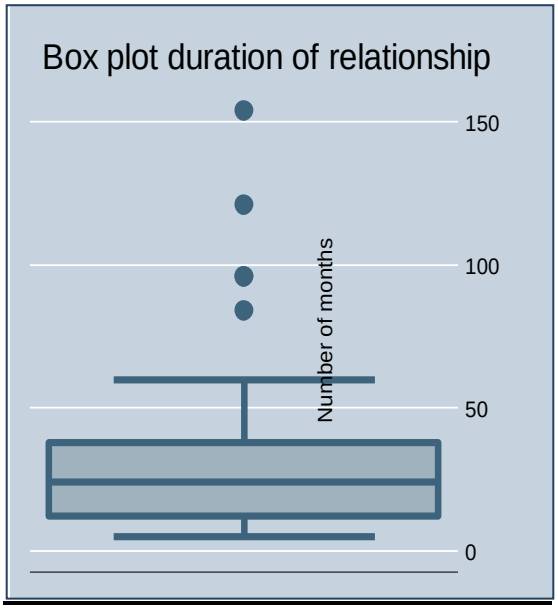

Figure 8: Box-plot of respondents' of duration of relationship (N=36).

The question related to the duration of relationship was asked only to the 36 participants (i.e. 87.80% of the sample) who were in relationship at the time of the interview. The histogram of duration of relationship (figure 7) shows a skeweness of the distribution beyond 50 months. The box plot of duration of relationship (figure 8) shows the median at 24 months and several outliers beyond 50 months. Whiskers of the box plot are also of unequal lengths, that of the maximum duration being almost three times longer than the whisker of the minimum duration. The means duration was thus unsuitable as measure of central tendency.

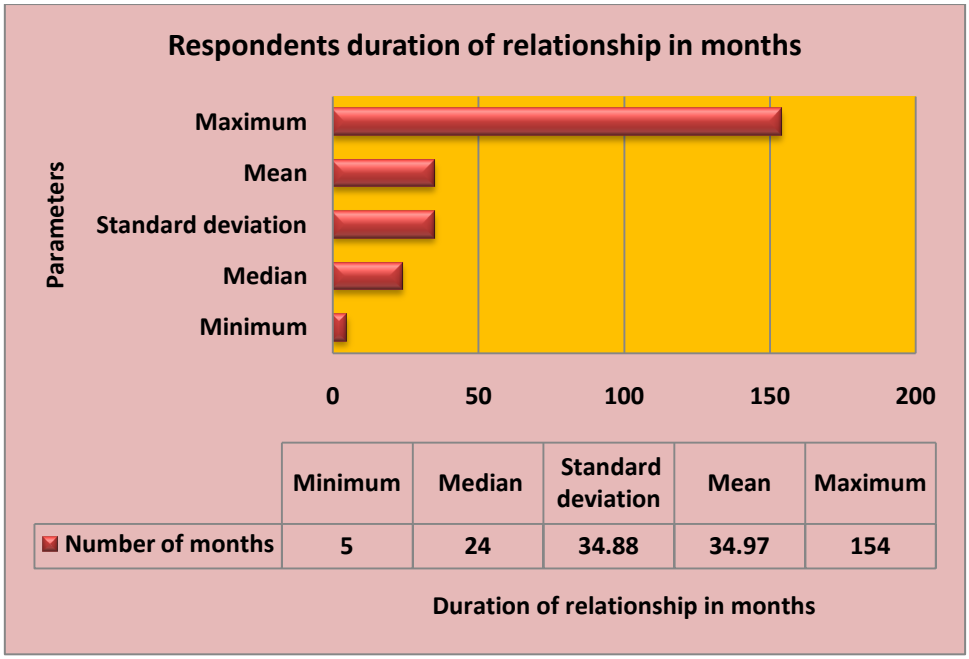

Figure 9: Bar chart showing the parameters (e.g. means, median, standard deviation, minimum and maximum duration) of the characteristic duration of the relationship (N=41).

The median duration of relationship was 24 months. Figure 9 shows that the shortest duration was 5 months and the longest duration 154 months.

Table 2: Frequencies and percentages of respondents' duration of relationship (N=36)

Duration category	Frequency	Percentage	Cumulative percentage
1-11 months	8	22.22%	
12-23 months	8	22.22%	44.44%
24-35 months	5	13.89%	58.33%
36-47 months	7	19.44%	77.77%
48-59 months	2	5.56%	83.33%
60-71 months	1	2.78%	86.11%
72 months or more	5	13.89%	100.00%
Total	36	100.00%	100.00%

Table 2 shows the frequencies, percentages and cumulative percentages of the duration of relationship in categories. More than half of participants (55.56%) were in

a relationship of two years or more, while 22.22% of respondents were in a relationship of less than one year.

4.3.1.4. Respondents' home language

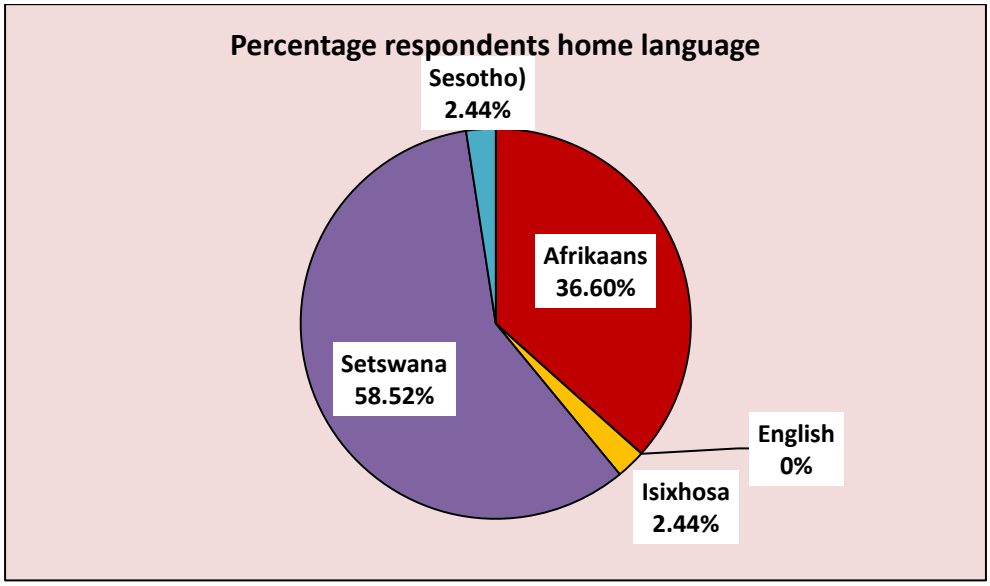

Figure 10: Pie-chart showing the percentages of home language components (N=41)

The main components of the sample were Setswana speakers (58.52%) and Afrikaans speakers (36.60%), both accounting for 95% of the total as shown in figure 10.

4.3.1.5 Respondents' place of living before the current pregnancy

Table 3: Frequencies and percentages of participants' place of living before the current pregnancy (N=41)

Were living with	Frequency	Percentage
Partner	18	43.90%
Both parents	10	24.39%
Mother	4	9.76%
Father	6	14.63%
Alone	3	7.32%
Total	41	100.00%

Table 3 displays frequencies and percentages of respondents' place of living at the time pregnancy occurred. Almost half (20 out of 41 or 49% of the total) of them were living either with both parents or with one of their parents. About 44% of respondents were living with the partner. Only three participants (7.32%) were staying alone.

4.3.1.6 Respondents' current place of living

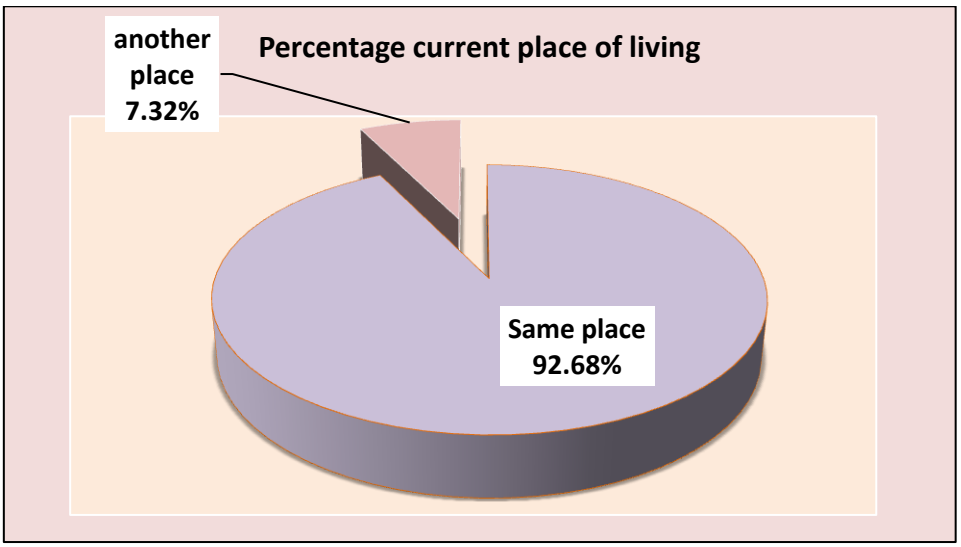

Figure 11: Pie-chart showing the percentages of respondents' current place of living (N=41)

At the time of interview, almost 93% of respondents had not changed the place of living since they became pregnant (figure 11).

4.3.1.7 Respondents' employment status

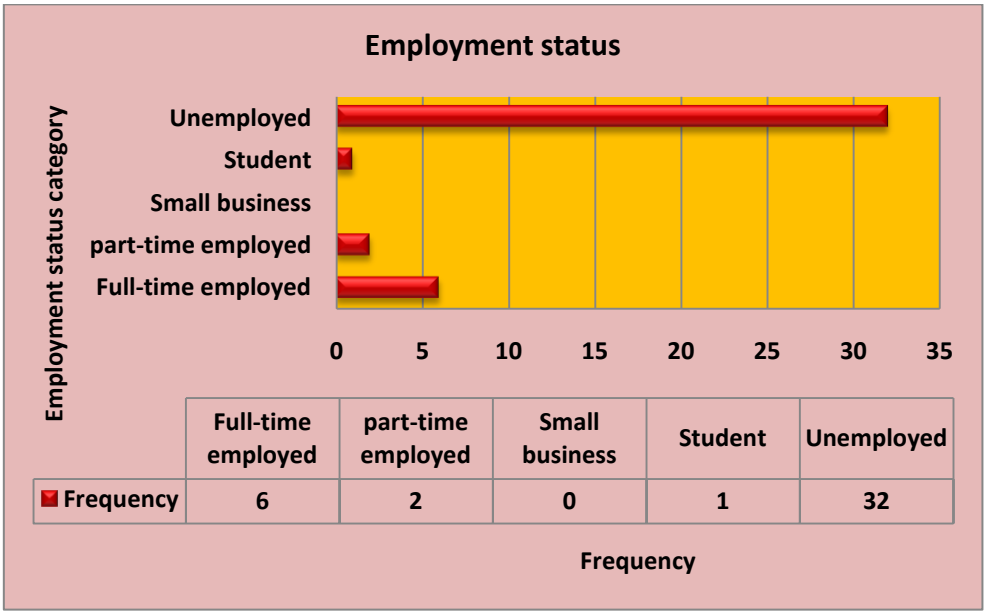

Figure 12: Bar-chart of employment status showing frequencies per employment category (N=41).

The sample was predominantly made up of unemployed participants. Figure 12 shows that 32 of the 41 pregnant HIV-positive women were not working at the time of the administered structured interview. Eight participants were working—6 as full-time employed and 2 as part-time workers. One respondent was still attending school.

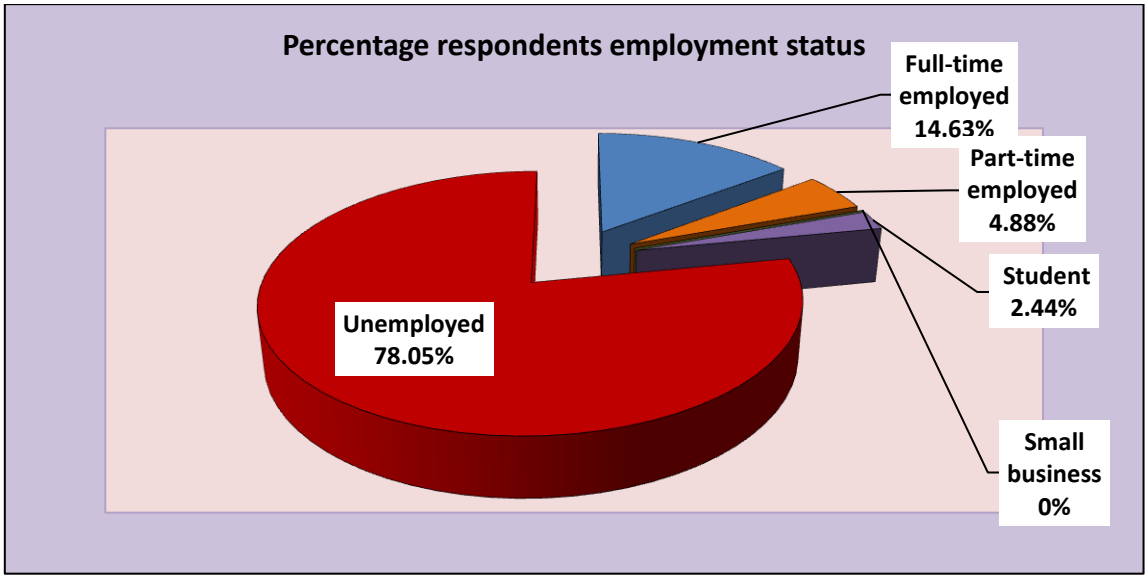

Figure 13: Pie-chart showing the percentages of respondents per employment status (N=41)

Almost 80% of the sample was made up of unemployed pregnant HIV-positive women.

4.3.1.8 Respondents occupation

Table 4: Frequencies of respondents' occupation (N=8)

Occupation	Frequency	Percentage
Cleaner	3	37.50%
General worker	2	25.00%
Clerk	1	12.50%
Cooker	1	12.50%
Cashier	1	12.50%
Total	8	100.00%

Table 4 shows the occupation of the eight respondents who were working at the time of interviews, including 3 cleaners, 2 general workers, a clerk, a cook and a cashier.

4.3.1.8 Respondents' income

Table 5: Frequencies and percentages of respondents' income level (N=41)

Income in Rands	Frequency	Percentage	Cumulative frequency
0	16	39.02%	
1 – 250	3	7.32%	46.34%
251 – 500	6	14.63%	60.97%
501 – 1000	6	14.63%	75.6%
1001 - 2000	10	24.39%	99.99%
Total	41	99.99%	99.99%

The distribution of respondents' income is summarized in table 5. Thirty-nine percent did not have any income, and almost 61% were living with R500 or less. Close to 25% were living with R1000 or more.

4.3.1.9 Respondents' source of income

Table 6: Frequencies and percentages of respondents' source of income (N=41)

Source of income	Frequency	Percentage
No source of income	16	39.02%
Disability grant (children and adults)	12	29.27%
Salary	6	14.64%
Small business	0	0.00%
Partner	7	17.07%
Total	41	100.00%

Thirty-nine percent of participants did not have any source of income, 29.3% were receiving a disability grant either for themselves or for their children; 17% were receiving money from the partner, and 15% were earning a salary (table 6).

4.3.1.9. Respondents' highest education level

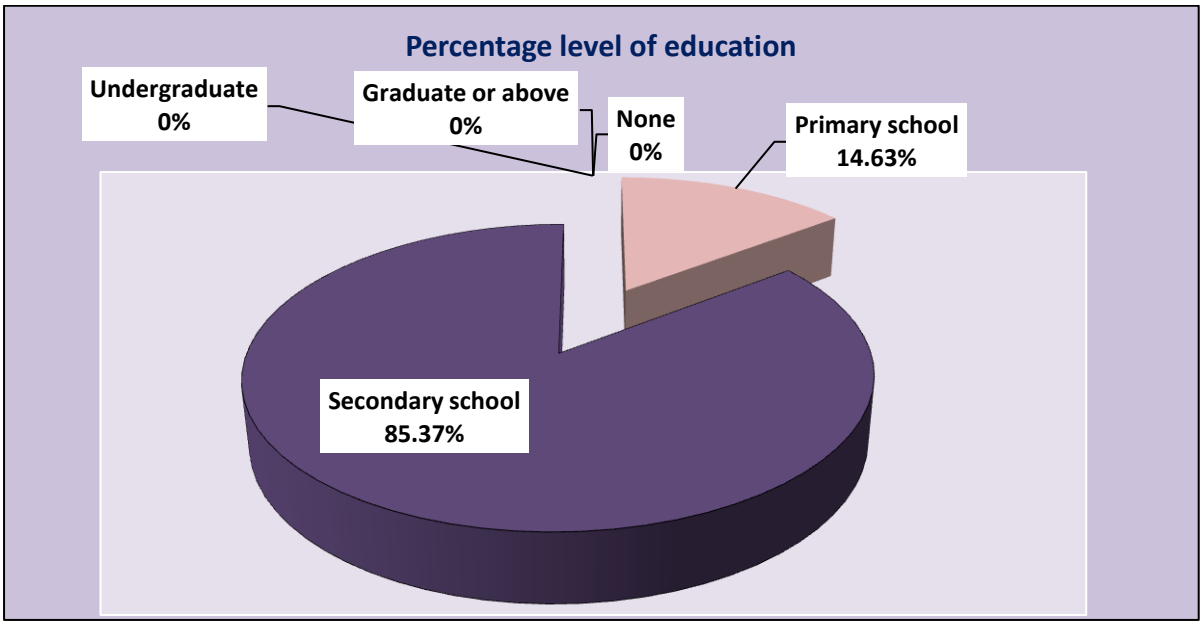

Figure 14: Pie chart showing respondents' percentage per highest educational level reached (N=41)

85% of participants had reached some secondary school educational level while 15% had a primary school level (figure 14). There were neither illiterate nor respondents whose educational level was higher than secondary school.

4.3.1.10 Respondents' family size

Table 7: Frequencies and percentages of respondents' number of living children (N=41)

Number of living children	Frequency	Percentage
0	9	21.95%
1	18	43.90%
2	8	19.51%
3	5	12.20%
4	1	2.44%
Total	41	100.00%

Thirty-two respondents over 41 had at least one living child at the time of interview. Nine participants did not have any child. Table 7 shows that almost 44% of

participants had one child, 20% had two children, 12% had three children and 2.4% had four children. Nulliparous (9 participants) accounted for 22% of the sample.

4.3.1.11 Partners' age

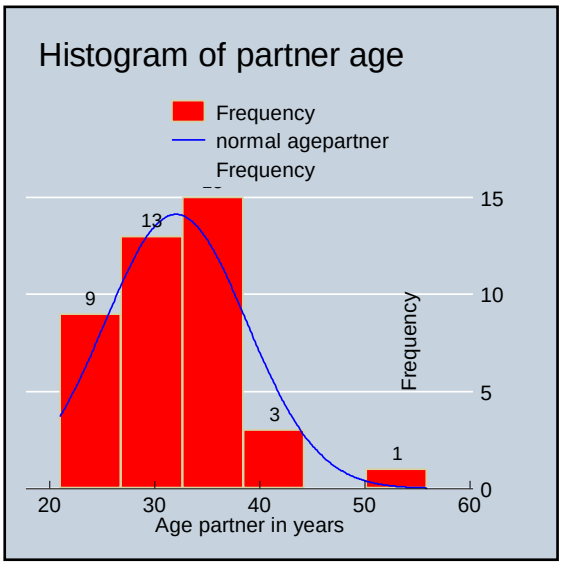

Figure 15: Histogram of the partner's age (N=41).

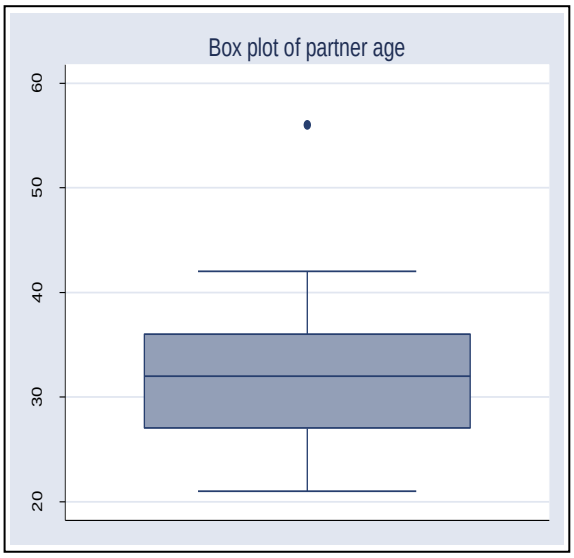

Figure 16: Box-plot of partner's age (N=41).

The histogram of partner's age (figure 15) shows that most of them were younger than 40 years. The mean age is close to 32 years. A vertical lines drawn at the means would divide the area under the distribution curve in almost two equal parts. The box plot of partner age (figure 16) shows the median close to 32 years, lying midway between the minimum age of 21 years and 42 years; there is one outlier at 56 years. The two whiskers of the box plot are of equal lengths. Both the histogram and the box-plot show that the data of partner's age are normally distributed. This allows the use of the means as measure of central tendency.

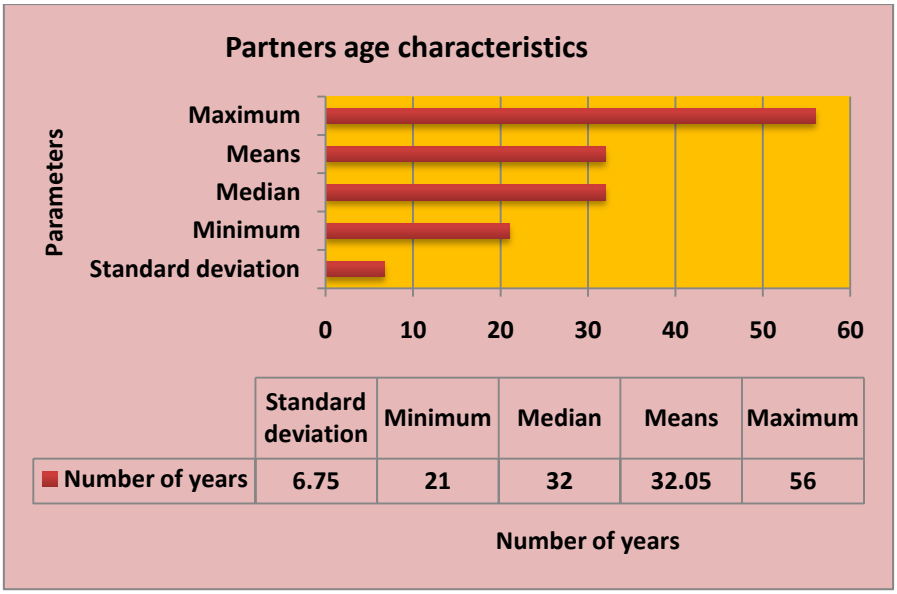

Figure 17: Bar-chart of partner's age parameters, showing the means, median, standard deviation, minimum age and maximum age in years (N=41).

The partners' means age was 32.05 ± 6.75 years. Figure 17 shows that the youngest partner was 21 years old and the oldest one was 56 years old. The average age difference between respondents and partners was 4.35 tears.

Thirteen out of 41 respondents (31.75%) indicated that they were engaged with partners who were five years or more, older than themselves. Four out of five (80%) respondents aged 15-19 years were involved in such a sex mixing.

4.3.2 Participants who knew their HIV-positive diagnosis

Below are findings related to the second research question that sought to determine the proportion of participants who were aware of their HIV-positive diagnosis prior to the occurrence of their current pregnancy.

4.3.2.1 Respondents' awareness of their HIV-positive diagnosis

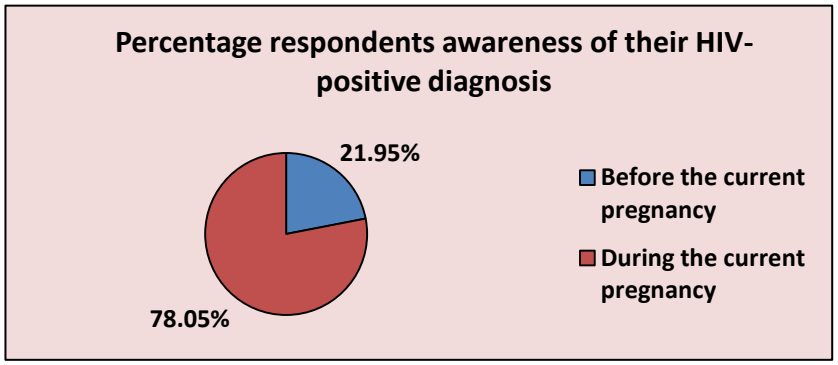

Figure 18: Pie-chart displaying respondents' percentages of HIV-positive diagnosis awareness (N=41).

Of the 41 participants 21.95% were diagnosed before their current pregnancy and 78.05% during their current pregnancy (figure 18).

4.3.2.2 Duration of the HIV-positive status

This question was asked only to the 9 respondents who were diagnosed HIV-positive before the occurrence of their current pregnancy.

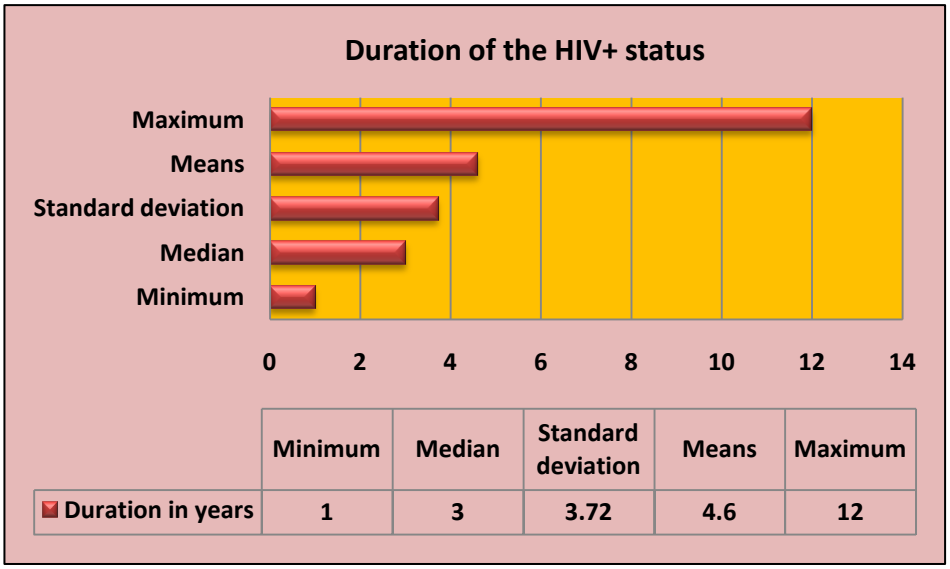

Figure 19: Bar-chart showing the median, means, standard deviation as well as the minimum and maximum of the respondents' duration of the HIV-positive status (N=9).

Figure 19 displays the parameters of the respondents'duration of the HIV-positive status. The means age was 4.6 years, the standard deviation 3.72 years, the median 3 years, and the range 11 years. The standard deviation is larger and there

is a discrepancy between the means and the median, which indicate that the data are not normally distributed, thus pointing the median as the measure of central tendency for this characteristic.

Table 8: Frequencies and percentages of respondents' duration of the HIV-positive status per categories (N=9)

Duration in years	Frequency	Percentage	Cumulative percentage
1-2	4	44.44%	
3-4	1	11.11%	55.55%
5-6	1	11.11%	66.66%
7-8	2	22.22%	88.88%
≥ 9	1	11.11%	99.99%
Total	9	100.00%	99.99%

Only 9 out 41 participants were diagnosed HIV-positive before the occurrence of their current pregnancy. The other respondents became aware of their HIV-positive status during their current pregnancy. Table 8 shows data related to the duration of the HIV-positive status of the nine participants to whom this question was applicable. We can see that 44.4% of respondents who were diagnosed HIV-positive before their current pregnancy knew their diagnosis since 1 to 2 years. A similar percentage was found for those who were HIV-infected since 5 years or more. More than half (55.6%) of these women had been aware of their HIV infection for less than 5 years.

4.3.3 Respondents' circumstances of occurrence of their current pregnancies

The third research question sought to describe the circumstances that led respondents to become pregnant.

4.3.3.1 Disclosure to the partner

Participants were asked whether they had disclosed their HIV-positive status to the male partner who made them pregnant. This question was applicable only to the nine pregnant HIV-positive women who were diagnosed before the occurrence of

their current pregnancy.

Table 9: Frequencies and percentages of disclosure to the partner (N=9)

Disclosed to the partner	Frequency	Percentage
Yes	8	88.89%
No	1	11.11%
Total	9	100.00%

88.89% had disclosed their HIV-positive status to the male partner (table 9).

4.3.3.2 Knowledge of the partner's HIV-positive status

Table 10: Frequencies and percentages of knowledge of the partner's HIV status (N=41)

Partner's HIV status	Frequency	Percentage
HIV-negative	7	17.07%
HIV-positive	6	14.63%
Don't know	29	70.73%
Total	41	100.00%

70.73% of participants did not know their partner's HIV positive status. 17.07% knew their partner was HIV-negative and 14.63% knew their partner was HIV-positive (table 10).

4.3.3.3 Pregnancy intendedness

Table 11: Frequencies and percentages of respondents' pregnancy intendedness (N=41)

Intended to fall pregnant	Frequency	Percentage
Yes	13	31.71%
No	28	68.29%
Total	41	100.00%

Of the 41 participants, 31.71% intended to fall pregnant and 68.29% did not have pregnancy intentions (table 11).

4.3.3.4 Discussed pregnancy with the partner

Table 12: Frequencies and percentages of pregnancy intentions discussed with the partner (N=41)

Discussed pregnancy	Frequency	Percentage
Yes	15	36.59%
No	26	63.41%
Total	41	100.00%

15 respondents discussed their pregnancy intentions with the male partner prior to the occurrence of their current pregnancy while 26 of them did not. We can see from results displayed in table 14 that about 63% of these pregnant HIV-positive women never discussed their pregnancy intentions with their partners (table 12).

4.3.3.5 Agreement about the intended pregnancy

Table 13: Frequencies and percentages of partners' agreement about the intended pregnancy (n=15)

Agreement with partner	Frequency	Percentage
Yes	14	93.33%
No	1	6.67%
Total	15	100.00%

Of the 15 respondents who discussed their pregnancy intentions with their partners, the results revealed that an agreement was reached in about 93% of cases. Only one male partner did not agree with the intention to have a child. These figures are summarized in table 13.

4.3.3.6 Condom use

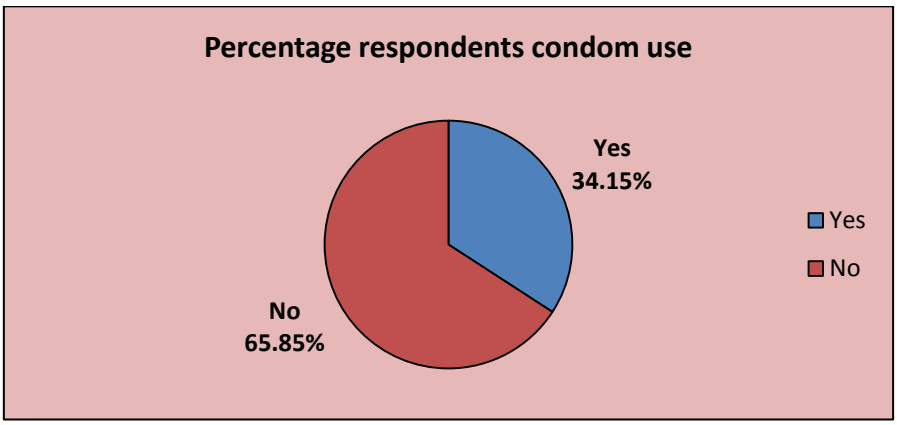

Figure 20: Pie-chart showing the percentages of condom users and non-users (N=41)

Close to two-thirds of participants were not using condoms during the last three months prior to the occurrence of their current pregnancies, as shown in figure 20.

4.3.3.7 Condoms failure and pregnancy

Table 14: Frequencies and percentages of condom failure (N=14)

Pregnancy occurred because	Frequency	Percentage
Stopped use for falling pregnant	0	0.00%
Condom was torn during sexual intercourse	9	64.29%
Partner did not have condom	2	14.29%
Was not using condom regularly	3	21.43%
Other	0	0.00%
Total	14	100.00%

For 9 out of 14 respondents (64.29% of the total) who were using condom during the last three months prior to the occurrence of their current pregnancy, they fell pregnant because the partner's condom was torn during sexual intercourse. The partner did not have condom in two cases (14.29%). The other three participants (21.43%) were not using condom regularly (table 14).

4.3.3.8 Contraceptives use

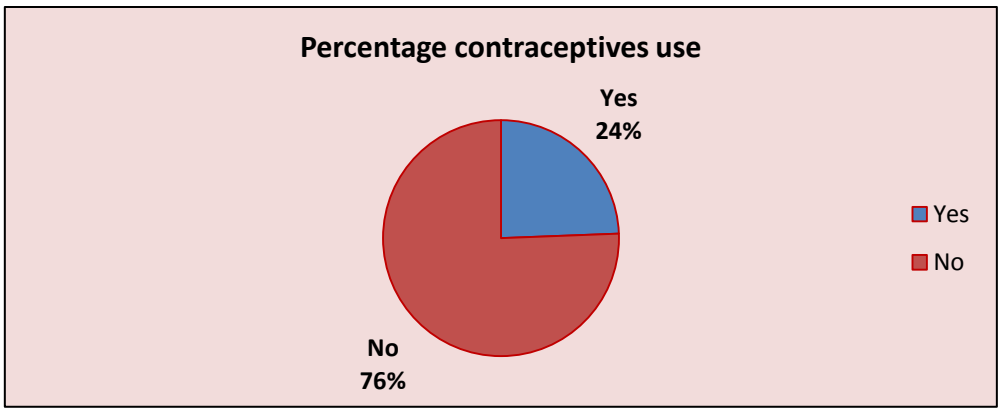

Figure 21: Pie-chart showing the percentages of contraceptives use among participants (N=41).

24% of participants were using contraceptives during the last three months prior to the occurrence of their current pregnancy (figure 21).

4.3.3.9 Contraceptives failure and pregnancy

The ten participants who were using contraceptives were asked to give the reasons of contraceptives failure with regard to the occurrence of their current pregnancy. The results of their answers are summarized in table 15 below.

Table 15: Frequencies and percentages of contraceptives failure (N=10)

Pregnancy occurred because	Frequency	Percentage
Stopped use because of side effects	5	50.00%
Missed injection of contraceptive	2	20.00%
Was not taking pills regularly	0	0.00%
Stopped use for falling pregnant	2	20.00%
Shortage of contraceptives at the clinic	0	0.00%
Other (no specific reasons were given)	1	10.00%
Total	10	100.00%

Table 15 shows that 50% of participants who reported that they were using contraceptives during the last three months prior to the occurrence of their current pregnancy stopped using them because of side effects, 20% missed their injection of contraceptive, and 20% stopped using them for falling pregnant.

4.3.3.8 Circumstances that led to the current pregnancy

The last item of the structured questionnaire was made up of twelve statements that might be related to the circumstances of the respondents' current pregnancy. Interviewers ticked each statement to which the respondents answered yes.

Table 16: Frequencies of circumstances of occurrence of the current pregnancy (N=41)

Statement	Ticked	Not ticked	Total
	Frequency	Frequency	
Had planned to fall pregnant	11	30	41
Pressure from partner	5	36	41
Pressure from family	0	41	41
Pressure from family in laws	0	41	41
You missed your contraception	2	39	41
Fell pregnant because the 'lobola' was already paid	0	41	41
Partner did not want to use condom	4	37	41
Had casual sex for food	0	41	41
Had casual sex for money	0	41	41
Had unprotected sex under the influence of alcohol	1	40	41
Had unprotected sex under the influence of illicit drug	0	41	41
Were forced to have sex	1	40	41

The results showed that participants answered "yes" to 6 out of the 12 statements, as shown in the table 16. The percentages of the six statements participants said they were related to their current pregnancy are displayed below(see figures 22 to 27).

4.3.3.8.1 Answered yes to the statement 'you had planned to fall pregnant'

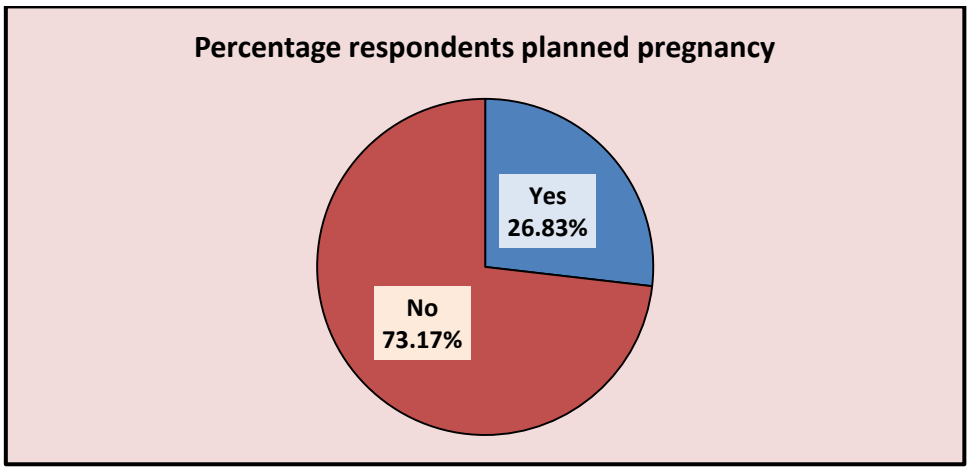

Figure 22: Pie-chart showing the percentages of planned and unplanned pregnancies (N=41).

Figure 22 shows that close to 27% of these HIV-positive pregnancies were planned while 73% of them were unplanned.

4.3.3.8.2. Answered yes to the statement you fell pregnant because of the partner pressure

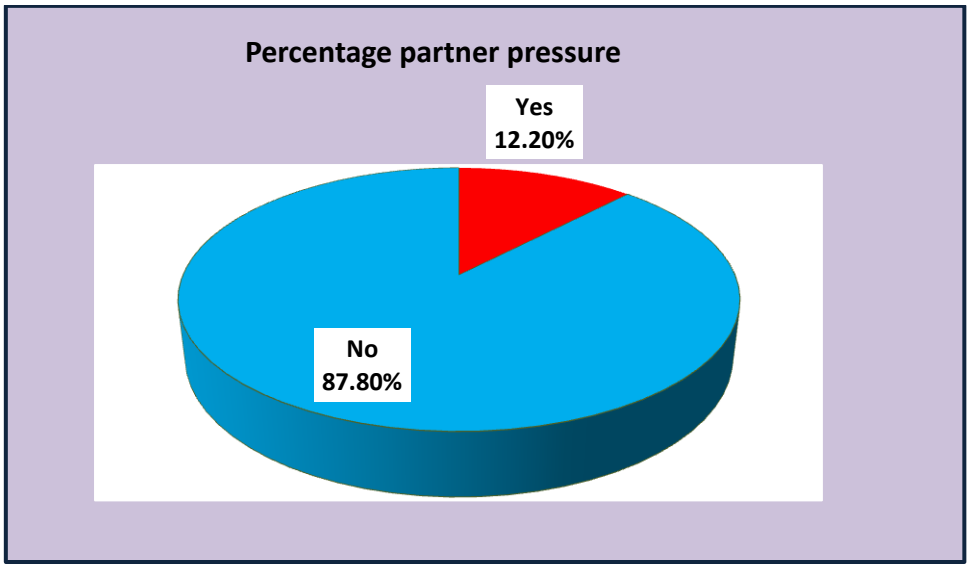

Figure 23: Pie-chart showing the percentage of respondents who became pregnant because of the patner's pressure and that of those who were not pressured by the partner (N=41).

Close to 88% of respondents were not pressured by the male partner for falling pregnant. 12% said they fell pregnant because of the partner pressure (figure 23).

4.3.3.8.3 Answered yes to the statement 'missed contraception'.

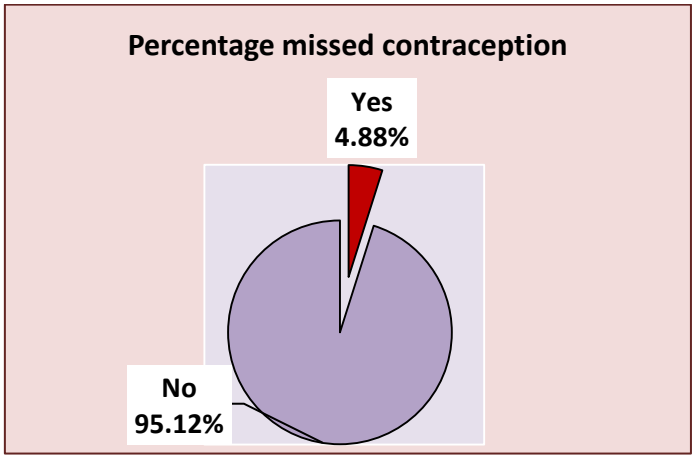

Figure 24: Pie-chart showing the percentages of respondents who fell pregnant because they missed their contraception (N=41).

The results showed that missing contraception accounted for about 5% of these HIV-positive pregnancies as shown above in figure 24.

4.3.3.8.4 Answered yes to the statement the partner did not want to use condom

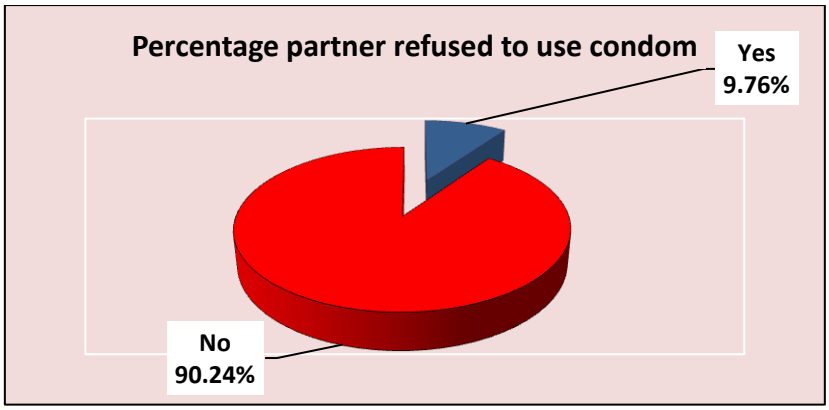

Figure 25: Pie-chart displaying the percentages of respondents who fell pregnant because their partners refused to use condom (N=41).

Figure 25 shows that close to 10% of respondents fell pregnant because their partners refused to use condom.

4.3.3.8.5 Answered yes to the statement had unprotected sex under the influence of alcohol

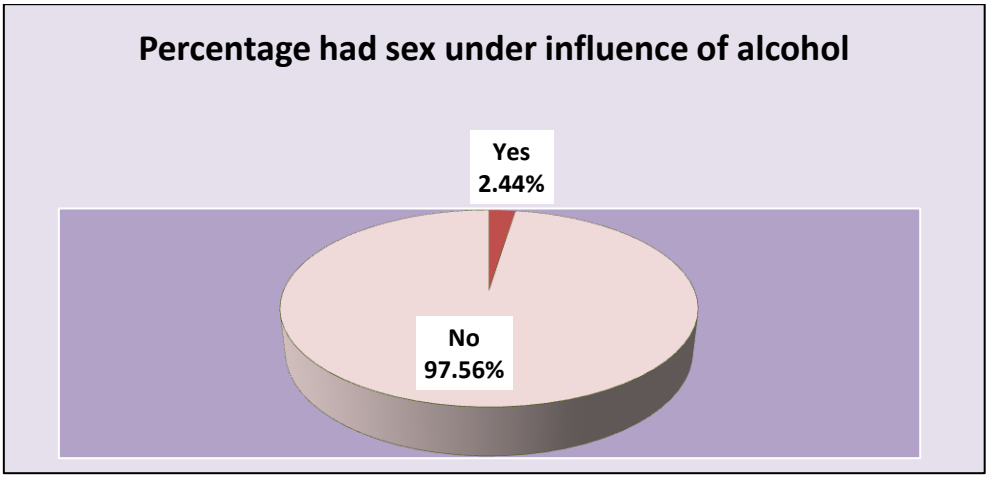

Figure 26: Pie chart showing the percentages of unprotected sex under the influence of alcohol (N=41).

2.44% of participants fell pregnant because they had unprotected sex under the influence of alcohol.

4.3.3.8.6 Answered yes to the statement had coerced sex

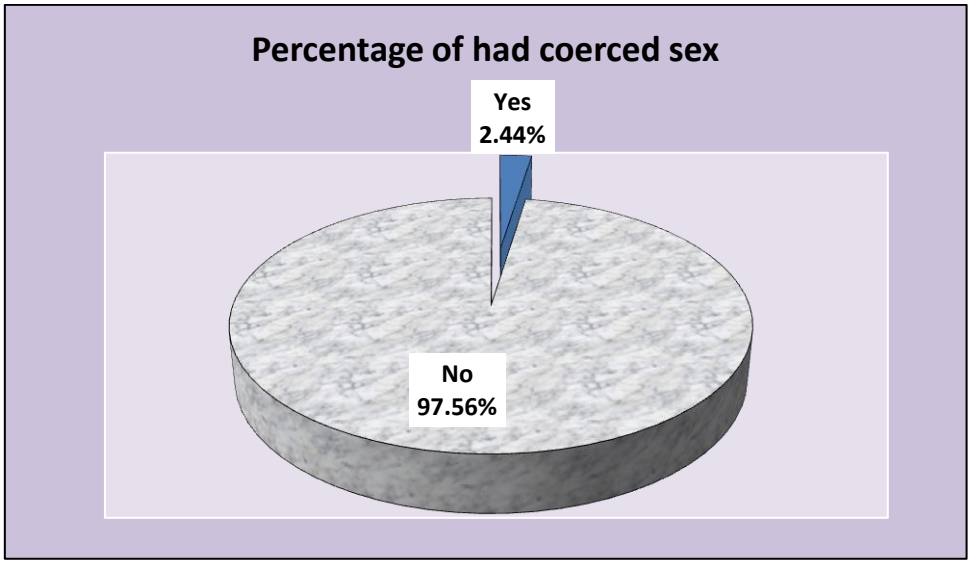

Figure 27: Pie chart showing the percentages of being forced to have sex (N=41).

2.44% of participants fell pregnant because they had coerced sex.

4.4 CONCLUSION

This descriptive study sought to answer the following three research questions: (a) what is the profile of pregnant HIV-positive women in Postmasburg? (b) What is the

proportion of these HIV-positive women who knew their HIV-positive status prior to the occurrence of their current pregnancy? (c) What were the circumstances of occurrence of these pregnancies? From the findings presented above, we can say that these pregnant HIV-positive women were predominantly never married African Setswana speakers, with a means age of 27.71 ± 5.72 years. They were also likely to be in a stable relationship with older partners and to be of a lower economic status (e.g. unemployed, of some secondary school educational level, living with less than Rands 500) with no or one child. About 22% of participants knew their HIV-positive diagnosis prior to their current pregnancy that was unplanned in 73% of cases. Low condoms uptake (34%), low contraceptives use (24%) and high rates (86%) of condoms failure in users accounted among the factors that contributed to the occurrence of these unplanned pregnancies.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

5.1 INTRODUCTION

Forty-one participants were enrolled in this study whose purpose was to describe the demographic profile of pregnant HIV-positive women attending ANC in Postmasburg. This study also sought to determine the proportion of these pregnant HIV-positive women who knew their HIV-positive status prior to the occurrence of their current pregnancy and to describe the circumstances of occurrence of their current pregnancy. The study findings were presented in chapter 4 and are discussed below. The first part of this chapter (5.2) discusses in depth these findings per study objective and makes comparison with data from the existing literature. The second section (5.3) discusses the limitations of the study while the last part of this chapter (5.4) draws the conclusions of the study and makes recommendations for policy and practice.

5.2 DISCUSSION OF STUDY RESULTS

5.2.1 The demographic profile of participants

This study found that pregnant HIV-positive women in Postmasburg were predominantly Africans (65.85%) Setswana speakers (58.52%) whose mean age was 27 ± 5.72 years (range, 17-39). The majority of them (56.11%) were younger than 30 years. Respondents were also predominantly never married (56.10%) though married/cohabiting made up 41.50% of the sample. Most of these pregnant women (78.05%) had previously experienced parenthood, with only 22% of respondents not currently having a living child. Having one or no child was however more common (65.85%) than being multiparous (34.15%). Participants were also likely to be in relationship at the time of interview (87.80%). The partner was commonly older, with an average age difference of 4.34 years. Thirteen of them (31.7%) were in relationship with male partners of five years or more, older than themselves. This sex mixing was more common in the 15-19 years-old, involving 80% of participants of this age category. Overall, participants were more likely to be

living with the partner (43.90%) or with one or both parents (48.78%) at the time of conception and thereafter, than staying alone.

These findings are consistent with the local context that shows that HIV infection predominantly affects young adult African whose HIV prevalence in 2005 (19.9%) was more than six times higher than that of coloured (3.2%) and other racial groups aged 15-49 years (Shisana et al, 2005:40). Similarly, sex mixing, whose prevalence among South African women aged 15-19 years was 27.6% in 2008 (Shisana et al, 2008:40) has been reported as a major risk factor for unprotected sex and HIV transmission in this region (Shisana et al, 2008:20; Gregson et al, 2002). Its main driver is poverty, being commonly motivated by material gains, marriage expectations, and sometimes parents' pressure as a means of earning money, households necessities or getting married and bringing the 'lobola' for the family (Gregson et al, 2002).

Young age has been consistently reported as associated with incident HIV-positive pregnancy in several studies of incident HIV-positive pregnancy conducted in developing and developed countries (Myer et al, 2010; Suryavanshi et al, 2008; Bryant et al, 2007; Blair et al, 2004; van Bethem et al, 2000; Allen et al, 1993). Our findings are also consistent with data from Barbados, where pregnant HIV-positive women were young (median age, 24 years), predominantly never married (89.0%), living with the male partners (39.7%) or with own parents (48.6%) and likely to be in relationship with older male partners (Kumar and Bent, 2003). However, unlike our participants who were predominantly (65.85%) childless or had only one child, most of the pregnant HIV-positive women in Barbados (81.3%) were multiparous. Conflicting results between parity and incident HIV-positive pregnancy have been reported in various prospective studies from sub-Saharan Africa, Europe and USA (Myer et al, 2010; Homsy et al, 2009; Bryant et al, 2007; Massad et al, 2004; Desgrées-du-Loû et al, 2001; Nebie et al, 2001; De Vincenzi et al, 1997; Allen et al, 1993).

Our findings also contradict most of the studies conducted in sub-Saharan Africa that indicate that pregnant HIV-positive women are predominantly married/cohabiting (Myer et al, 2010; Homsy et al, 2009; Allen et al, 1993). However, data from the USA have yielded conflicting results in terms of the association between marital status

and subsequent pregnancy (Bryant et al, 2007; Bedimo-Rung et al, 2005; Massad et al, 2004).

Respondents in this study were also predominantly of low socioeconomic status as witnessed by their highest level of educational attainment (some secondary school in 85% of the cases), employment status (78.05% were unemployed) and level of income. These findings are consistent with data from a sub-Saharan study (Myer et al, 2010). Low socioeconomic status has been found to be an important determinant of unprotected sex and unintended pregnancy in South African teenagers (Vundule et al, 2001). Data from Barbados have also shown that pregnant HIV-positive women were likely to be unemployed (53.6%) and of a lower educational attainment level (e.g. 25% primary school and 68.7% secondary school) (Kumar and Bent, 2003). Close to 40% of respondents in our study did not have any source of income, while another 29% were living with a disability grant provided by the government either for themselves or for their children. Overall 61% of respondents were either devoid of income or living with Rands 500 or less per month.

Furthermore, the majority of participants (63.4%) were from Newtown, a predominantly informal settlement, followed by Boichoko Township (29.3%), a predominantly formal settlement, while Postedene township provided only 7.3% of the sample. Postedene is mostly populated by coloured (92%) whose HIV prevalence across the country is commonly low, relative to Africans. Until recently, this township was also almost completely formal. An informal settlement is however progressively developing at its margin since two years, making about 15% of the currently occupied area of this locality.

5.2.2 The proportion of women with subsequent pregnancy

Only about 22% of respondents knew their HIV-positive diagnosis before the occurrence of their current pregnancy. This confirms data from Barbados where about 68.7% of parturient became aware of their HIV-positive status during antenatal care visits. This highlights the need for raising awareness amongst women of childbearing age toward HIV counselling and testing. This underscores also the need for expanding HIV counselling and testing through the provider initiated HIV counselling strategy that should be implemented in all health facilities.

The majority of parturient who knew their HIV-positive diagnosis before conception were aware of their HIV-positive status since three years or more. This study did not have enough power for investigating differences between pregnant HIV-positive women with subsequent pregnancy and those who were diagnosed during their current pregnancy.

5.2.3 Circumstances of occurrence of the current pregnancy

A minority of participants (31.71%) intended to fall pregnant, and only 36% of these women who wanted to have children discussed their fertility intentions with the partner. The overall agreement rate was 93.3% when pregnancy intentions were discussed by the two partners..

The results of this study are consistent of the stated fertility intentions of South African HIV-positive women attending public sector ART services that range from 26% (Myer et al, 2007) to 45% (Cooper et al, 2009). Similar results were reported from the USA, where the prevalence of fertility intentions ranged from 29% to 38% (Sowell et al, 2002; Chen et al, 2001). Higher prevalence rates of fertility intentions were however reported among HIV-positive Ugandan (63.6%) and Nigerian (68.4%) women (Beyeza-Kasheysya et al, 2010; Oladapo et al, 2005).

Although the majority of participants (68.29%) did not intend to fall pregnant, only 24.39% of them were using hormonal contraceptives during the last three months that preceded the occurrence of their current pregnancies. The uptake of condoms (34.15%) was also low. Although these findings are comparable to the all methods combined contraceptives prevalence rates of 50.6% reported in South Africa (DOH, 2004:10), there is a matter of concerns because of the discrepancy between the stated unwillingness of the majority of these sexually active women to fall pregnant and the low uptake of contraceptives that would prevent them from conceiving unintentionally.

Similar discrepancies between fertility intentions and contraceptives use were reported from Uganda, where 93% of sexually active HIV-positive women enrolled in a prospective study repeatedly stated not wanting or planning to have children during the two years of follow up while their overall contraceptives uptake for preventing unintended pregnancies remained low (Homsy et al, 2009). Thirty-three percent did

not use any contraceptive method, 53% were using condoms only, and close to 96% were not using dual contraception (Homsy et al, 2009). Evidence from the USA has also shown that 33% pregnant HIV-positive women enrolled in a study conducted in New Orleans had neither planned to fall pregnant nor did they use contraception (Bedimo-Rung et al, 2005).

Most of the HIV-positive pregnancies (73.17%) in our study were unplanned, with high rates (87.3%) of self-reported contraceptives failure amongst condom users. Respondents who were using condoms during the last three months prior to their current pregnancy reported that their pregnancy occurred because condoms were torn during sexual intercourse in 65.85% cases, while 21.43% and 14.29% reported irregular condom use and partner's shortage of condoms, respectively. High condom failure rates were also reported by Bryant and colleagues from the USA, where 78.9% of HIV-positive women who experienced a repeat pregnancy reported using condoms either regularly or sometimes during the month that preceded their last scheduled visit (Bryant et al, 2007). Lower uptake of contraceptives and inconsistent condom use commonly result in high rates of unintended pregnancies, especially in HIV-infected women who did not want to have children (Homsy et al, 2009; Bedimo-Rung et al, 2005; Desgrées-du-Loû et al, 2001).

Our data are consistent with findings from a sub-Saharan study that also reported higher pregnancy rates among condom users (34%) than among those who were using non-barrier contraceptive methods (15%), thus 'highlighting the limited effectiveness of condoms as a stand-alone contraceptive method and emphasizing the importance of dual method use' (Myer et al, 2010). Condom has proven effective in the prevention of sexually transmitted infections but it is usually inferior to hormonal contraceptives and sterilization for preventing pregnancy (Myer et al, 2010; Kaida et al, 2010). It should be combined with an effective non-barrier contraceptive method, especially hormonal contraception for effectively preventing both the STI and unintended pregnancies (Myer et al, 2010; Kaida et al, 2010). Only 28.5% amongst condom users in our study were using dual contraceptives.

Barrier method failure among condoms users in this study occurred mostly (64.29%) through condom breaking during sexual intercourse. Whether this might be due to improper technique of condom use or to contraceptive sabotage and/or pregnancy

coercion by the male partner was not investigated during this study. Birth control sabotage includes flushing hormonal pills down the toilet, 'intentional breaking of condoms and removing contraceptive rings or patches' while pregnancy coercion may take several forms including verbal demands, menace of abandonment or of fathering someone else, physical violence or pressure for falling pregnant (Miller et al, 2010). An association between gender-based violence and unintended pregnancy through 'pregnancy coercion' and 'birth control sabotage', has been established in the 16-29 year old American women seeking care in family planning clinics (Miller et al, 2010). Nineteen percent of respondents in this study reported pregnancy coercion and 15% reported birth control sabotage by the intimate male partner. Similar results were reported in Columbia where 38% of women with unintended pregnancy 'had been physically or sexually abused by their current or most recent partner' (Pallitto and O'Campo, 2004).

Close to 10% of respondents in our study fell pregnant because their partners did not want to use condom and 12% other as a result of partner pressure. Higher partner's pressure rates were reported from India were up to 40% of HIV-positive women conceived because of their partner's pressure (Suryavanshi et al, 2008). Coerced sex accounted only for 2.4% of HIV-positive pregnancies in our study. The statement about coerced sex did not however precise whether the perpetrator was a non-intimate partner or the sexual intimate partner. It is unclear whether this low percentage of coerced sex was due to social desirability bias or to underreporting because participants perceived coercion as an act committed by a non-intimate individual.

Failure of hormonal contraceptives was uncommon in this study. About 20% of users fell pregnant because they missed their injection of contraceptives and another 20% stopped using contraceptives for falling pregnant. The study findings indicate however high rates of hormonal contraceptive interruption (50%) due to side effects. Further investigations are needed to rule out whether these high rates of side effects are common in this area, or were due to an overreporting or a social desirability bias.

Unprotected sexual intercourse due to alcohol use led to pregnancy only in 1 out of 41 participants. Alcohol use has been found to be the strongest predictor of inconsistent condom use and sex exchange in Botswana (Weiser et al, 2006). Our

study did not intend to describe the sexual behaviours of participants. The latter were only asked to state whether one or several of the 12 statements listed in question 31 were related to the circumstances of their current pregnancy. Because of the sensitive nature of statements related to situational characteristics of sexual intercourse (e.g. coerced sex, transactional sex for food, sexual intercourse under substance misuse), we cannot totally rule out the possibility of underreporting due to social desirability bias.

5.3 STUDY LIMITATIONS

The results of this study should be considered within the context of the following limitations.

The first limitation is related to the research sample. The degree to which the results of this study can be generalized depends on the representativeness of the sample. Participants were attendees of ANC at publicly funded clinics in Postmasburg, thus possibly giving rise to a healthcare facility selection bias, because pregnant HIV-positive women who do not attend healthcare facilities are being excluded. It is possible that the following pregnant HIV-positive women were under-represented in the study: those who were too poor to travel from remote farming areas, those whose spouse/partner did not allow them to attend ANC, those who were too sick to travel, or who were attending a spouse/partner who was too sick with AIDS to leave on his own as well as holder of medical aid who might have preferred to attend ANC at the local surgeries. Pregnant HIV-positive women who underwent TOP or experienced miscarriage or spontaneous abortion without having attended public antenatal services might also be underrepresented.

The second limitation is related to the settings. The study was conducted in a rural area and findings may not be generalized to pregnant HIV-positive women living in urban areas.

The third limitation may result from the social desirability bias. The study relied on self-reported information. Participants were asked questions about their social and sexual life and may have given in some cases socially acceptable information instead of the information that was solicited by the instrument, especially in issues

related to situational characteristics of sexual intercourse such as having had sex under the influence of alcohol, transactional sex or coerced sex.

5.4 CONCLUSIONS

The purpose of this study was to describe the demographic profile of pregnant HIV-positive women attending antenatal care in public sector clinics in rural South Africa. The study had three objectives, including: (a) to describe the demographic profile of participants; (b) to determine the proportion of these pregnant women who were aware of their HIV-positive status prior to the occurrence of their current pregnancy; and (c) to describe the circumstances of occurrence of their current pregnancy.

From the study findings it appears that pregnant HIV-positive women were likely to be young, single, African speakers with no or one child, and of low socioeconomic status. They were also likely to be engaged in a stable relationship with older partners and to be living with their parents or with the partner.

With regard to respondents' HIV-positive diagnosis awareness, our results show that the majority of participants were diagnosed during their current pregnancy and only a minority of them were informed of their HIV-positive status prior to the occurrence of their current pregnancy. Most of them also did not know the partner's HIV status.

With regard to the third research objective, most of these HIV-positive pregnancies were unplanned, with high rates of contraceptives failure among condom users. The research findings also reveal an obvious discrepancy between the unwillingness of the majority of respondents to fall pregnant and their lower uptake of contraceptives for preventing the occurrence of unintended pregnancies.

In summary, HIV-positive pregnancies in Postmasburg occurred in young, single African HIV-positive women of low socioeconomic status, often unaware of their HIV-positive status at the time of conception. These pregnancies were often unintended.

5.5 RECOMMENDATIONS

Based on the research findings, our recommendations are as follows:

A lifelong training should be provided to health workers, especially those who work with women of childbearing age, HIV-positive women and pregnant women. They should be able to identify HIV-positive women at risk of unintended pregnancy as

well as those who want to have children for providing counselling and reproductive health services according to the perceived reproductive needs of these patients.

Family planning services should move towards a couple-oriented strategy of family planning in order to involve the male partner, thus preventing contraceptive sabotage and pregnancy coercion by the intimate sexual male partner as well as unintended pregnancies.

Policy-makers and decision-makers should reinforce the PMTCT strategy by developing performance indicators for the four components of PMTCT (e.g., (a) primary prevention of HIV in childbearing women; (b) prevention unintended HIV-positive pregnancies; (c) prevention of MTCT; and (d) treatment care and support of HIV-positive women and their family members) and avoid focusing only on one component—prevention of mother-to-child transmission of HIV. An integration of PMTCT and family planning services is thus recommended for maximizing the prevention of vertical and horizontal transmission of HIV.

Provider-initiated HIV counselling and testing should be extended to users of TOP services and to all women of childbearing age coming into contact with health care facilities, in order to get a demographic picture of all HIV-positive women who fall pregnant, and not only that of those who choose to keep their pregnancy and give birth.

A national electronic register of pregnant HIV-positive women and HIV-positive births should be developed for improving data related to the demographic profile of HIV-positive women who become pregnant.

Further studies of the demographic profile of pregnant HIV-positive women using different settings and a larger sample are needed for getting a typical demographic picture of the South African pregnant HIV-positive woman.

Further studies of factors leading to unintended HIV-positive pregnancies are recommended. They should, inter alia, investigate issues related to gender-based power imbalance, especially those related to family planning sabotage and pregnancy coercion by the intimate sexual male partner.

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APPENDICES

Appendix 1: MREC Clearance Certificate

UNIVERSITY OF LIMPOPO
Medunsa Campus

MEDUNSA RESEARCH & ETHICS COMMITTEE

CLEARANCE CERTIFICATE

P O Medunsa
Medunsa
0204
SOUTH AFRICA

Tel: 012 - 521 4000
Fax: 012 - 560 0086

MEETING: 06/2010

PROJECT NUMBER: MREC/H/145/2010: PG

PROJECT :

Title:	Demographic profile of pregnant HIV-positive women in Postmasburg, South Africa
Researcher:	Dr KMH Kalonji
Supervisor:	Ms M Mokgatle-Nthabu
Hospital Superintendent:	Dr D Theys (Provincial Medical Director – Acting Head of the Dept of Health, Northern Cape)
Department:	Public Health
School:	Health Care Sciences
Degree:	MPH

DECISION OF THE COMMITTEE:

MREC approved the project.

DATE: 06 August 2010

PROF GA OGUNBANJO
CHAIRPERSON MREC

Note:
i) **Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee.**
ii) **The budget for the research will be considered separately from the protocol.**
PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.

African Excellence - Global Leadership

Appendix 2: Permission letter - DOH Northern Cape Province

DEPARTMENT OF HEALTH
LEFAPHA LA BOITEKANELO
ISEBE LEZEMPILO
DEPARTEMENT VAN GESONDHEID

Office of the Deputy Director General
Executive Offices
Kimberley Hospital Complex
Private Bag X5049
KIMBERLEY
8300

Enquiries DR DG THEYS
Dipatlisiso
Imibuzo
Navrae
Tel: 053-8302102
Fax: 053-8334394

Date 16 AUGUST 2010
Letlha :
Umhla :
Datum :

Reference :
Tshupelo :
Isalathiso :
Verwysings :

Dr KMH Kolonji
Postmasburg Hospital
Private Bag x3033
Postmasburg
8420

RE: PERMISSION TO CONDUCT RESEARCH

TITLE: Demographic profile of pregnant HIV-positive woman in Postmasburg, South Africa

Your letter dated13 August 2010 bears reference.

Authorization is hereby granted to **Dr KMH Kolonji** (Student No: 200906293) to conduct a research at antenatal clinics in Boichoko, Newtown and Postdene clinics (Postmasburg) in the Northern Cape Province.

Thank you,

D.G. DG

DR DG THEYS
ACTING HEAD OF DEPARTMENT

We are committed to achieving our vision through a decentralized, accountable, accessible and constantly improving health care system within available resources. Our caring, multi-skilled, effective personnel will use evidence-based, informative health care and maturing partnerships for the benefit of our clients and patients.

Appendix 3: Request permission letter sent to DOH Northern Cape Province

From 13/08/2010

Dr Kabasele MH Kalonji

Medical Officer Grade 3

Postmasburg Hospital

Private Bag X3033

Postmasburg 8420

For attention to:

Dr Dion G. Theys

Deputy Director General

Department of Health

Du Toitspanroad

Kimberley

Concern: Request permission for conducting a research in Postmasburg

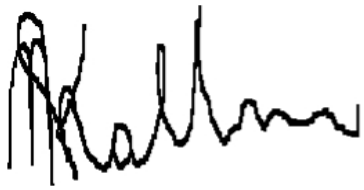
Dear Deputy Director General,

This is to inform you that I am currently doing a master degree in Public Health at the University of Limpopo/Medunsa Campus. Every student is required to submit a research dissertation at the end of this programme. My research topic is related to the "Demographic profile of pregnant HIV-positi women in Postmasburg". The potential participants will be attendees of antenatal care in Boichoko, Newtown and Postedene clinics. They will be recruited and interviewed during their routine ANC appointment at the clinic. Data will be collected during a three months period following the pilot study that will be conducted with non-potential participants, at the same clinics.

The study proposal was approved by the Medunsa Campus Research and Ethics Committee (MCREC) on 06/08/2010 (see attached copy of the clearance certificate). That is why I request your permission for conducting this study in Postmasburg.

Hoping to hear from you soon.

Sincerely yours.



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Dr KMH Kalonji

Postmasburg Hospital

Appendix 4: Information letter sent to the Siyanda District Manager

From Postmasburg, 30/08/2010

Dr Kabasele MH Kalonji

Postmasburg Hospital

Private Bag X3033

Postmasburg 8420

For attention to:

Mrs Milly Bok

District Manager

Siyanda District

Upington

Concern: Research study with pregnant HIV-positive women in Postmasburg

Dear District Manager,

This is to inform you that I requested permission for conducting a research study with pregnant HIV-positive women in Postmasburg on August 13, 2010. This permission was given by the Deputy Director General of the Department of Health/Northern Cape (Dr D.G. Theys) on August 16, 2010. The study protocol was approved by the Medunsa Campus Research and Ethical Committee (MCREC) on August 6, 2010.

My research topic is related to the demographic profile of pregnant HIV-positive women who will be attending antenatal clinic in Boichoko, Newtown (Postmasburg) and Postedene clinics. Potential participants will be recruited during their routine ANC appointment. The period of data collection is three months, starting on September 6, 2010 and ending on December 5, 2010.

That is why I request that the sister in charge of these clinics as well as the sisters doing ANC in these facilities facilitate the conduct of this study by informing potential

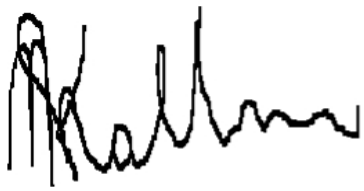
participants about the study and allocating a private room where the interviewers will administer the informed consent as well as the questionnaire to potential participants who will consent to participate in the study.

A pilot study involving non-pregnant HIV-positive women of childbearing age will be conducted before the study with pregnant HIV-positive women.

Attached are copies of the clearance certificate issued by the Medunsa Research and Ethics Committee (MREC, University of Limpopo/Medunsa Campus), letter of permission from the Provincial Deputy-Director General of Health, and the letter sent to the sister in charge of Boichoko, Newtown and Postedene clinics.

Hoping to hear from you soon.

Sincerely yours



_____

Dr KMH Kalonji

Postmasburg Hospital.

Appendix 5: Information letter sent to the sister in charge of clinics in Postmasburg

From

Postmasburg, 31/08/2010

Dr Kabasele MH Kalonji

Postmasburg Hospital

Private Bag X3033

Postmasburg 8420

For attention to:

Sr Erasmus

Sister in charge of Boichoko, Newtown and Postedene clinics

Endstreet

Postmasburg 8420

Concern: Research study with pregnant HIV-positive women in Postmasburg

Dear Sister Erasmus,

This is to inform you that I requested permission for conducting a research study with pregnant HIV-positive women in Postmasburg on August 13, 2010. This permission was given by the Deputy Director General of the Department of Health/Northern Cape (Dr D.G. Theys) on August 16, 2010. The study protocol was approved by the Medunsa Campus Research and Ethical Committee (MCREC) on August 6, 2010.

My research topic is related to the profile of pregnant HIV-positive women who will be attending antenatal clinic in Boichoko, Newtown (Postmasburg) and Postedene clinics. Potential participants will be recruited during their routine ANC appointment. The period of data collection is three months, starting on September 6, 2010 and ending on December 5, 2010.

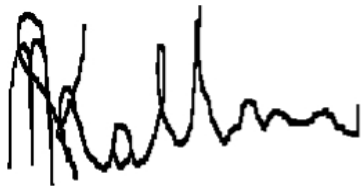
That is why I am requesting that you allocate a private room in each clinic for the administration of the informed consent to potential participants as well as the administration of the questionnaire to those who will consent to participate in this study. I also request that you authorize sisters doing ANC in the selected clinics to facilitate the conduct of this study by informing the potential participants about the study and facilitating their contact with the investigators.

A pilot study involving non-pregnant HIV-positive women of childbearing age will be conducted before the study with pregnant HIV-positive women.

Attached are the copies of the clearance certificate (Medunsa Research and Ethics Committee – MREC - University of Limpopo, MEDUNSA Campus), letter of permission from the Deputy –Director General of the Provincial Department of Health, letter sent to the District Manager.

Hoping to hear from you soon.

Sincerely yours



……..

Dr KMH Kalonji

Medical Officer grade 3

Postmasburg Hospital.

Appendix 6: Questionnaire – English version

QUESTIONNAIRE

PARTICIPANT NUMBER.....

SETTINGS.....Clinic

Interviewer……

Date.....

Time interview started……..Time interview ended……..

I. PARTICIPANTS' CHARACTERISTICS

1. How old are you?

   ☐ years

2. What is your race?

   - African
   - Coloured
   - Indian
   - White
   - Other (specify……)

3. What is your highest education level?

   - None
   - Primary school
   - Secondary school
   - Undergraduate
   - Graduate or above

4. What is your marital status

   - Married/cohabiting
   - Widowed
   - Single
   - Divorced
   - Separated

5. Are you currently in relationship?

- Yes
- No

IF THE ANSWER TO QUESTION 5 WAS YES, ASK QUESTION 6.

IF THE ANSWER TO QUESTION 5 WAS NO, GO TO QUESTION 7.

6. If the answer to the question 5 was yes, how long have you been in relationship with your current partner?

☐ Years/months

7. How old is your partner who made you pregnant?

☐ years

8. What is your home language?

- Afrikaans
- English
- IsiXhosa
- Setswana
- Other (specify…….)

9. How many pregnancies have you had?

☐ Pregnancies

10. Would you please tell us how many previous pregnancies have you had since you were diagnosed HIV-positive?

☐ pregnancies

11. How many living children do you have?

12. What are the ages of your children

Years/months

13. What is your current monthly income?

☐ Rands

14. What is currently your main source of income?

- None
- Disability grant

- Salary
- Small business
- Partner
- Other (specify……)

15. What is your current employment status?

- Full time employed
- Part-time employed
- Small business
- Student
- Unemployed
- Other (specify .....)

16. What is your occupation?

……
……..

17. At the time you fell pregnant, you were living

- With your partner
- With both your parents
- With your mother
- With your father
- Alone
- Other (specify.....)

18. Where are you living now ?

- At the same place
- At another place

19. If you have moved since you fell pregnant, please tick below the reasons of this move (tick only one answer)

- I wanted to live with my partner
- I could not afford renting anymore
- My partner abandoned me
- My parents chased me
- Other (specify……
  ……)

II. PARTICIPANTS' AWARENESS OF THEIR HIV-POSITIVE DIAGNOSIS

20. When were you diagnosed HIV-positive?

- Before the current pregnancy.
- During the current pregnancy.

IF THE DIAGNOSIS WAS MADE BEFORE THE CURRENT PREGNANCY ASK QUESTION 21.

IF THE DIAGNOSIS WAS MADE DURING THE CURRENT PREGNANCY GO TO QUESTION 22.

21. If you were diagnosed HIV-positive before the current pregnancy, how long ago did you know you were HIV-positive?

	Years/months

III. CIRCUMSTANCES OF OCCURRENCE OF THE CURRENT PREGNANCY

22. Have you disclosed your HIV-positive status to your partner who made you pregnant?

- Yes
- No

23. Tick which of the following statements relate to your partner's HIV status

- HIV-negative
- HIV-positive
- Don't know

24. Did you intend to fall pregnant?

- Yes
- No

25. Had you discussed with your partner about having a baby before the occurrence of the current pregnancy?

- Yes
- No

IF THE ANSWER TO QUESTION 25 WAS YES, ASK QUESTION 26

IF THE ANSWER TO QUESTION 25 WAS NO, GO TO QUESTION 27

26. If the answer to the question 25 was yes, did you reach an agreement ?

- Yes
- No

27. Were you using condom during the last three months prior to the occurrence of your current pregnancy?

- Yes
- no

IF THE ANSWER TO QUESTION 27 WAS YES, ASK QUESTION 28

IF THE ANSWER TO QUESTION 27 WAS NO, GO TO QUESTION 29

28. If you were using condom, the current pregnancy occurred because

- you stopped using condom for falling pregnant
- the condom was torn during sexual intercourse
- your partner did not have condom
- you were not using condom regularly
- other
  (specify……
)

29. Were you using any form of contraception during the last three months prior to the occurrence of your current pregnancy?

- Yes
- No

IF THE ANSWER TO QUESTION 29 WAS YES, ASK QUESTION 30

IF THE ANSWER TO QUESTION 29 WAS NO, GO TO QUESTION 31

30. If you were using contraception, your current pregnancy occurred because

- You stopped using contraception because of side effects
- You missed your injection of contraception
- You forgot to take your pills regularly
- You stopped using contraception for falling pregnant
- There was shortage of contraceptives at the clinic
- Other (specify……)

31. Please tick which of the following statements is (are) related to the circumstances of occurrence of your current pregnancy (you may tick one or more statements). This pregnancy occurred because

TICK IN THE APPROPRIATE WINDOW IF THE ANSWER IS YES

LET THE WINDOW BLANK IF THE ANSWER IS NO

a	You had planned to fall pregnant	
b	Pressure from partner	
c	Pressure from family	
d	Pressure from family in law	
e	You missed your contraception	
f	You had to fall pregnant because the lobola was already paid	
g	Your partner did not want to use condom	
h	You had casual sex for food	
i	You had casual sex for money	
j	You had unprotected sex under the influence of alcohol	
k	You had unprotected sex under the influence of illicit drug	
l	You were forced to undergo sexual intercourse	

Thank you

Appendix 7: Questionnaire – Afrikaans version

Vraelys

Nommer …….

Naam van die kliniek……..

Onderhoudvoerder……..

Tyd onderhoud begin……Tyd onderhoud einde……

I. RESPONDENT SE EIENSKAPPE

1. Wat is U ouderdom?

☐ Jare

2. Wat is U ras?

- Afrikaan
- Kleuring
- Indier
- Blank
- Ander (spesifiseer……)

3. Wat is U hoogste opleidingsvlak?

- Geen opleiding
- Laerskool opleiding
- Sekondere opleding
- Tersiere opleiding
- Gegradueerde

4. Wat is U huweliks status?

- Getroud/Woon saam
- Weduwee
- Enkellopend
- Geskei
- Gebroke huwelik

5. Is U tans in ‘n verhouding met iemand?

- Ja
- Nee

AS DIE ANTWOARD JA IS, VRA VRAAG 6

AS DIE ANTWOARD NEE IA, GAAN NA VRAAG 7

6. Indien U ja geantwoord het in vraag 5, hoe lank is U in verhouding met U huidige eggenoot?

Maande/Jare

7. Hoe oud is U eggenoot/maatwat jou swanger gemaak het?

jare

8. Wat is U huistaal?

- Afrikaans
- Engels
- Xhosa
- Tswana
- Ander (Spesifiseer…….)

9. Hoeveel keer was U al swanger gewees?

Swangerskappe

10. Hoeveel vorige swangerskappe het U gehad sedert U gediagnoseer is met HIV?

Swangerskappe

11. Hoeveel kinders het U wat nog lewe?

12. Wat is die ouderdommes van die kinders?

Maande/jare

13. Wat is U maandelikse inkomste?

Rand per maand

14. Wat is U hoofbron van inkomste?

- Geen
- Ongeskiktheidstoelaag

- Salaristrekker
- Besit formele besigheid
- Vernootskap
- Ander (Spesifiseer…….)

15. Wat is U huidige werk status?
    - Voltyds in diens
    - Tydelike in diens geneem
    - Formele besigheid
    - Student
    - Werkloos
    - Ander (Spesifiseer……)

16. Watter beroep beoefen U?

……

17. Tydens U swangerskap, waar het U gewoon?
    - By U eggenoot/maat
    - By beide ouers
    - By U moeder
    - In U eie woonplek
    - Ander (Spesifiseer……..)

18. Waar is tans U woonagtig?

    - Waar U tans woon
    - By ‘n ander plek

19. Sou U woonplek verander het, sedert U swangerskap, dui asseblief die redes waarom U verhuis het?

    - Ek wil by my eggenoot bly
    - Ek kan nie bekostig om allen te woon
    - Ek is vervreemd van my eggenoot
    - My ouers het my uitgeskop
    - Ander (spesifiseer…….)

II. DEELNEMERS SE BEWUSTHEID VAN HUL HIV-POSITIEWE DIAGNOSE

20. Wanner is U positief getoets vir HIV?

    - Voor jy swanger geraak het
    - Nadat jy swanger geraak net

AS DIE DIAGNOSE HIV POSITIEF WAS DIE HUIDIGE SWANGERSKAP VRA VRAAG 21

AS DIE DIAGNOSE GEMAAK WAS GEDURENDE DIE HUIDEGE SWANGERSKAP VRA VRAAG 22

21. As jy HIV positief was voor jou huidige swangerskap hoe lank terug het jy positive getoets?

	Jare/maande

III. OMSTANDIGHEDE VAN HUIDIGE SWANGERSKAP

22. Het U al U HIV status aan U eggenoot/maat bekend gemaak? Wat jou swanger gemaak het?

- Ja
- Nee

23. Dui aan die HIV status van U eggenoot/maat? Ek weet dat hy

- HIV-negatief
- HIV-positief
- Weet nie

24. Was U van voorneme om swanger te word?

- Ja
- Nee

25. Het U met aan U eggenoot gesels oor ‘n swangerskap?

- Ja
- Nee

AS DIE ANTWOARD JA IS, VRA VRAAG 26

AS DIE ANTWOARD NEE IS, GAAN NA VRAAG 27

26. Sou U antwoord ja is in vraag 25, het julle ‘n ooreenkoms bereik?

- Ja
- Nee

27. Het jy kondome gebruik gedurende die laaste drie maande van jou huidige swangerskap?

- Ja
- nee

AS DIE ANTWOORD JA IS, VRA VRAAG 28

AS DIE ANTWOORD NEE IS, GAAN NA VRAAG 29

28. Indien U kondome gebruik, wat is die rede vir die swangerskap?

- Stop om kondome te gebruik vir die rede om swanger te word
- Die kondome was geskeur tydens seks
- U het nie ger eeld kondome gebruik nie
- U eggenoot/maat het geen kondome in vooraad gehad
- Ander (spesifiseer……)

29. Het jy enige vorm van gesinsbeplanning gebruik gedurende die laaste drie maande van jou huidige swangerskap?

- Ja
- Nee

AS DIE ANTWOORD JA IS, VRA VRAAG 30

AS DIE ANTWOORD NEE IS, GAAN NA VRAAG 31

30. Sou U kontraseptiese middels gebruik wat sou die rede wees vir die swangerskap

- U het gestop om kontrasetiese middles te gebruik as gevolg van newe effek
- U het U inspuiting nie ontvang
- Vergeet om die pil medikasie daagliks te gebruik
- Het kontraseptiese middles gastop on swanger te ward
- Tekort van kontraseptiese middles in die klinieke
- Ander (spesifiseer……..)

31. Dui aan watter van die volgende stellings het plaasgevind gedurende die swangerskap (u nog neer as een stelling kies). Die swangerskap het plaasgevind soos volg

MERK AS ANTWOORD “JA” IS

LOS SPASIE OOP, AS ANTWOORD “NEE” IS

a	Het jy hierdie swangerskap beplan	
b	Was die swangerskap ander druk van u maat/eggenoct	
c	Het jy swanger geraak onder druk van familie	
d	Het jy swanger geraak onder druk van skoon familie	
e	Het U voorbehoedmiddels oorgeslaan	

f	Het verwagtend geword aangesien “Labola” reeds betaal is	
g	U eggenote, wou nie kondome gebruik	
h	Het seks gehad vir kos	
i	Het seks gehad vir geld	
j	Seks gehad ander die invloed van alkohol	
k	Het onveilige seks gehad as evolg van die gebruik van verdowingsmiddels	
l	Seks gehad teen jou sin	

Baie dankie

Appendix 8: Questionnaire – Setswana version

POTSO

Nomoro ya motsaya kakaretso.....

Lefelo..... ……Bookelo

Mmutsi wa dipotso ……..…….

Letlha.....

Nako tshimologo…….Nako pheletso……

I. MOTSAYA KAKARETSO

1. O dingwaga di kae?

   ☐ Dingwaga

2. Setlhopasefe?

   - Mo Afrika
   - Morwa
   - Lekula
   - Lekgoa
   - Go gongwe (tlatseletsa ……)

3. Ona le dithuto dife tsa kwa godimo?

   - Ga gona sepe
   - Sekolo potlana
   - Sekolo sa kwa godimo
   - Universite
   - Kgotsa gotlhelle

4. Maemo kgatlhano le nyalo?Onnye tswe

   - Nyalo/ Nna Mmogo
   - Tlhokafetse
   - O Nosi
   - Tlhalane le molekane
   - Kgaogane le molekane nakwana

5. A ona le mongwe o oratanang le ena ?

- Eé
- Nyaa

FA KARABO E LE EÉ, TSWELELA KA POTSO E LATELANG 6

FA KARABO ELE NNYA, TSWELELA KE POTSO 7

6. Ge karabo ya gago go potso 5 e le eya, ke sebaka se se kae o na le molekani o?

☐ Dingwaga/dikgwedi

7. Molekane wa gago O dingwaga dikae? Yo O go imisitseng?

☐ Dingwaga

8. Puo ya kwa gae?

- Seburu
- Sekgoa
- SeXhosa
- Setswana
- Go gongwe (tlatseletsa ……)

9. One wa imampa ga kae?

☐ Boimane

10. E sale o lemositswe gore o tshwaetsegile ka HIV O imile ga kae pele ya go ima ga jaanong?

☐ Boimane

11. Ona le bana bale kae ?

12. Dingwaga tsa bana bago di kae?

Dingwaga/dikgwedi

13. O amogela madi/tshelete e kae?

☐ Ranta

14. Mokgwa wagago wa go tsenya matlotlo ko lapeng ke ofe?

- Ga ayo
- Ao amogela madi a go sa itekanela(bo gole)
- O amogela go tswa ko tirong

- O na le kgwebo
- Molekani
- Go gongwe (tlatseletsa ……)

15. Tiro e oe dirang ke eng?

- O dira nako yo tlhe
- O dira nakwana
- Kgwebo potlana
- Moithuti
- Ga o dire
- Go gongwe (tlatseletsa.....)

16. Karolo ya tiro?

……
……..

17. Kanako e one oima one o nna le mang?

- One o nna le molekane
- Le batsadi
- Le mme wa gago
- Le rre wa gago
- Go gongwe (tlatseletsa.....)

18. O nna kae jaanong?

- Ko lefelong la gale
- Ko lifelong le lengwe

19. Ga elegore o tswile o sena go ima, tlhopa karabo kafa tlase e le nngwe le lebaka la gore goring o tswile

- Ke ne ke batla go nna le batsadi
- Ke ne ke sa kgone go duela madulo
- Molekane wame oile a kgaogana le nna
- Batsadi ba nkubile
- Go gongwe (tlatseletsa.....)

II. TSHIBUSHO YA BATSAYA-KAROLO KA MAEMO ABONE A TSHWA ETSO YA MOGARE WA HIV

20. O lemogile leng? Fa o tswaetsegile ka mogare we HIV

- A ke pele o ima
- Kgotsa nako e o imileng

FA TEMOSO YA TSHWAETSO E NE ELE PELE GWA GO IMA BOTSA POTSO 21

FA TEMOSO YA TSHWAETSO E NE ELE KA NAKO YA GO IMA GWA JAANONG YA GO POTSO 22

21. Fa o ne o lemogile gore o nale tswaetso ya mogare wa HIV pele ga go ima gwa jaano'ng', o se e le nako e kae? O tshwaetsegile

Dikwedi/dijara

III. MAEMO A GO IMA GA JAANONG

22. A o boleletse molekane yo o go imisitseng gore o tshwaetsegile ka mogare wa HIV?

- Eé
- Nyaa

23. Tshwaya gore ke polelo efe e tlhalosang maemo a molekane wa gogo a HIV?

- Ga a na tshwaetso ya HIV
- Ona le tshwaetso ya HIV
- Ga o itse

24. A o ne o ikemiseditse go imma?

- Eé
- Nyaa

25. A o ne wa buisana le molekane go nna le ngwana pele ga go ima ga jaanong?

- Eé
- Nyaa

FA KARABO E LE EÉ, TSWELELA KA POTSO E LATELANG 26

FA KARABO ELE NNYA, TSWELELA KE POTSO 27

26. Ge karabo ene ele ee mopotsong 25 a lo ile la dumelana?

- Eé
- Nyaa

27. A o ne o diritse kgo tlopo kgwedi tse tharo tsa go feta pele ga go ima gwa jaanong?

- Eé
- nyaa

FA KARABO E LE EÉ, TSWELELA KA POTSO E LATELANG 28

FA KARABO ELE NNYA, TSWELELA KE POTSO 29

28. Fa one o dirisa kgo tlopo, go tlile jaang gore o ime

- otlo getse kgotlopo gore o ime
- kgo tlhopo le ya phanye ga
- molekane wame one asena kgotlopo
- O ne o sa dirisi kgotlopo nako le nako
- Go gongwe
  (tlatseletsa……)

29. A o ne o dirisa mofuta mongwe wa thibela-pelegi' Kweding tse tharo tse di fedileng? Pele ga go ima ga jaanong'

- Eé
- Nyaa

FA KARABO E LE EÉ, TSWELELA KA POTSO E LATELANG 30

FA KARABO ELE NNYA, TSWELELA KE POTSO 31

30. Fa o ne o dirisa dithibela pelegi go ima ga jaanong a go nnile, ka go ba ne

- O imisi tse go dirisa thibela-pelegi ka nthla ya ditla morago tsa yone
- O tlodilwe ke go tsaya setlhabo sa thibela-pelegi
- O lebetse go tsaya dipilese ka tlwaelo
- O tlogetse gore otle oime
- Dithibela pelegi dine diseo
- Go gongwe (tlatseletsa……)

31. Ka kopo, tswanya ntlha kgotsa dintlha tse di amanang le go ima gag ago ga jaana (tlhopa ntlha e le nngwe kgotsa dintlha tse di go amang). Go imma go tlhagile ka gore.

TSWAYA FINSTERENG FA KARABO ELE EÉ

SE TSWAYE FA KARABO E LE NNYA

a	One o ikemeseditse go ima	
b	Kgatelelo go tswa go molekane	
c	Kgatello go tswa go losika	
d	Kgatello go tswa go ba bogadi	
e	O fitilwe ke tshireletswa	
f	O ne o tshwanetse o imme ka go nne magadi a ne a setse a tswile	
g	Molekane ga batla go dirisa kgo tlopo	
h	O ne o robalana gore o nne le dijo	
i	O ne o robalana gore o nne le madi	
j	O nnile le thobalano e sa sireletsegang lebakeng la nno-tagi	
k	Nnile le thobalano e sa sireletsegang lebakeng la diritibatsi	
l	O ne o beteletswe go robalana	
m	O ne o na le ba ratani ba bantsi	

KEA LEBOGA

Appendix 9: Information sheet of the consent form - English version

INFORMED CONSENT FORM

Part I: The information sheet

Study: Demographic profile of pregnant HIV-positive women in Postmasburg, South Africa.

Main investigator: Dr KMH Kalonji

Good morning,

I am……..and I am working with Dr Kalonji as a member of his research team. We are currently conducting a study related to pregnant HIV-positive women in Postmasburg. The purpose of this research is to learn more about HIV-positive women who fall pregnant. Who are they? What are their relationships? What are their sources of support and income? We want to learn more about the circumstances that led them to fall pregnant. That is why we are interested in you, a pregnant HIV-positive woman as a key informant, for helping us to answer these questions. The research team will very much appreciate if you accept to respond to our questions after the information I am going to provide to you. This study was approved by the Medunsa Campus Research and Ethical Committee on August 06, 2010 and permission was given to start the field work by Dr Theys, the provincial Deputy-Director General for Health and Head of the Department of Health.

Before going forward, let me make it clear that:

a) This study is not part of your routine antenatal care.
b) Your participation in this study is voluntary. No-one should force you to participate or threaten you that you may not receive your antenatal care services as before because you refused to take part in this study. You can refuse to participate. You can also decide to withdraw at any time, even after you have signed the certificate of consent.

c) The results of this study will be used for scientific purpose and may be published.
d) Because reasons and circumstances that contributed to the occurrence of your current pregnancy are best known by yourself, that is why you are asked to participate in this study.

What am I going to do during this interview? I am going to ask you questions related to yourself, your partner, your HIV-positive status, your conditions of living as well as the circumstances that contributed to the occurrence of your current pregnancy. I want also to know if you were using condoms and contraceptive before you fell pregnant. Some questions are related to your personal life, to some areas of your conditions of living, in order to get a best understanding about who you are and about what led you to become pregnant today. All these information will be kept confidential and no one in our team will expose information received from every participant to people who should not see them. The questionnaire we are going to fill together if you accept to enroll in the study will not contain any information that can identify you or link you to the study. Confidentiality will also be maintained if the results of this study are published or communicated to another person or organization. During the study and thereafter, only Dr Kalonji, the main investigator of this study, his supervisor at the University of Limpopo/Medunsa Campus and the Medunsa Research Ethics Committee will have access to the records of this study.

What are we going to do with the information you will give to me? After all participants will be interviewed, all information received will be put together and analyzed. If this study and those that will follow yield obvious results, these findings will be utilized for scientific purpose, in order to provide a basis for addressing the reproductive needs of HIV-positive people in a way that fits better their real reproductive needs and address efficiently most of the problems they are facing for receiving counseling in reproductive health and for accessing to safer parenthood. Other benefits concern yourself and other participants. You'll be part of this study by the time you'll sign the certificate of consent and by the time you'll undergo interview. The results of this study also belong to you and you will need to learn more about what was discovered at a later stage. The results of this study will be shared with you so that you can get a better understanding of issues related to childbearing in HIV-positive women not only from your own perspective and experience, but also

from the perspective and experience of all pregnant HIV-positive women who will participate in the study.

You may now ask any question you want about any aspect of the study you have not understood. You may sign the certificate of consent if you accept to participate in the study only if you feel you have received all information you needed for getting a better understanding of this research.

If you have any further queries related to this study in the future, the contact details of Dr Kalonji are as follows:

Dr KMH Kalonji

Postmasburg Hospital
Cellphone 0722089345
Phone (work) 053-3130663

Appendix 10: Information sheet of the consent form - Afrikaans version

TOESTEMMINGS VORM

Gedeelte I: Inligtingsblad

Studie: Demografiese profile van van swanger HIV-positiewe vrauens in Postmasburg, Suid Afrika

Hoof navorser: Dr KMH Kalonji

Goeie Mõre,

Ek is……en ek saam met Dr Kalonji as werk ń lid van sy navorsing span. Ons is tans besig met in studie wat gepaard gaan met swanger HIV-positiewe vrouens in Postmasburg. Die doel van hierdie navorsing is om meer te leer van HIV-positiewe swanger vroue. Wie is hulle? Wat is hulle verhoudinge? Wat is hulle bronne van ondersteuning en inkomste? Ons wil meer weet van die omstandigheide wat gelei het tot hul swangerskap. Dit is hoekom ons geintresseerd is in julle, swanger HIV-positiewe vrouens as in sleutel informant om ons te help om die vrae te beantwaerd. Die navorsingspan sal dit baie waardeer indien u u samewesking sal verleen deur op die vrae te antwoord nadat u die volledige inligting ontvang het. Die studie is goedgekeur deur die Medunsa Kampus navorsing en Etiese Kommitee op 6 Augustus 2010 en toestemming is gegee om te begin met die veldwerk deur Dr Theys, Provinsiale Assistant Direkteur Generaal vir Gesondheid en Hoof van Department van Gesondheid.

Graag word die volgende onder U aandag gebring:

a) Hierdie studie is nie deel van ‘n voorgeboorte diens
b) U deelname in die studie is vrywillig. U word nie gedwing om deel te neem aan die studie. U word ook nie toekomstige voorgeboorte dienste geweier sou U gesluit om nie deel te neem aan die studie. U kan weier om deel te neem aan die studie. U kan ook besluit om enige tyd the onttrek van die studie al het U toestemming gegee.
c) Die resultate van die studie word vir wetenskaplike doeleindes gebruik en mag ook gepubliseer word.

d) Vir redes en omstandighede beter bekend aan U gedurende U swangerskap is die rede waarom U betrek word by hierdie studie.

As navorser gaan ek U vrae vrae met betrekking tot die omstandighede gedurende U swangerskap. Van die vrae sal persoonlik van aard wees, U lewensomstandighed om inligting te bekom en te verstaan wat het aanleiding gegee om swanger te raak. Alle inligting sal vertroulik gehanteer word en geen inligting sal bekend gemaak word deur die navorserings span. Sou U besluit om deel te neem sal die vraelys U nie by name identifiseer. Vertroulikheid sal ook behoue bly sou die resultate gepubliseer word deur derde partye. Gedurende en na die studies sal slegs Dr Kalonji, his toesighouer en Medunsa Navorsings en Etiese Kommitee toegang tot die navorsingsinligting sy.

Na al die navorsings data bekom is bewyse van die vraelyste en onderhoude met respondent sal dit ontleed word in resultate. Sou die studie en ssortgelyke studies wat volg noemenswaardige resultate oplewer sal dit gebruik word vir ‘n basis om die reproduktiewe behoeftes van HIV positiewe mense te verbeter met betrekking tot berading en veiliger ouerskap aangaande Uself en ander respondent. U is deel van die studie wanneer U die toestemming brief onderteken en die onderhoud mee maak. Die resultate van die studie behoort ook aan U en U sal mettertyd ingelig word daaroor. Die resultate van die studies al met U gedeel word om ‘n beter begrip te bekom in verband met swangerskap as HIV positiewe vrou, volgens U eie uitgangspunt en ervarings, maar ook die van ander respondents wat deelneem in die studie.

U mag ook vrae vrae oor enige aspek van die studie wat onduidelik is. U teken sleg die toestemmingbrief sou U oortuig is en voldoende inligting ontvang het van die studie.

Sou U enige verdere navrae het met betrekking tot hierdie studie, kan U die volgende person kontak:

Dr KMH Kalonji

Postmasburg Hospitaal
ellfoon 0722089345
Telefoon (werk) 053-3130663

Appendix 11: Consent form – English version

UNIVERSITY OF LIMPOPO (Medunsa Campus) CONSENT FORM

Part II: Statement concerning participation in a Research Project.

Name of the Research Project : Profile of pregnant HIV-positive women in Postmasburg, South Africa

I have read the information on the aims and objectives of the proposed study and was provided the opportunity to ask questions and given adequate time to rethink the issue. The aim and objectives of the study are sufficiently clear to me. I have not been pressurized to participate in any way.

I understand that participation in this study is completely voluntary and that I may withdraw from it at any time and without supplying reasons. This will have no influence on the regular treatment that holds for my condition neither will it influence the care that I receive from my regular doctor.

I know that this study has been approved by the Medunsa Campus Research and Ethics (MCREC), University of Limpopo (Medunsa Campus). I am fully aware that the results of this research study will be used for scientific purposes and may be published. I agree to this, provided my privacy is guaranteed.

I hereby give consent to participate in this study.

....

Name of patient Signature of patient or guardian.

..... ……..... .....

Place. Date. Witness

Statement by the Researcher

I provided verbal and written information regarding this study

I agree to answer any future questions concerning the study as best as I am able.

I will adhere to the approved protocol.

....

Name of Researcher Signature Date Place

Appendix 12: Consent form – Afrikaans version

UNIVERSITY OF LIMPOPO (Medunsa Campus) AFRIKAANS CONSENT FORM

Gedeelte II: Verklaring ten opsigte van deelname aan die studie.

Studie: Demogragiese profiel van swanger HIV-positiewe vrouens in Postmasburg, Suid Afrika

Ek het die inligting in verband met die beoogde studie gelees die doelwitte en oogmerke van die beoogde studie aangehoor* en is die geleentheid gegun om vrae te stel asook voldoende tyd toegelaat om oor die aangeleentheid te besin. Die doelwit en oogmerke van die studie is duidelik genoeg vir my. Ek is geensins onder enige druk geplaas om deel te neem nie.

Ek verstaan dat deelname aan hierdie Studie geheel en al vrywillig is en dat ek te eniger tyd daarvan kan onttrek sonder om enige redes aan te voer. Dit sal geen invloed hê op die gereelde behandeling van my toestand nie, en sal ook nie die behandeling wat ek van my eie dokter ontvang, beïnvloed nie.

Ek is bewus daarvan dat hierdie Studie goedgekeur is deur die 'Medunsa Campus Research and Ethics Committee (MCREC)', Universiteit van Limpopo (Medunsa-kampus)/Dr George Mukhari Hospitaal. Ek is ten volle bewus daarvan dat die uitslae van hierdie Studie aangewend sal word vir wetenskaplike doeleindes, en gepubliseer mag word. Ek stem daartoe in, met dien verstande dat my privaatheid gewaarborg is.

Hiermee verleen ek toestemming om deel te neem aan hierdie Studie.

.....	.....
Naam van pasiënt	Handtekening van pasiënt of voog
.....	.....

Plek Datum Getuie

_____

Verklaring deur Navorser

Ek het mondelingse en/of skriftelike* inligting ten opsigte van hierdie Studie voorsien.

Ek verklaar myself bereid om enige toekomstige vrae ten opsigte van die Studie na die beste van my vermoë te beantwoord.

Ek sal myself onderwerp aan die goedgekeurde protokol.

.... ……..

Naam van Navorser Handtekening Datum Plek

Appendix 13: Consent form - Setswana version

UNIVERSITY OF LIMPOPO (Medunsa Campus) SETSWANA CONSENT FORM

Seteitemente se se ka ga go tsaya karolo mo Porojeke ya Patlisiso.

Leina la Palitiso: Setlhogo sa dipatlisiso: Tlhaloso ya boemo jwa baimana ba ba tshwaeditsweng ke kokwana tlhoko ya HIV ko Postmasburg, Afrika Borwa

Ke buisitse tshedimosetso mo maitlhomong le maikemisetso a patlisiso e e tshitshintsweng mme ke filwe tšhono ya go botsa dipotso le go fiwa nako e e lekaneng ya go akanya gape ka ntlha e. Maitlhomo le maikemisetso a patlisiso e a tlhaloganyega sentle. Ga ke a patelediwa ke ope ka tsela epe go tsaya karolo.

Ke tlhaloganya gore go tsaya karolo mo patlisisong ke boithaopo le gore nka ikgogela morago mo go yona ka nako nngwe le nngwe kwa ntle ga go neela mabaka. Se ga se kitla se nna le seabe sepe mo kalafong ya me ya go le gale ya bolwetsi jo ke nang le jona e bile ga se kitla se nna le tlhotlheletso epe mo tlhokomelong e ke e amogelang mo ngakeng ya me ya go le gale.

Ke a itse gore Porojeke e e rebotswe ke Patlisiso le Molao wa Maitsholo tsa Khampase ya Medunsa (MCREC), Yunibesithi ya Limpopo (Khampase ya Medunsa) / Bookelo jwa Ngaka George Mukhari. Ke itse ka botlalo gore dipholo tsa Patlisiso di tla dirisetswa mabaka a saentifiki e bile di ka nna tsa phasaladiwa. Ke dumelana le seno, fa fela go netefadiwa gore se e tla nna khupamarama.

Fano ke neela tumelelo ya go tsaya karolo mo patlisisong e.

....

Leina ka molwetse Tshaeno ya molwetse kgotsa motlamedi.

....

Seteitemente ka Mmatlisisi

Ke tlametse tshedimosetso ka molomo le/kgotsa e e kwadilweng malebana le Porojeke e.

Ke dumela go araba dipotso dingwe le dingwe mo nakong e e tlang tse di amanang le Porojeke ka moo nka kgonang ka teng.

Ke tla tshegetsa porotokolo e e rebotsweng.

.... …….. ……

Leina la Mmatlisisi Tshaeno Letlha Lefelo

Appendix 14: Response rates form for ANC

RESPONSE RATES RECORD FORM FOR ANC

Study: Demographic profile of pregnant HIV-positive women in Postmasburg, South Africa.

Main investigator: Dr KMH Kalonji

Settings.....Clinic

Sister doing ANC.....

ANC dates	Number of pregnant HIV+ women approached	Accepted to participate in the study (number)	Refused to participate in the study (number)

Appendix 15: Response rates form for interviewers

RESPONSE RATES RECORD FORM FOR INTERVIEWERS

Study: Demographic profile of pregnant HIV-positive women in Postmasburg, South Africa.

Main investigator: Dr KMH Kalonji

Settings.....Clinic

Interviewer.....

Interview dates	Number pregnant HIV+ women who were administered the informed consent	Number of eligible participants who signed the informed consent form and underwent interview	Number of eligible participants who were not interviewed because they refused to sign the informed consent form

Appendix 16: data collection confirmation sheet

FACULTY OF HEALTH
SCHOOL OF PUBLIC HEALTH
STUDENT RESEARCH PROJECT MANAGEMENT
DATA COLLECTION CONFIRMATION SHEET

1. Researcher declaration

Name of Researcher **Dr Kabasele M.H. KALONJI**

Title of study: **Demographic profile of pregnant HIV-positive women in Postmasburg, South Africa.**

Research project Number: **MREC/H/145/2010:PG**

Period of data collection: Initiated: **20/09/2010**. Completed: **20/12/2010**

I hereby declare that I collected data according to the specifications of the approved proposal.

Signature _____ Date: 10/02/2011

2. Research site and activities

Name of organization/institution **Department of Health/Northern Cape. Boichoko, Postdene and Postmasburg clinics.**

Type of organization/institution (mark with an X)			
NGO	Clinical X	School	Other (specify)

1

Town name	Country
Postmasburg	**South Africa**

Main data collection activities (sign against all applicable)			
Interviews	Focus groups	Record reviews	Questionnaire administration **X**

Other people involved in data collection: Interviewers **L.L. Mokalaka, M. Basie, M. Gxotha, C. Jacobs and K. De Bruin.**

I, **K. Erasmus** being the **Sister in charge** of the above institutions, hereby confirms that the researcher named above collected data as indicated.

Signature E Erasmus Date: 10/2/2011

Contact details of institutions

Postal address **Postmasburg Clinic**
Private Bag X3033
Postmasburg
8420.

Telephone 053 31 30 663 Facsimile **None.**

Email posthosp@ds.ncape.gov.za

Official stamp of organization

DEPARTMENT OF HEALTH
SIYANDA - DISTRICT
POSTMASBURG CLINIC
PO Box 5
POSTMASBURG