

UNIVERSITY OF THE WESTERN CAPE

Faculty of Community and Health Sciences

**Contraceptive use and fertility intentions of HIV-positive women in
two health districts in Yaoundé, Cameroon.**



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A mini-thesis submitted to the Faculty of Community and Health Science of the University of the Western Cape in partial fulfilment of the requirement for the degree of Masters in Public Health.

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KEY WORDS

Contraceptive use

HIV-positive women

Fertility or reproductive intention

Dual protection

Reproductive decision-making

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ABSTRACT

Background: HIV-positive women may desire to have children, plan their family size or avoid becoming pregnant. The choice to use or not to use a contraceptive method depends on this desire which is influenced by their fertility intentions. Among HIV-positive women who are avoiding unintended pregnancy, the use of condoms on their own or with another contraceptive method also lessens the possibility of infecting uninfected partners in sero-discordant relationships and prevents possible vertical transmission to the infant. Barrier methods like the condom used alone or in combination with other methods provide HIV-positive women with protection against pregnancy and against the transmission of HIV. Several factors including their fertility intentions influence their uptake and use of these various methods.

In urban health districts in Yaoundé in Cameroon where the prevalence of HIV in women remains higher than the national average and with observed increasing rates of abortions within this population, very little information is available both about their fertility intentions and contraceptive use. An understanding of the fertility intentions of HIV-positive women and their uptake and use of dual protection is helpful in informing family planning activities for HIV-positive persons and possibly informing services to provide safer options for conception in HIV-positive women.

Aim: The aim of this cross-sectional analytical study therefore was to study the fertility intentions of HIV-positive women and the factors which influenced the uptake of contraception among HIV-positive women in two health districts in Yaoundé in Cameroon.

Methodology: By means of a quantitative cross-sectional analytical study design, a questionnaire was used to collect information on the use of contraception and fertility intentions from 326 HIV-positive women. These were women visiting the day care units of the Biyem-Assi and Cite Verte district hospitals in Yaoundé (Cameroon) from April to September 2017. With the help of *Epi-Info* software, data collected using the questionnaire was entered, cleaned and analysed using descriptive statistics. This data was collected only after the necessary ethical clearance from educational and respective health authorities was obtained. Analysis tables were used to summarise all statistics and categorical variables were summarised with respect to their frequencies and percentages. The contraceptive prevalence rate, dual protection prevalence rate, fertility intention rates and past pregnancy rates were calculated. The Chi-squared (χ^2) test was used to determine significant associations between the outcomes (use of

contraception and intention to have children or not) and other exposure variables. Analysis was done to assess associations including direction of association between dual protection and factors influencing the uptake of family planning.

Results: The prevalence of HIV-positive women using contraception (N=232) within the past three months was 71.2% and 85.8% of these women using condoms within the past three months combined it with another modern method (dual protection). The usage of contraception was inconsistent although some 28.8% of all respondents (n=94) didn't use any method of contraception. Unmet contraceptive need gaps were revealed as 58.1% and 49.7% of women who had been pregnant once and twice respectively would have preferred being pregnant at a later time. Contraception use was associated with the discussion of sex-related matters with partners ($p=0.009$). Although 43.3% of the HIV-positive women desired to bear children "now", 67.4% of them desired to bear children in the "future". Fertility desire was associated with factors such as age ($p=0.003$), marital status ($p=0.003$), having a paid job ($p=0.015$) and reaching an agreement with the partner on the number of children to have ($p<0.001$).

Conclusion: Although the use of contraception by HIV-positive women has increased in recent years, unmet needs still exist among this population as some past pregnancies were mistimed or unintentional. HIV care providers and clinical practitioners should inquire about HIV-positive women's fertility intentions and provide preconception counseling accordingly. Family planning services need to focus on contraception and dual protection as a means of reducing STI spread and pregnancy complications among the HIV-positive persons wanting to avoid or delay pregnancies.

DECLARATION

I declare that “*Contraceptive use and fertility intentions of HIV-positive women in two health districts in Yaoundé, Cameroon*” is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

Dr Penn Amaah

Date: November 24th, 2017

Signed:



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DEDICATION

This work is dedicated to all men and women who are infected with the HIV virus and to all researchers and health workers working tirelessly to provide HIV care to infected patients in Cameroon.



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LIST OF ABBREVIATIONS/ACRONYMS

ARV	–	Anti-retroviral medicines
HIV	–	Human Immuno-Deficiency Virus
PMTCT	–	Prevention of Mother-To-Child Transmission
STI	–	Sexually Transmitted Infection
UNAIDS	–	Joint United Nations Programme on HIV/AIDS
UNFPA	–	United National Population Fund
USAID	–	United States Agency for International Development
WHO	–	World Health Organization



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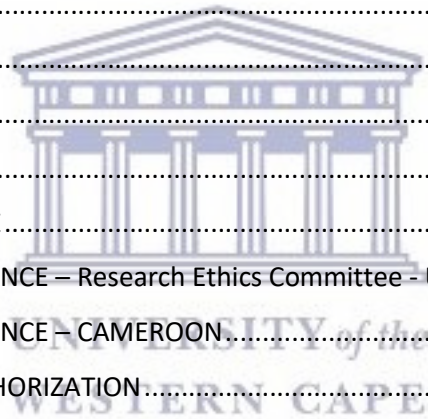


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Operational Definitions

Contraception: A technique permitting individuals and couples to prevent undesired pregnancy, attain their desired number of children and to space and time child births

Use of Contraception: Refers to the application of traditional or modern methods to prevent pregnancy and space child births.

Unintended pregnancies: Defined as being unwanted (children not desired) or mistimed (occurring earlier than desired). These unintended pregnancies result from the non-use, inconsistent or incorrect use of effective contraceptive methods.

Fertility intentions: Refer to an individual plan to have a child. Based on the timeline in this study, this plan refers to a *current* or *future* quest to have children.



CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

Contraception is a technique permitting individuals and couples to prevent undesired pregnancy, attain their desired number of children and to space and time child births (WHO, 2017). It is employed by women and couples to determine when they want to begin having children, how far apart they want their children to be and when they want to stop having children. Besides providing the advantage of timing childbirths, contraception also contributes to preventing pregnancy-related health risks in women, improving health outcomes and reducing infant mortality (Cleland et al., 2012; Ahmed et al., 2012). The use of contraception reduces the need for unwanted pregnancies, the cases of unsafe abortion in women, improves peri-natal outcomes and child survival (Cleland et al., 2012).

Although the levels of contraceptive use and unmet contraceptive need vary globally, sub-Saharan Africa has one of the lowest contraceptive usage rates and the highest unmet needs due to low levels of awareness and the existence of a variety of barriers limiting use amongst other reasons (Moreland et al., 2010; Ashford, 2003). Despite available evidence for the effectiveness of contraception to prevent unwanted births, statistics from the World Health Organisation (WHO) reveal that an estimated 225 million women in developing countries would like to delay or stop childbearing but are not using any method of contraception (WHO, 2017).

Just like women not infected with HIV, HIV-positive women may either desire to have children safely or avoid pregnancy and use contraceptive methods. This desire which is based on their fertility intention is entirely their right to exercise (Mantell et al., 2009). Components of contraception planning have been prescribed globally and employed as a means of preventing unintended or unplanned pregnancies to allow HIV-positive women to choose when they have children. Research in women living with HIV also shows how contraception may be beneficial to reducing HIV transmission to infants by preventing unwanted pregnancies (Wilcher, Petruney & Cates Jr, 2013).

Dual protection is contraception involving the use of condoms on their own for both contraception and prevention of HIV or with another contraceptive method (dual method use). It is effective in helping women to avoid unintended pregnancies and equally preventing the transmission of Sexually Transmitted Infections (STIs), including HIV. For HIV-positive

women, dual protection also reduces the number of children born with HIV as a result of unintended pregnancies, the need for abortions where an unintended pregnancy occurs and possible risk of HIV re-infection for the mother or transmission to her partner (Pazol et al., 2010; WHO, 2015a). There is compelling evidence that HIV sero-discordant and sero-concordant partners who have continued with unprotected sexual activity risk acquiring resistant HIV strains or possessing multiple HIV strains or other forms of STIs (Khan et al., 2005; Poudel et al., 2011). Those infected with HIV therefore are at risk of transmitting HIV and therefore should make optimal decisions in line with their sexuality and based on their fertility intentions. Such decisions in persons living with HIV would clearly minimize new HIV infections, prevent unintended pregnancies and complications of abortions which negatively influence maternal health. Thus, examining the use of contraceptive methods among HIV-positive women becomes relevant to understand not only their fertility desires, reasons for using these methods or not but the factors which could influence HIV-positive women's fertility choice.

For better health outcomes in HIV-positive persons, therefore, dual protection has been emphasised within the spectrum of HIV services and integrated into reproductive health services (UNAIDS, 2011). Aspects of dual protection combined with information on safer conception and Prevention of Mother-To-Child Transmission (PMTCT) services when integrated into family planning support the rights of HIV-positive women by enabling and empowering HIV-positive women to make informed choices about their fertility and ensuring safer conception for those who want to have children.

As the intention to have children remains a right for women living with HIV, careful planning with trained health staff is required to mitigate the associated health risks. It is therefore the role of health workers to welcome these women's desires within a framework of counselling and appropriate contraception guidance at the time of HIV diagnosis and during regular follow up (Kanniappan, Jeyapaul & Kalyanwala, 2008). Furthermore, preventing unintended pregnancies through preconception planning, counselling and guidance would therefore contribute positively to improve health outcomes for both mothers and children especially those infected with HIV (Steiner et al., 2013; Aaron & Critini, 2006).

1.2 BACKGROUND

In the past decade, some international agencies have advocated for increased collaboration between reproductive health, family planning and HIV/AIDS program services (African

Union, 2006; UNFPA, 2004). Such advocacy efforts have prompted linkages and the integration of reproductive health and HIV/AIDS programming (WHO, UNFPA & IPPF UNAIDS, 2005; USAID, 2012). In Cameroon, such linkages and integration between reproductive health and HIV care has been adopted by the National AIDS Control Committee (NACC) as they collaborate with international partners to combat the spread of HIV as per the national guidelines (National AIDS Control Committee, 2012).

This fight against the spread of HIV in Cameroon has witnessed some progress in the reduction of the national prevalence of HIV in Cameroon in 2011 to 4.3% amongst those aged 15 – 49 years from 5.5%. Despite this, higher prevalence rates were reported in the South (7.2%), Centre (6.3%) and North West (6.3%) regions respectively (Institut National de la Statistique, 2012). The prevalence rate was also double in females 15-49 years (5.6%) when compared to male counterparts (2.9%) of the same of the same age group. The general HIV prevalence is still low when compared to other key populations much affected by HIV such as, men having sex with men in Douala and Yaoundé (44.3% and 24.2% respectively in 2011), sex workers (36.8% in 2009), truck drivers (16.2% in 2005) and military personnel (6% in 2011) (Comité National De Lutte Contre Le Sida, 2015).

Although documented information on pregnancy related risk and complications in HIV-positive women is scanty, a study conducted in 2013 in three hospitals in Yaoundé on pregnancy adverse outcomes revealed a prevalence of induced abortion in HIV-positive women of 13.5% resulting from unintended pregnancies (Ej et al., 2013). These unsafe abortions exposed these HIV-positive women to complications of abortive services which are illegal in Cameroon. This percentage of abortions provides a low estimate of the level of unmet need for contraception within this group. Another study conducted by the *Institut de Formation et de Recherche Démographiques* (IFORD) in 2013 in a population which included HIV-positive women equally revealed that 37% of sexually active women used modern and specifically barrier contraception out of the 2.3 million meaning that their choice and factors associated with the uptake of family planning needed to be assessed. Although risks were not evaluated in the latter study, the level of education and socio-economic status were reported as factors influencing contraceptive use amongst the few using it.

The higher HIV prevalence rate of HIV in females compared to males (Institut National de la Statistique, 2012) of the same age group in Cameroon suggested that females are at a higher risk of infection compared to males. Although natural biological and social risks contribute to

the higher rate observed in these women, exploring the desire of HIV-positive women to have children which hasn't been done in this context and consequently their fertility intentions becomes important. Therefore, understanding the current practices of HIV-positive women as well as their future needs and desires will provide important information on their reproductive health to specialists to ensure that the needs of these women can be met both in helping them prevent unwanted pregnancy, minimise their and their partner's risk in terms of HIV and also ensure they can choose to have children in as safe a way as possible.

1.3 PROBLEM STATEMENT

The Ministry of Health of Cameroon implemented a National Strategic Plan with multi-sectoral activities to combat the spread of HIV, AIDS and STIs (National AIDS Control Committee, 2012). At the district level, activities implemented aim at minimising the risk of HIV infection between sero-discordant couples and avoiding co-infection or reinfection with other strains of HIV. The implemented activities which have as an objective to reduce the risk of new infections are carried out in *Day Care* units where HIV patients are counselled and managed.

In day care treatment centres in Yaoundé and other treatment centres, all sexually active HIV-positive women are counselled on various themes as outlined in the HIV/AIDS National Strategic Plan (National AIDS Control Committee, 2006). These themes include; living with HIV, the use of contraception, reducing the risk of infection, stigma and the provision of information to guide fertility choice. Information is also provided on safer conception to women who intend to become pregnant and how they can do this safely. As efforts are being focused on how to provide reproductive health services and encourage safe contraception among women living with HIV, understanding their fertility intentions and decision-making regarding their choice of contraception becomes important. The absence of studies exploring the fertility intentions of these HIV-positive women including their choice of use of contraceptives in this setting motivates the implementation of this study.

1.4 PURPOSE OF THE STUDY

This study facilitates a greater understanding of contraceptive use among HIV-positive women in two health districts in Yaoundé. In addition, the study provides information about these women's fertility intentions. This information is useful for planning and decision-making by the National Aids Control Committee in Cameroon as well as for those people providing sexual and reproductive health services to women who are HIV-positive. This informs us about this

group's particular needs and allows for a service that is tailor-made to provide contraceptives, condoms and safer conception services that are directly in-line with these women's needs and that maximise their rights.

1.5 AIM OF THE STUDY

The aim of the study was to assess the contraceptive use and fertility intentions of HIV-positive women in the Biyem-Assi and Cité Verte district hospitals in Yaoundé, Cameroon.

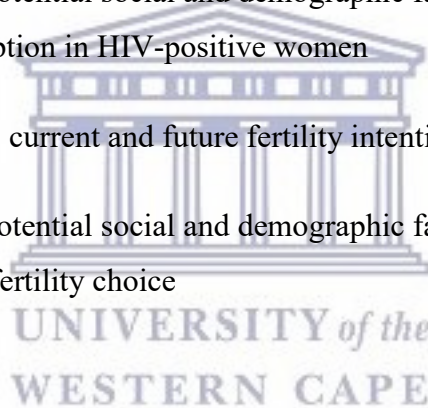
1.6 OBJECTIVES

The following were the specific objectives;

- To determine HIV-positive women's use of contraception methods (including dual protection)
- To identify some potential social and demographic factors influencing the current uptake of contraception in HIV-positive women
- To assess women's current and future fertility intentions
- To identify some potential social and demographic factors influencing HIV-positive women's fertility choice

1.7 LAYOUT OF THESIS

The first Chapter describes the study by examining background information available and motivating reasons for the study. The review of literature is described in the second Chapter. The third Chapter deals with the research design and methodology. The results which are presented in the fourth Chapter are discussed in the fifth Chapter, with reference being made to the literature and observed study limitations. The conclusions and recommendations are presented in the sixth Chapter.



CHAPTER 2: LITERATURE REVIEW

This chapter examines literature related to this study. It includes ideas and findings of other researchers on what is known about the research problem and what still needs to be researched.

2.1 INTRODUCTION

Contraception refers to the use of traditional or modern methods to prevent pregnancy and space child births (WHO, 2015a). The use of contraception among HIV-positive persons remains their choice to make depending on their conception desires. Particular methods defined as “*safer*” methods of conception may allow for pregnancy while minimizing the risk of sexual transmission of HIV.

For HIV-positive women not desiring pregnancy, dual protection serves to prevent unintended pregnancies, the spread of Sexually Transmitted Infections (STIs) including HIV and complications resulting from both pregnancy and/or infection (WHO, 2015a). In Cameroon, it remains challenging to ascertain the prevalence of the use of contraception among HIV-positive women as only a few studies have examined this (Mbu et al., 2014; Nkwabong et al., 2015).

2.2 CONTRACEPTIVE USE AMONG HIV-POSITIVE WOMEN AND UNMET NEED IN SUB-SAHARAN AFRICA

Most methods of contraception can be used by women who are HIV-positive. Although barrier methods like condoms are largely used and recommended to prevent pregnancies and STI's, particularly HIV, the use of hormones and Intrauterine devices (IUDs) are also reported, especially amongst those on antiretroviral treatment (ART) (Richey & Setty, 2007; Wekesa & Coast, 2015). Some HIV-positive women who have reached their intended family size also opt for sterilization (Bedimo et al. 1998). In a study reviewing medical records for contraception amongst 118 HIV-positive women in the United States, Kanouse et al. (2005) found that 89% of HIV-positive women reported using at least one contraceptive method in the past six months with 78% of these women using male condoms, 33% undergoing tubal ligation and 5% using oral contraceptives. There were varied reasons for their choice of contraception in this setting. Among HIV-positive women not wanting to have children, however, there remain unmet needs for contraception.

Unmet contraceptive needs portray the gaps between women's reproductive intentions and their contraceptive behaviour. According to the Joint United Nations Programme on HIV/AIDS

(2012), the unmet contraceptive need among women between 15 and 49 years in sub-Saharan Africa of 25%, doubles the 11% prevalence observed when all women are considered globally (UNAIDS, 2012). The unmet need is experienced by both HIV-positive women as well as uninfected women in sub-Saharan Africa.

In some sub-Saharan countries including Malawi, South Africa and Uganda, high unmet contraceptive need and rates of unplanned pregnancy amongst HIV-positive women have been reported (Laher et al., 2009; Taalo et al., 2009). The results from a study of 180 HIV-positive pregnant women in Enugu (Nigeria) revealed that 37.2% of the women declared their pregnancies as unintended (Ezugwu et al., 2016). This unmet contraceptive need in this population had potentially negative implications for HIV transmission as well as other potential complications which might result from pregnancy.

In a research study involving 733 HIV-positive women in Uganda where 93% of them had repeatedly expressed not wanting or planning to have more children, 17% became pregnant over a two-year follow-up period (Homsy et al., 2009). In this same study, over 86% of the participants who were sexually active were not using any modern contraception method besides the condom and over 95% of them did not use dual contraception despite having been counseled on family planning at the time of ART initiation.

Another study in South Africa involving 242 HIV-positive pregnant women attending Prevention of Mother-To-Child Transmission (PMTCT) services revealed that 84% of clients' pregnancies were unintended (Rochat et al., 2006). The choices not to use contraception within these populations were influenced by general as well as context-specific factors.

In Cameroon, Mbu et al. (2014) investigated the reproductive health needs of 415 HIV-positive women in Yaoundé identifying a high unmet need for contraception of 82% amongst the 340 women who had put to birth and would have wanted to use contraception in the Central Hospital. The prevalence of modern contraception use amongst the HIV-positive women (n=164) who were not pregnant at that moment was 39.5% (Mbu et al., 2014). Elsewhere in Cameroon, another cross-sectional descriptive study conducted amongst 200 HIV-positive women visiting the Maroua hospital in the Far North region of Cameroon revealed a prevalence of condom use of 50.7% (Nkwabong et al., 2015). This study conducted in Maroua within a different cultural environment from Yaoundé showed the unmet need for contraception in 84% of HIV-positive women older than 30 years of age.

Clearly, unmet contraceptive needs affect some HIV-positive women in sub-Saharan Africa. The burden of complications resulting from such unmet need in HIV-positive women could be prevented if these gaps were addressed with increasing the options for and information about appropriate modern contraceptive methods.

2.3 FACTORS ASSOCIATED WITH CONTRACEPTIVE CHOICES AMONG HIV-POSITIVE WOMEN

Just like other women, HIV-positive women will likely be more successful at using a contraceptive method when they make the choice of the method themselves (Stephensen, Beke & Tshibangu, 2005). Adequate and proper counselling on the use of contraceptive methods is therefore required by these women to enable them make the choice to use effective methods which reduce the risk of HIV and STI transmission (Cates, 2001). Besides being counselled on the use of contraceptive methods, these HIV-positive women have to make their choice based on locally available methods and on their desire to bear children or not.

Although the choice to use a method of contraception depends on the intention to have children, some control over several factors responsible for the realization or frustration of these intentions is required (Ajzen & Klobas, 2013). This choice was elucidated using the social-psychological Theory of Planned Behaviour (TPB) which explains how three sets of beliefs influence women's choice of having children or not. According to this TPB, the intention to have children is determined by: *behavioural beliefs* (perceived positive or negative consequences of having a child and the subjective values or evaluations of these consequence); *normative beliefs* (perceived expectations and behaviours of important referent individuals or groups, combined with the person's motivation to comply with the referents in question); and finally, *control beliefs* (perceived presence of factors that can influence a person's ability to have a child) (Ajzen & Klobas, 2013).

There exists evidence of fertility intentions predicting fertility behaviour (Gillmore et al. 2002; Vinokur-Kaplan, 1978). In a study involving 749 students in the United States, Gillmore et al. (2002) examined fertility intentions and behaviours of participants in which they described significant paths from intentions to behaviour and from norms to attitudes among participants. This study equally revealed paths from outcome and normative beliefs to attitude and norm which were equally significant as had been described by Vinokur-Kaplan (1978) in an earlier study (Gillmore et al. 2002). However, the relation between fertility intentions and behaviour should be treated with caution as other studies in different contexts and countries have revealed

that family size desires and norms are not always matched by the actually observed completed family size (Bongaarts, 2001).

Other studies reveal the influence of background factors (*control beliefs*) including individual, demographic and societal factors on fertility intention. The role of these background factors including nationality, general life values, attitudes to childlessness, personality characteristics, religiosity and demographic variables (such as age, parity, housing conditions, income and education) have all been shown to influence the intention of women to have children to various degrees (Ajzen & Klobas, 2013; Bernadi, Mynarska & Rossier, 2015).

Many women including those infected with HIV remain unable to make decisions regarding their sexual and reproductive health as a result of background factors including economic dependence, cultural or religious attitudes towards the rights of women (UNAIDS 1999). Reports have equally mentioned the attitudes of health care providers as being coercive with limited consent sought from HIV-positive women regarding decision-making on their sexual and reproductive health (Strode et al., 2012; Ramkissoon et al., 2006). In a study in Zimbabwe involving 38 HIV-positive women, cultural beliefs and economic factors were identified to influence decision-making among these women and how they expressed their sexuality (Duffy, 2005). In this Zimbabwean study conducted in rural Ndau, modern contraception was attributed to prostitution thereby causing both married and unmarried couples to refrain from using them. Women suggesting the use of condoms were perceived to be infidels. Even among sero-discordant relationships in which the husband was HIV-positive, the women had little or no influence on the type of contraception to be used (Duffy, 2005). Stephenson and Hennink (2004) in another study in Pakistan reported administrative, economic, physical and psychosocial and cultural barriers influencing the choice to use contraception amongst rural and urban women. The lack of a sustainable means of income rendered HIV-positive women dependent on their spouses in these societies while cultural and administrative factors hampered the chances of HIV-positive women from making decisions on their choice of contraceptive use in certain societies (Ramjee & Daniels, 2013). In addition, the decision-making roles of HIV-positive women were violated in the KwaZulu-Natal and Gauteng provinces of South Africa where the attitudes of health providers hampered 22 HIV-positive women from deciding on their reproductive health as neither their consent was sought nor sufficient information provided to them on other contraceptive options (Strode et al., 2012). Other findings in South Africa revealed that women living with HIV weren't provided adequate

information on the most appropriate contraceptive methods with some HIV-positive women lacking access to sterilization services where women permanently no longer wished to become pregnant (Ramkissoon et al., 2006; De Bruyn, 2002). Health provider attitudes therefore played a huge role in shaping decision-making of these HIV-positive women.

More studies conducted in sub-Saharan Africa have further examined these and other factors associated with contraceptive choices among HIV-positive women in particular. In Kericho in Kenya for example, HIV-positive women's choice of contraception use was influenced by several factors. The opinions of male partners, HIV status of women, not attaining desired parity and menstrual changes negatively influenced the choice to use contraception amongst these women (Imbuki et al., 2010). Other factors including side effects of ART, some contraceptive methods and advanced HIV disease were identified as causing women to abstain from sexual activity. Elsewhere in Cote d'Ivoire, marital status and level of education remained significant factors influencing the choice of contraception use of 39% among HIV-positive women in Abidjan (Desgrées-du-Loû et al., 2002). Furthermore, a cohort study involving the examination of the incidence of pregnancy among HIV-infected women in seven sub-Saharan African countries identified younger age, lower educational attainment, being married or cohabiting and higher CD4 cell counts as factors affecting the use of contraception and consequently pregnancy (Myer et al., 2010).

Results of another study conducted in the Far North Muslim-dominated region of Cameroon (Maroua) among HIV-positive women revealed causes specific to that context. The factors which favoured HIV-positive women's choice to use contraception was their intention to avoid an aggravation of infection among participants, poor financial status and being unmarried (Nkwabong et al., 2015). However, the participants in the Maroua study didn't mention reasons such as preventing STI transmission, HIV reinfection or avoiding unintended pregnancies as reasons for their use of contraception.

In summary, behavioural, normative and control (background) factors all influence contraceptive choices among HIV-positive women (Ajzen & Klobas, 2013). Although the choice to use contraception relies on these factors, provider attitudes and fertility intentions of HIV-positive women also contribute to the choice of using a method of contraception.

2.4 HIV-POSITIVE WOMEN'S FERTILITY INTENTIONS

Just like other women of reproductive age, many HIV-positive women desire childbearing and parenthood despite having a chronic illness. This is supported by evidence from studies revealing that HIV-positive women intentionally continue to desire children after knowing their HIV status (Chen et al., 2001; Kaida et al., 2011). This desire for pregnancy however remains higher in HIV uninfected women compared to HIV-positive women in a study in South Africa (Pelzer et al., 2009; Lewis et al., 2004).

Some studies have examined the childbearing plans of HIV-positive individuals considering individual HIV-status versus a generalized HIV epidemics context. According to a study conducted in Zambia (Ndola), individuals living in high HIV-prevalence areas believe that HIV-positive persons should limit childbearing to protect their own and their children's health (Rutenberg, Biddlecom, & Kaona, 2000). In the same study in Zambia, some study participants reported feeling limited to bearing fewer children as they had to care for AIDS orphans.

There are reports of HIV-positive women having divided opinions in Durban (Kwazulu-Natal) about discussing fertility desires with their spouses because it necessitates discussions on HIV status and contraceptive use (Marlow et al., 2012). In this study, the fear of being abandoned by the partner after a declaration of their "HIV status" prevented such discussions and in some instances, would influence fertility desire negatively.

In a study involving 1855 HIV-positive women in Ethiopia, Asfaw and Gashe (2014) reported 815 (44%) desiring to have children. Although this study didn't mention the number of children the women currently wanted to have in the future, it identified 558 women (30.1%) as having no children and 1013 women (54.6%) having one or two children (Asfaw & Gashe, 2014). In Cameroon, Mbu et al. (2014) mentioned that of HIV-positive women 36.9% in Yaoundé desired to have children but didn't investigate the number of children they wanted. While the above authors examine the desire to have children among HIV-positive women, they fail to integrate their average local fertility rates (total births per woman). Such discussions permit the understanding of representations on mean family size which might influence fertility intentions as described by Hagewen and Morgan (2005). Elsewhere in Cameroon, the study conducted by Nkwabong et al. (2015) in Maroua didn't examine the fertility intentions of the HIV-positive women but was limited to contraception knowledge and use.

In summary, HIV-positive women desire children and take action based on their fertility desires. Although the desire for pregnancy remains higher in HIV uninfected women compared to HIV-positive women, several reasons account for this.

2.5 FACTORS THAT AFFECT HIV-POSITIVE WOMEN'S FERTILITY INTENTIONS

There is evidence of factors reported to influence the fertility intentions of persons living with HIV. Although evidence suggests that fertility intentions may rise with increasing time on ART in women, biological and background factors also affect these intentions (Myer, Morroni & Rebe, 2007). In this study examining determinants of fertility intentions involving 227 HIV-positive women receiving ART in South Africa, several factors were cited. These included; female age, years of schooling, median duration on ART, being in a relationship/married/cohabiting, duration of relationship, HIV status of partner and discussing pregnancy plans with the partner (Myer, Morroni & Rebe, 2007).

Evidence of research from another study conducted among 1855 HIV-positive women in Ethiopia revealed other factors influencing these intentions such as; an improved health condition after consuming ART, advice from health workers (4%), the need to have an ideal family size (4%) and the decision of the partner (95%) (Asfaw & Gashe, 2014). Moreover, the intention of becoming pregnant in HIV-positive women was equally influenced by social concerns as well as societal and cultural expectations. This was the case among HIV-positive women who cogitate on the possibility of not surviving long to raise their children, fear being stigmatized or who might give birth to HIV-positive children demanding significant care (Cooper et al., 2007).

In another study conducted in 2007 in Kampala (Uganda) involving 114 sero-discordant couples, factors such as having a regular partner, perception of the partner to want children, ethnicity, young age, personal health status, knowledge of ART effectiveness, contraception knowledge and cultural issues were identified to influence the desire to have children (Beyeza-Kashesya et al., 2010).

Other studies in sub-Saharan Africa portrayed the pressure of women of childbearing age to have children irrespective of their HIV status (Tamene & Fantahun, 2007). Such contextual pressures which could be cultural or religious clearly could influence fertility intentions of persons living with HIV.

Elsewhere, the attitudes of health care providers have been reported to influence reproductive health choices of people living with HIV (Cooper et al., 2009). Such influences could be negative as revealed in a South African study in which women living with HIV weren't provided adequate information on the most appropriate contraceptive methods with some HIV-positive women lacking access to sterilization services (Strode, Mthembu & Essack, 2012). Providing the right reproductive health information to PLWHIV could affect their fertility choices. Without appropriate counselling on how to avoid transmission when desiring children or how to prevent pregnancy, HIV-positive individuals are more inclined to follow their own reproductive desires with guidance (Bekker & Black, 2009). Thus, pursuing unguided reproductive desires leaves them with not-well-defined fertility intentions which in-turn exposes them several risks.

2.6 CONCLUSION

The use of contraception among women not wanting to become pregnant and the reproductive intentions of HIV-positive women vary in different contexts together with the various factors influencing them (Ajzen & Klobas, 2013; Bernadi, Mynarska & Rossier, 2015; Myer, Morroni & Rebe, 2007). Although these fertility intentions may rise with increasing time on ART, there exists behavioural, normative and control beliefs which all influence the intention of HIV-positive women to bear children (Ajzen, 2013). These factors interact in a complex way to determine intended and unintended reproductive outcomes among women living with HIV.

Although the use of contraception and fertility intentions would vary in different context as per mentioned factors, very few studies have examined this in Cameroon. This study sought to examine the use of contraception among HIV-positive women in Yaoundé (Cameroon) together with the factors influencing fertility desire and their intention to bear children in order to address gaps in our knowledge.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

This chapter describes the process and methods used to conduct this study. The description of the study setting is followed by a description of the study design, study population, data collection, analysis, validity and ethical considerations.

3.2 STUDY SETTING

Cameroon is a sub-Saharan country with a population of about 23 million inhabitants spread over the 10 regions of the country according to the World Health Organisation (WHO) (2015). It ranks 153 out of 188 countries on the United Nations Development Programme's Human Development Index of 2014 with inequalities observed across all 10 regions in the country (Malik, 2014). According to World Bank statistics, almost 38% of the population live below the poverty line (UNDP, 2015). The life expectancy at birth is 56 years for males and 59 years for females. More statistics from the WHO (2015), reveal that the maternal and under-5 mortality ratios are 596 per 100 000 live births and 71 per thousand respectively. According to the Demographic Health Survey (2011), the main causes of maternal deaths are bleeding during delivery or post-partum, non-progressive labour, infection and hypertensive emergencies in pregnancy. Amongst children under five years, the main causes of morbidity and mortality are malaria, acute respiratory infection, diarrhoea, measles malnutrition and new-born conditions after delivery (Institut National de la Statistique, 2012). Additional statistics from the National Institute of Statistics (2011) reports the national prevalence of HIV amongst the 15-49 age group as 4.3% with regional disparities in the value.

3.3 STUDY DESIGN

A cross-sectional analytical study design was used to collect information from HIV-positive women on their use of contraception and fertility intentions. This cross-sectional study design which falls under a descriptive design aims at describing the frequency of an observed phenomenon including demographic factors and lifestyle variables (Hennekens & Buring, 1987). Cross-sectional studies facilitate the investigation of risk factors and health outcomes.

The choice of the study design was informed by the need to have a snap-shot of the prevailing situation regarding the fertility intentions of these HIV-positive women. With this design, it was equally possible to assess the uptake of contraception amongst HIV-positive women avoiding pregnancy and related health habits. The factors influencing the future fertility

intentions of these women could also be identified using this study design. Although it remained difficult to identify causal risk factors, this study design enabled the assessment of exposures associated with the uptake of contraception and women's fertility choice.

Cross-sectional analytical designs are relatively cheap and can be conducted over a short time period (Hennekens & Buring, 1987). Due to the limited available time to complete this study including the limited funding, this design was appropriate. Information collected using this study design remains useful in assessing the health needs of populations (Beaglehole, Bonita & Kjellstrom, 1997). By means of this design, information on HIV-positive women's personal characteristics, pregnancies, fertility choices, intentions and their use of contraception were collected and examined in relation to their age, level of education and socio-economic factors.

3.4 STUDY POPULATION

Two health districts reporting high prevalence rates of HIV in Yaoundé were conveniently chosen as clusters for inclusion in the study. The reason for convenience sampling was largely to permit the study to be conducted with the limited funding available. Furthermore, these districts could be assessed with relative ease following the modification of the administrative structure of districts and the short time period available to conduct the study.

The study population consisted of women previously diagnosed with HIV who visited the *HIV day care units* in the two districts for their treatment. Recruitment was done in the *day care units* of the Biyem-Assi and Cité Verte district hospitals, which are the only government-owned health facilities in both health districts providing care to people living with HIV. This was the easiest way to access the study population. Although HIV services were offered free-of-charge, persons living with HIV could obtain some form of contraception (like condoms) free while other advanced methods had to be paid for. For most types of contraception (reversible methods), the spouse's/partner's permission isn't required.

3.5 SAMPLE SIZE

A total population of 24 000 women aged 20 to 49 years was obtained by calculating 20% of the population (public health estimate) of both health districts which amounted to approximately 120 000 male and female inhabitants. Each of the two health districts was considered as a cluster from which women living with HIV within the target age group were recruited. Both districts therefore served as sampling units from which *day care units* were identified where participants were recruited. With the use of the national prevalence of HIV of

5.3% amongst women of childbearing age (Institut National de la Statistique, 2012), an approximate population of HIV-positive women of 1 272 was obtained for both health districts.

By means of using a prevalence of 50.7% for condom use amongst HIV-positive women obtained from a study conducted in the Far North region of Cameroon (Nkwabong et al., 2015) the sample size was calculated for both health districts. Using a prevalence of 50.7%, a population size of 1 272 for both health districts in Yaoundé, a precision of 5%, a design effect of 1 and considering two clusters for the two health districts, a calculated sample size per cluster of 148 was obtained using CDC Epi Info version 3.5.4. The sample size for two clusters, which is two districts, amounted to 296.

To account for withdrawal or non-response from the study, 10% of 148 which is about 15 were added to the sample of 148 to obtain a final sample size of 163 for each district and thus, 326 for both districts. A total of 326 women living with HIV were interviewed during the period April 2017 to September 2017. Another 62 women denied consenting to take part in the study and were not interviewed.

Selection criteria were used to include or exclude women taking part in the study. The inclusion criteria were;

- HIV-positive women between the age of 20 and 49 years visiting the *day care* centres of the Biyem-Assi or Cité Verte hospitals

The exclusion criteria for women in the study were:

- Adolescent minors infected with HIV (under 20 years according to Cameroonian legislation) excluded for ethical reasons further explained below.
- HIV-positive women who had not been living in Yaoundé during the last three months before the study was conducted but who were visiting the health structure at the time of the study.

3.6 SAMPLING PROCEDURE

The Biyem-Assi and Cité Verte health districts served as clusters within which all hospitals with HIV day care units were accessed for participant recruitment. A total of 326 participants were interviewed from the day care units of two hospitals within the two districts. HIV-positive women within the ages of 20 to 49 years were interviewed. Systematic sampling was used to select the women confirmed to be living with HIV from the day care units. Every second HIV-

positive woman who attended the clinic (according to their order of arrival) during week days was included in the study during a period of five months (April to September 2017) by trained nurses. If a woman declined participating, the next woman was automatically considered.

3.7 METHOD OF DATA COLLECTION

Data was collected using a modified questionnaire (Appendix 1) which was adapted to the local context from a WHO standardized questionnaire on family planning practices and to which questions on dual protection, fertility intentions and risks of HIV-positive women were added (Cleland, 2001). The questionnaire was organized into sections to ask clear and unambiguous questions. The sections in the questionnaire collected information on personal/family/socio-economic characteristics, information relating to pregnancy, information on HIV status and information on family planning. The questionnaire which included semi-structured questions was translated into the French language. The questionnaire was answered by study participants within a maximum time of 20 minutes. It was pre-tested on a group of ten HIV-positive women visiting the Cité Verte hospital maternity (different from the Day Care unit) to test its feasibility and errors identified were corrected. Pre-testing the questionnaire in both English and French also permitted the wording to be adjusted based on feedback from those involved in the pre-test.

Two data collectors in each hospital (working in the Day Care unit) were selected and trained by the primary investigator on how to administer the questionnaire prior to pre-testing the questionnaire. They were employed on a temporary basis by the investigator. Common terms were defined appropriately during the training exercise to harmonize the understanding of data collectors on items being investigated.

The data collectors during clinic days approached the women attending the clinic according to their order of arrival as stated in the daily HIV register. After explaining the study and obtaining their written informed consent, the study participants were taken to a calm corner in the unit where they answered questions asked by the data collectors who completed the questionnaires.

The primary investigator supervised the process of recruitment and data collection by conducting spontaneous unannounced site visits twice-weekly to ensure that the recruitment procedures were being implemented properly.

Personal variables

The participant variables included here were the age and level of education. The information on age was recorded according to the corresponding age group on the five-year age range. The highest level of education attained by the participant was considered.

Socio-economic variables

Socio-economic variables considered were; marital status and employment status (whether the participants had a job through which they earned regular income).

Contraception use variables

These variables were social and demographic in nature. These were; the number of past pregnancies, timing of last pregnancy, knowledge of participant's HIV-status before last pregnancy, knowledge of HIV-status of partner, agreement on number of children with partner, discussion of sex-related matters with partner, level of difficulty/ease in discussing sex-related matters with partner and decision-making on contraception use.

Intention-to-bear children variables

These were divided into current intentions and future intention to bear children. For current intentions to bear children, the variables included; stigma, cultural norms, menstrual changes due to drugs/advanced age, lack of money for care, desired to maintain or increase family size, consent of partner, availability of parent to raise newly born children, the health situation of the participant and the possibility to have children not infected with HIV.

Future intentions to bear children were influenced by; stigma, cultural norms, menstrual changes due to drugs/advanced age, lack of money for care, desired to maintain or increase family size, consent of partner, availability of parent to raise newly born children, the health situation of the participant and the possibility to have children not infected with HIV. The knowledge of the HIV-status of the partner was equally considered a variable influencing fertility intention.

Fertility choice variables

The social and demographic variables considered here were; knowledge of HIV status of participant before last pregnancy, employment status of participant, marital status, age and highest level of education.

Other variables examining the current fertility choice included; the frequency of use of contraception, type of contraception, reasons for non-use of contraception, type of contraception mostly used, frequency of employing method, last known sexual activity, decision on choice of method used.

The variables of pregnancies (considered as outcomes) with current and last-but-one sexual partners was examined.

3.8 VALIDITY

Validity refers to the extent to which measurements measure what they are intended to measure (De Vos, 2002). In order to improve the validity, the questionnaire was developed to capture the required information and the procedure to collect information was standardized together with the training of those administering the questionnaire. To ensure the validity of the questionnaire content, the principal investigator adapted a standard questionnaire on family planning (Cleland, 2001) by adding supplementary questions to capture desired information. Terms were made simple to minimize measurement bias.

Two data collectors in each hospital were selected and trained by the primary investigator on how to administer the questionnaire prior to pre-testing the questionnaire in French and English. The data collectors trained were nurses who worked in the Day Care Units and had good relations with the HIV-positive women. The choice to use trained day care nurses was justified as a means of minimizing the refusal to participate on the part of research participants. Most clients were either confident or had a good relationship with the nurses in the day care units.

The recall period was limited to cover a specified period of three months so as to reduce recall bias. Scientific validity was assured by selecting the best study design, methodology and analysis of data. Inter-observer variation was minimized through the training of data collectors. This training was equally important to advise the data collectors who already worked in the targeted day care units to maintain neutrality and ensure that they didn't influence the respondents' answers due to their possible existing relationship before the study. The primary investigator who had no work-related affiliation with these day care units reiterated the importance of capturing the answers of the respondents' as they were mentioned.

3.9 RELIABILITY

Reliability refers to the accuracy and consistency of the measuring instrument (Burns & Grove, 2001). Pre-testing the questionnaire enabled the wording of the questionnaires to be adjusted to capture information consistently and accurately.

To further improve reliability, those administering questionnaires were checked twice every week for quality control, through observation by the investigator. The women living with HIV were questioned in a quiet corner of the hospital where other persons were away and the interviewers asked questions in ways that minimised psychological concerns regarding their HIV status. Most interviews were conducted in quiet rooms of the Day Care unit which were private.

3.10 DATA ANALYSIS

Data was entered into the CDC Epi Info version 3.5.4 software. Data cleaning was done to ensure data quality before analysis by the investigator. The key outcome variables considered were the “use of contraception” and the “intention to have children or not”. Social and demographic factors influencing the use of contraception and fertility choice were the exposure variables.

The study participants were described generally with the use of summary statistics. This summary included an overview of participant characteristics, HIV-positive women’s use of contraception, fertility intentions, factors influencing the uptake of contraception and fertility choice. Analysis tables were summarised for all the participants. Categorical variables were summarised with respect to their frequencies and percentages.

A descriptive analysis of the use of contraception, fertility intentions, choice and factors influencing these among HIV-positive women was done. Analysis of any significant differences in characteristics for categorical variables was done using the chi-square test. Frequency distributions and cross-tabulations for all variables were generated.

The contraceptive Prevalence Rate and Contraceptive Prevalence Rate for Dual Protection were measures to determine the use of contraception. The contraceptive prevalence rate was calculated with respect to the various methods used. Prevalence rates were calculated based on the intention to have children “*now*” and in “*future*”. For women who had already been

pregnant in the past, rates were also calculated based on whether they “*had wanted*” or “*had not wanted*” their most recent or last-but-one pregnancies.

The Chi-squared (χ^2) test was used to determine significant associations between the outcomes (use of contraception and intention to have children or not) and all other exposure variables. Analysis was done to assess associations between dual protection and factors influencing the uptake of family planning.

Comparisons and associations were considered statistically significant when P-value was less than 0.05. The 95% confidence intervals (CI) were calculated to reveal statistically significant variables. All percentages and averages were reported to one decimal place. Standard deviations were reported to two decimal places.

3.11 GENERALISABILITY

The results of this study could be generalised to HIV-positive women of Yaoundé and other urban districts in Cameroon with similar characteristics where they could be used for targeted intervention development on family planning or decision making. However, it is worth noting that results obtained in another time frame might have been different and do not apply generally.

3.12 ETHICAL CONSIDERATIONS

Ethical clearance was obtained from the BMREC (Biomedical Research Ethics Committee) of the University of Western Cape in South Africa. In Cameroon, ethical clearance was obtained from the Regional Ethics Committee on health research for the Centre Region where the study was being conducted (Appendices 2 and 3). Letters of permission were deposited at the district health offices covering the respective health districts in which hospitals of interest were located requesting for administrative authorization. All clearances were obtained upon the submission of the thesis protocol and preceded the collection of data in the Day Care units of the two health district hospitals.

The trained data collectors who accessed HIV registers were workers in the Day Care unit and could access only the names of participants. Once participants were identified, identification codes were generated for each participant and marked on the questionnaire without keeping participant names. The informed consent of participants was asked before they took part in the study. The benefits of participating and confidentiality in handling data were explained in details in a quiet and comfortable corner of the health unit. The impact of the interview on the

psychological status of participants was discussed and any participant presenting concerns was directed to meet a counsellor for assistance. They were equally informed that the final decision to participate was their decision and that they could withdraw at any point during the research. They were allowed to sign an informed consent sheet only after having read and understood the Research Participant Information Form which is mentioned below. All participants signed the form out of their free will after understanding all information on the participant information and consent forms. Given that minors (those under the age of 20 years) were not allowed to make judgments for themselves and to minimise psychological risks involved in asking them questions, this study was reserved to women above 20 years. Participants were given a copy of the Research Participant Information Form to keep. They equally kept the contact details of the primary investigator in case they later had any questions. At the end of the data collection procedure, the interviewers appreciated the research participants by thanking them for taking part in the study.



CHAPTER 4: RESULTS

INTRODUCTION

This chapter presents the results of the study. The results cover socio-demographic and other characteristics of the study participants, the use of contraception and factors associated with contraceptive use among HIV-positive women, fertility intentions of participants including factors affecting them and finally, the factors associated with fertility intentions and choice.

4.1 SOCIO-DEMOGRAPHIC AND OTHER CHARACTERISTICS

Socio-demographic characteristics

The majority of the respondents were between the ages of 31 and 40 years (46.9%). This was closely followed by the age group 20 to 30 years (39.9%). Of the 316 women involved in the study, 59.8% were single and 30.4% married. Table 1 below summarises the personal and socio-demographic characteristics of the respondents.

Table 1 - Socio demographic characteristics of respondent HIV-positive women visiting the Biyem-Assi and Cite Verte hospitals from April to September 2017 (N=326)

Age at last birthday	Freq.	Percent
20 to 30 years	130	39.9
31 to 40 years	153	46.9
40 to 49 years	43	13.2
Marital Status	Freq.	Percent
Divorced	10	3.1
Married	99	30.4
Single	195	59.8
Widowed	22	6.8
Highest level of education attained	Freq.	Percent
No school	8	2.5
Primary school	65	19.9
Secondary school	68	20.9
High school	110	33.7
University	51	15.6
Commercial + Technical education	24	7.4
Do you have a paid job?	Freq.	Percent
No	221	67.8

With respect to the highest level of education attained, most of the participants had attended high school (33.7%). This was closely followed by the categories secondary (20.9%) and primary school (19.9%) respectively. Furthermore, only about one-third of the respondents worked for pay (32.2%) and the rest never had jobs.

Of 324 respondents, a majority had been pregnant twice (33.3%), closely followed by those who have been pregnant once (19.8%) and thrice (15.1%) respectively. As Figure 1 below illustrates, only 13% had never been pregnant before in their lifetime.

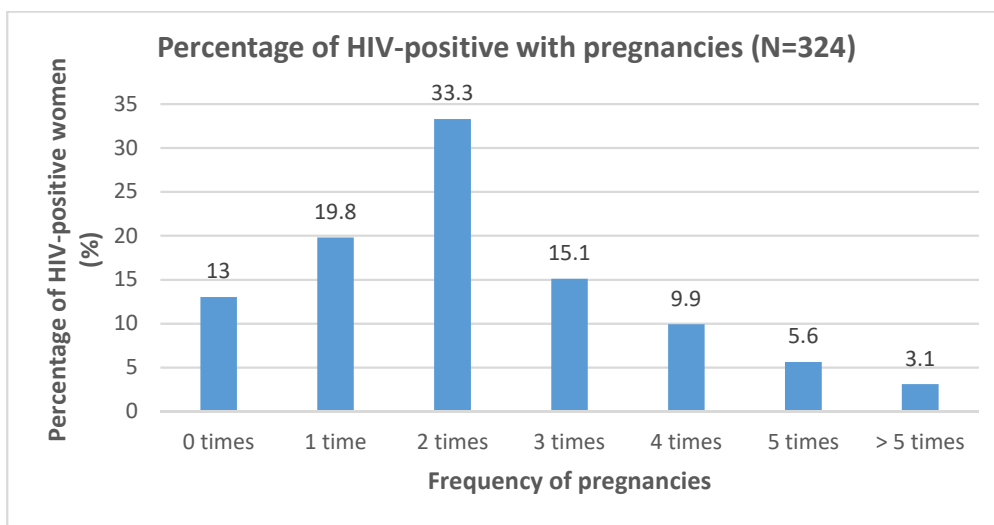


Figure 1 - Respondent pregnancy frequencies among HIV-positive women visiting the Biyem-Assi and Cite Verte hospitals from April to September 2017 (n=324)

Although most of the participants were pregnant, most of them had been previously pregnant over three years ago (58.2%) (Figure 2). Some 282 HIV-positive women had been pregnant at least once in the study. The others had never been pregnant before.

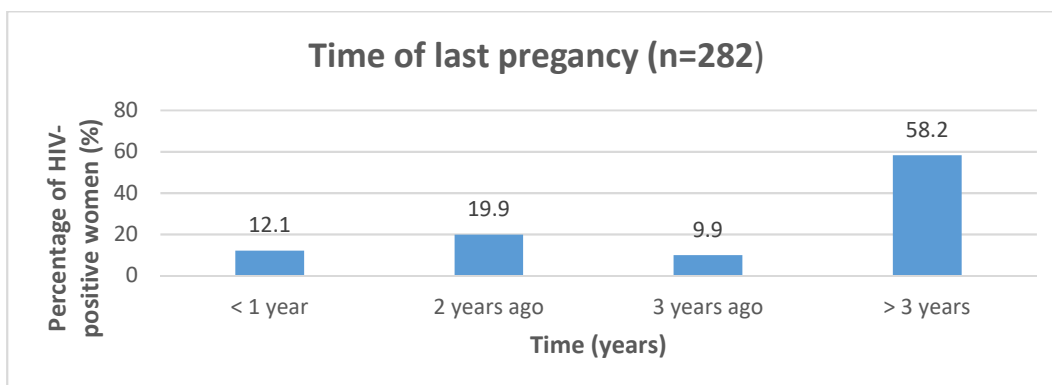


Figure 2 - Time of last pregnancy among HIV-positive women visiting the Biyem-Assi and Cite Verte hospitals from April to September 2017 (N=282)

Awareness of HIV status

Only 58.2% (n=282) of the respondents had tested and knew their HIV status before their last pregnancy. The remainder either didn't know their status (41.8%) before their last pregnancy. Although a majority of the respondents knew the HIV statuses of their sexual partners (66.2%), some (33.8%) didn't know the HIV statuses of their sexual partners. Almost half (31.9%) of those who knew the HIV statuses of their sexual partners affirmed they were HIV-positive as shown in Table 2 below.

Discussions on family size and decision-making

Some 40.8% of the respondents had agreed on the number of children they should have with their partner.

Most of the respondents discussed sex-related matters with their partners often (35.3%) or occasionally (32.5%) and another 30.4% never ever discussed such matters with their partners. Of all respondents, some 48.8% found it easy/very easy talking with their partners while another 33.2% claimed it was difficult/very difficult.

Table 2 - Health and other characteristics of respondent HIV-positive women visiting the Biyem-Assi and Cite Verte hospitals from April to September 2017 (N=326)

Awareness on HIV status before last pregnancy (*n=282)	Freq.	Percent
No	118	41.8
Yes	164	58.2
Knowledge of HIV status of your sexual partner		
No, I don't know for all	110	33.8
Yes, I know for all	216	66.2
HIV status of your partner (including dead partners)		
HIV-negative	108	33.1
HIV-positive	104	31.9
Don't know partner status	114	35
Agreement on the number of children with partner		
No	193	59.2
Yes	133	40.8
Discussed sex-related matters with partner		
I don't have a partner	6	1.8
Never	99	30.4

Occasionally	106	32.5
Often	115	35.3
Ease/difficulty talking with partner		
No response	2	0.6
Not applicable (widower)	2	0.6
Easy + Very easy	159	48.8
Not easy or not difficult	55	16.9
Difficult + Very difficult	108	33.2
Decision making on whether to use contraception use or not		
Joint decision	102	31.3
My decision	93	28.5
My partner's decision	131	40.2
Selecting a particular contraceptive choice/method		
Joint decision	108	33.1
My decision	94	28.9
My partner's decision	124	38

As concerns decision-making on whether to use contraception or not among the 326 respondents, the partners' views were dominant (40.2%). This was closely followed by joint decision-making (31.3%) and only 28.5% of the women making the decision themselves.

With respect to selecting a choice of a contraceptive method to use (Table 2), HIV-positive women made the choice themselves 28.9% of the time. The sexual partner of the HIV-positive women made the choice 38% of the time. In 33.1% of the instances, the choice of the method of contraception to use was jointly made by the couple.

4.2 USE OF CONTRACEPTION

Contraceptive Prevalence Rate

The crude prevalence of those who used contraception (N=232) within the past three months was 71.2% (Confidence Interval: 65.9% - 76%). Some 28.8% of all respondents (n=94) didn't use any method of contraception. From the Table 3, most respondents used dual protection with their partners within the past three months (n=199) as 85.8% of them used condoms. Among those using condoms, some 20.1% of them combined condom use with another modern

method within the past three months. Among the respondents using condoms with their current sexual partner, only 20.2% used it always compared to 62.6% who didn't use it always.

Some 12.5% of participants made reference to traditional methods including safe periods and withdrawal methods as contraceptive methods used.

Table 3 -Prevalence of different contraceptive methods among HIV-positive women using contraceptives ALWAYS or SOMETIMES in the past three months and visiting the Biyem-Assi and Cite Verte hospitals from April to September 2017 (N=232)

Contraceptive method	Freq.	Prevalence (%)
Safe Period	19	8.2
Withdrawal	10	4.3
Condom (dual protection)	199	85.8
Pill	10	4.3
Injection	13	5.6
Other (IUD, Norplant)	9	3.9
** Combination of Condom + another modern method	40	20.1

**Respondents who combined the use of condoms and other modern methods mentioned above

4.4 FACTORS ASSOCIATED WITH CONTRACEPTIVE USE

Several factors were associated with the use of the various methods of contraception among HIV-positive women already mentioned above. Table 4 outlines these factors and their association with use or non-use of contraception in the past three months.

Table 4 - Contraceptive use among HIV-positive women in the past three months with respect to socio-demographic factors in the Biyem-Assi and Cite Verte hospitals (bivariate analysis)

	Contraceptive use in the past three months		p-value
	n (%)	n (%)	
Age Range at last birthday	No	Yes	0.760
20 to 30 years	35 (26.9)	95 (73.1)	
31 to 40 years	45 (29.4)	108 (70.6)	
40 to 49 years	14 (32.6)	29 (67.4)	
Marital status	No	Yes	0.513
Single	51 (26.2)	144 (73.8)	
Divorced	4 (40.0)	6 (60.0)	
Married	33 (33.3)	66 (66.7)	
Widowed	6 (27.3)	16 (72.7)	

Highest level of education attained	No	Yes	0.365
No school	3 (37.5)	5 (62.5)	
Primary school	15 (23.1)	50 (76.9)	
Secondary school	17 (25.0)	51 (75.0)	
High school	33 (30.0)	77 (70.0)	
University	21 (41.2)	30 (58.8)	
Commercial + Technical education	5 (20.8)	19 (79.2)	
Do you have a paid job?	No	Yes	0.953
No	63 (28.5)	158 (71.5)	
Yes	31 (29.5)	74 (70.5)	
Timing of last pregnancy	No	Yes	0.113
< 1 year	7 (20.6)	27 (79.4)	
2 years ago	11 (19.6)	45 (80.4)	
3 years ago	6 (21.4)	22 (78.6)	
> 3 years ago	55 (33.5)	109 (66.5)	
Knowledge of personal HIV status before last pregnancy	No	Yes	0.659
Yes	44 (26.8)	120 (73.2)	
No	35 (29.9)	82 (70.1)	
Never pregnant	15 (33.3)	30 (66.7)	
Agreement on the number of children with partner	No	Yes	0.301
No	51 (26.4)	142 (73.6)	
Yes	43 (32.3)	90 (67.7)	
Discussion of sex-related matters with partner	No	Yes	0.009*
Often	40 (34.8)	75 (65.2)	
Occasionally	18 (17.0)	88 (83.0)	
Never	33 (33.3)	66 (66.7)	
I do not have a partner	3 (50.0)	3 (50.0)	
HIV status of partner	No	Yes	0.162
HIV negative	25 (23.1)	83 (76.9)	
HIV positive	34 (32.7)	70 (67.3)	

*Significant at 5%

Age was not significantly associated with the use of contraception in the past three months ($p=0.760$). Whatever the age group under consideration, the use of contraception wasn't affected.

Marital status was not significantly associated with the use of contraception in the past three months ($p=0.513$). Although both single (62.1%) and married (28.4%) respondents had used more contraceptives, both widowers (6.9%) and divorced persons (2.6%) used little contraception.

The highest level of education attained was not associated with the use of contraception within the past three months ($p=0.365$). High school (33.2%), Secondary school (22.0%), primary school (21.6%) and persons with university education (12.9%) were among the top users of contraception. Those with either no schooling (2.2%) or commercial/technical education (8.2%) didn't use as much as the other groups.

There was no significant association between the use of contraception in the last three months and having a paid job ($p=0.953$). Having a paid job or not didn't increase the possibility of using contraception within the past three months by the participants as a huge number of persons without paid jobs (68.1%) used contraception against only 31.9% who were having a paid job.

There was no significant association between the timing of the last pregnancy and the use of contraception within the past three months ($p=0.113$). The possibility of the use of contraception wasn't influenced by the timing of the last pregnancy. A majority of the respondents (53.7%) had their last pregnancy over three years ago. This was followed by those who had their pregnancies two years ago (22.2%) and closely by those who were pregnant within the year (13.3%).

Reaching an agreement on the number of expected children with partner by the respondent was also not associated with the use of contraception within the past three months ($p=0.301$). Irrespective of an agreement arrived with the partner or not, the use of contraception in the past three months wasn't influenced.

A significant association was observed between the respondent's discussion of sex-related matters with their partner and the use of contraception within the past three months ($p=0.009$). Discussing sex-related matters with the partners was associated with the probability of using contraception in the past three months.

There was no significant association between the HIV status of the respondent’s partner and the use of contraception within the past three months ($p=0.162$). Whether the respondent’s partner was HIV-positive (45.8%) or HIV-negative (54.2%), the use of contraception in the past three months wasn’t influenced.

4.3 FERTILITY INTENTIONS

Past fertility rates

Among women who had been pregnant at least once (N=282), only 66.3% of them “had wanted” their pregnancies with the other 33.7% not wanting their pregnancies. Among this population of women with at least one pregnancy, 58.1% would have preferred to become pregnant at a later period in life.

For women who had been pregnant more than once (N=219), some 78.5% of them “had wanted” their pregnancies with another 21.5% not wanting their pregnancies. In the population of respondents with at least two pregnancies, some 49.7% would have preferred this particular pregnancy at a different moment.

Current and Future intention rates

The rate of respondents intending to bear children “now” was 43.3%. For those intending to have children in future, the crude prevalence rate was 67.4%. More HIV-positive respondents aimed at having children in future.

4.6 FACTORS AFFECTING FERTILITY INTENTIONS

Current fertility intentions

Among all the 326 study participants, 56.7% of them had reasons for not wanting children “now”. Most of them had more than one reason as revealed in Table 5 below. The remaining 43.3% of the study participants responded they wanted children now (Table 6).

Table 5 - Reasons for not wanting children “now” among respondent HIV-positive women visiting the Biyem-Assi and Cite Verte hospitals from April to September 2017 (N=185)

Reason for not wanting children now	Freq.	Percent
Cultural norms guide my choice	6	3.2
Desired # of children reached	41	22.2
Lack of money for care	112	60.5
Menstrual changes due to drugs/advanced age	10	5.4
My health situation is getting poor	13	7

My partner doesn't want any children	5	2.7
Stigma concerns	1	0.5
Others	18	9.7

From Table 5, most of the reasons for not currently wanting children now were explained by the fact that most respondents either lacked money to take care of their family (60.5%) or had attained their desired number of children (22.2%). Menstrual changes due to anti-retroviral drugs or advanced age and the advancing poor health situation of respondents accounted respectively for 5.4% and 7% of the reasons why the HIV-positive women never wanted children now.

Table 6 -Reasons for wanting children "now" among respondent HIV-positive women visiting the Biyem-Assi and Cite Verte hospitals from April to September 2017 (N=141)

Reasons for wanting children now	Freq.	Percent
I want a bigger family	81	57.4
It is possible to have children who are not HIV infected	53	37.6
My health situation is improving	30	21.3
My partner wants more children	38	27.0
Cultural norms guide my choice	3	2.1
Other	2	1.4

Multiple reasons were provided by the 43.3% of the respondents who wanted children "now". As portrayed in Table 6, the respondent's desire to have a bigger family (57.4%), the possibility of having children not infected with HIV (37.6%), the partner's desire to have more children (27.0%) and an improving health situation of the respondent (21.3%) were the main reasons for wanting to have children at the time the study was conducted among the study participants.

Future fertility intentions

Out of the 326 HIV-positive women, 32.5% confirmed they never wanted to bear children in the future while 67.5% intended to bear children in future. As shown in Table 7, most reasons advanced for not wanting more children in future were; the lack of money for care (41.5%) and the attainment of the desired number of children (44.3%) by the respondents. Another 9.4% declined future childbearing due to their declining health situation.

Table 7 - Reasons for not wanting children in “future” among respondent HIV-positive women visiting the Biyem-Assi and Cite Verte hospitals from April to September 2017 (N=106)

Reason for not wanting children in future	Freq.	Percentage
Stigma concerns	4	3.8
Cultural norms guide my choice	2	1.9
Menstrual changes due to drugs or advanced age	5	4.7
Lack of money for care	44	41.5
Desired # of children reached	47	44.3
My partner doesn’t want any children	5	4.7
My health situation is getting poor	10	9.4
Others	9	8.5

Several reasons were advanced by the 67.5% of HIV-positive women who intended to bear children in future. As portrayed in Table 8, the respondent’s desire to have a bigger family (72.7%), the possibility of having children not infected with HIV (26.4%) and the partner’s desire to have more children (16.8%) were the main reasons for wanting to have children in future.

Table 8 - Reasons for wanting children in “future” among respondent HIV-positive women visiting the Biyem-Assi and Cite Verte hospitals from April to September 2017 (n=220)

Reasons for wanting children in future	Freq.	Percentage
It is possible to have children who are not HIV infected	58	26.4
I want a bigger family	160	72.7
My partner wants more children	37	16.8
Cultural norms guide my choice	3	1.4
My health situation is improving	30	13.6
Others	1	0.5

4.4 FACTORS ASSOCIATED WITH FERTILITY INTENTIONS

Several factors influenced the decision of participants to want to have children now. Table 1.9 outlines these factors and the respondents plan to have bear children now or not.

Table 9 - Respondent's current childbearing plans with respect to factors associated with fertility intentions in the Biyem-Assi and Cite Verte hospitals (bivariate analysis). (N=141)

	Respondents planning on having children now		p-value
	n (%) No	n (%) Yes	
Age Range at last birthday			0.003*
20 to 30 years	74 (40)	56 (39.7)	
31 to 40 years	77 (41.6)	76 (53.9)	
40 to 49 years	34 (18.4)	9 (6.4)	
Marital status	No	Yes	0.003*
Single	111 (60)	84 (59.6)	
Divorced	9 (4.9)	1 (0.7)	
Married	47 (25.4)	52 (36.9)	
Widowed	18 (9.7)	4 (2.8)	
Highest level of education attained	No	Yes	0.065
No school	6 (3.2)	2 (1.4)	
Primary school	42 (22.7)	23 (16.3)	
Secondary school	46 (24.9)	22 (15.6)	
High school	54 (29.2)	56 (39.7)	
University	23 (12.4)	28 (19.9)	
Commercial + Technical education	14 (7.6)	10 (7.1)	
Do you have a paid job?	No	Yes	0.015*
No	136 (73.5)	85 (60.3)	
Yes	49 (26.5)	56 (39.7)	
Agreement on the number of children with partner	No	Yes	<0.001*
No	128 (69.2)	65 (46.1)	
Yes	57 (30.8)	76 (53.9)	
HIV status of your partner	No	Yes	0.488
HIV negative	52 (48.1)	56 (53.8)	
HIV positive	56 (51.9)	48 (46.2)	

*Significant at 5%

As outlined in Table 9, there was a significant association between the current intention to have a child now and the age range at the last birthday ($p=0.003$). High percentages of HIV-positive

women in the 31 to 40 years age group (53.9%) and 20 to 30 years age group (39.7%) wanted to have children now.

A significant association was observed between marital status and the current intention to bear children ($p=0.003$). Single and married women accounted respectively for 59.6% and 36.9% of the total population wanting to have children at the moment.

No association was observed considering the highest level of education attained and the current intention to want to bear children ($p=0.065$). However, those who attended high school (39.7%) were predominantly the population wanting to bear children now. This was followed by university (19.9%) attendants.

Having a paid job was significantly associated with the current intention to want to bear children ($p=0.015$). A majority of the respondents with paid jobs (39.7%) were planning on having children “now” compared to those without paid jobs (26.5). In like manner, a larger percentage of respondents without a paid job (73.5%) didn’t plan on having children at that time.

There was a significant association between the intention to bear children and agreement on the number of children to bear with their partner (<0.001). Fertility desire was higher among respondents reaching agreements with their partners (53.9%) on the number of children intended to bear children they wanted in comparison to those who didn’t reach such agreements.

No association was observed considering the HIV status of the respondents’ partner and the current intention to want to bear children ($p=0.488$). As observed, both high percentages of HIV-positive (46.2%) and HIV-negative (53.8%) partners of respondents’ intended to bear children “now”.

4.8 OUTCOME OF PREGNANCIES OF STUDY PARTICIPANTS

As revealed in Table 1.10 below, some of the respondent’s pregnancies didn’t end in live births with 2.2% being abortions and another 3.7% miscarrying following pregnancies with their most current sexual partners. Regarding the last-but-one pregnancies, 3.7% had abortions while 4.6% had miscarriages.

Table 1.10: Outcome of pregnancies of all study participants visiting the Biyem-Assi and Cite Verte hospitals from April to September 2017 (N=326)

Outcome of pregnancy with your current sexual partner	Freq.	Percent
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Abortion	7	2.2
Currently pregnant	8	2.5
Live birth	179	54.9
Miscarriage	12	3.7
Not pregnant with current partner	120	36.8
Outcome of pregnancy with your last-but-one sexual partner	Freq.	Percent
Abortion	12	3.7
Live birth	109	33.4
Miscarriage	15	4.6
Not pregnant with last-but-one partner	190	58.3

4.5 SUMMARY

From the results, not all the participants used contraception. The reasons provided for the use of contraception or non-use of contraception were varied including the method used. Among the respondents who bore pregnancies, some desired them while others would have preferred having babies at a later time. Although most of these pregnancies ended in live births, complications such as miscarriages, and abortions were reported.

There were statistically significant associations observed based on the bivariate analysis of factors influencing the use of contraception within the past three months and current fertility intentions. The next chapter discusses the results in comparison with available literature and other available relevant studies in other similar populations and contexts.

CHAPTER 5: DISCUSSION

INTRODUCTION

This chapter extensively discusses the results of the study which is one of the few to focus on contraception and fertility desires in this context. These findings dealing with the use of contraception among HIV-positive women and their fertility intentions in Yaoundé are relevant for planning and decision-making purposes by the National Aids Control Committee in Cameroon as well as other practitioners providing sexual and reproductive health services to women who are HIV-positive.

The Ministry of Health in Cameroon and National Aids Control Committee have stepped up efforts in rendering contraceptive methods accessible and affordable to couples in recent years. These efforts followed reports of low levels of contraceptive use in sub-Saharan Africa and high unmet contraceptive needs, due to low levels of awareness and factors which limited their use (Moreland et al., 2010; Ashford, 2003). However, the progress made has not been homogenous across districts for several reasons not only limited to the urban or rural nature of the districts but equally largely access (distance) and ability to pay for these services as they are not totally offered free-of-charge.

Amongst the 282 HIV-positive women enrolled in this study who had been pregnant before, some 58.2% of the respondents had tested and knew their HIV status before their last pregnancy. Another 41.8% didn't know their status before their last pregnancy. Sama et al. (2017) found all (100%) of the HIV-positive women visiting three rural antenatal clinics in Ndop (North West region of Cameroon) to be aware of their HIV status and a majority 79.3% of them not having adequate knowledge of Prevention of Mother-To-Child Transmission (PMTCT) of HIV. However, the findings of the Sama et al. (2017) study were obtained in an antenatal study combining a retrospective data review of register data and a prospective phase identifying whether women had been tested against HIV or not at the clinic. This makes comparison to the findings in awareness in this study challenging. However, the exposure of participants in the Biyem-Assi and Cite Verte health districts (based in an urban setting) are completely different from those in the Ndop rural setting. Persons living in the urban districts of Yaoundé would appear to be more aware of their HIV status due to increased awareness raising efforts in this urban setting, high level of education and exposure to messaging on media which is not the case in Ndop. Preventing Mother-to-Child transmission of HIV remains a major cornerstone in the fight against the HIV epidemic and therefore, maternal knowledge on

HIV transmission during pregnancy and its prevention is of relevance. Scaling up the enforcement and provision of combined integrated HIV services and reproductive health services stands at the core of enforcing dual protection and reducing complications which might arise from discovering ones' HIV-positive status to prior to antenatal clinic visits and understanding PMTCT guidelines.

5.1 USE OF CONTRACEPTION

The prevalence rate for the use of contraception among HIV-positive women visiting the day care units of the Biyem-Assi and Cite Verte hospitals within the past three months was 71.2%. This prevalence was much higher than that reported by Mbu et al. (2014) in a review of reproductive health needs of 415 HIV-positive women from four different day care hospitals in Yaoundé in which the prevalence was 39.5%. This prevalence was also higher than the 50.7% observed by Nkwabong et al. (2015) in another study of 200 HIV-positive women who visited the Maroua hospital in the Far North region of Cameroon. However, this prevalence is lower than the 89% reported among HIV-positive women in the United States (Kanouse et al., 2005). The higher contraceptive prevalence rate in this study in Yaoundé potentially demonstrates progress made in reducing the unmet contraceptive needs among the population of HIV-positive women in this context. It reveals gains made by the Ministry of Health and the National Aids Control Committee in scaling up access to contraception, as spelt out in the National HIV/AIDS Control Strategic Plan (National AIDS Control Committee, 2012). Despite the potential progress observed in the increased contraceptive prevalence among HIV-positive women this study as compared to previous studies in the region, conclusions on progress on reducing unmet contraceptive need should be considered carefully as this study didn't examine several aspects affecting access to contraceptives and also had a different sample and target population to the other studies.

The condom was the most common method of contraception used (85.8%) corroborating other findings in Cameroon (Maroua) by Nkwabong et al. (2015), Cameroon (Yaoundé and Douala) by Meekers et al. (2003) and in South Africa (Durban) by Oni et al. (2013). The use of condoms however wasn't consistent and those who claimed using it didn't do so systematically during every sexual activity probably because they didn't have them available at the time. Another reason for the inconsistent use could be that the users either didn't know the consistency of condom use was essential if they wanted to avoid pregnancy and STIs or they wanted children at some point. These findings are similar to those reported in a study among HIV-positive

women in the North West Region of Cameroon by Pilapil et al. (2016) in which 73% of the participants reported inconsistent condom use with factors associated with decreased inconsistency being the highest level of education attained and/or having two or more past pregnancies. Other factors including age, marital status, frequency of sexual activity, number of lifetime partners, age difference between the participant and partner, and age at sexual debut were not associated with the inconsistency of condom use (Pilapil et al., 2016).

Dual protection is identified in the National Guidelines on the Prevention and Management of HIV in Cameroon as one of the benefits of integrating Family Planning and Prevention of Mother-To-Child Transmission (PMTCT) services (Ministry of Health, 2015). The dual protection prevalence rate among HIV-positive women visiting the Biyem-Assi and Cite Verte hospital day care units during the last three months was 85.8%. The major methods combined with the condom were the pill and the injection. Comparisons with other local studies were challenging in this respect as previous local studies didn't examine dual contraceptive use among HIV-positive persons. However, the rate of dual protection observed is higher than the 3.8% observed by Mutowo, Kasu and Mufunda (2014) in a study on dual protection practices among urban women in Zimbabwe. As per the World Health Organization guidelines however, the importance of dual protection should be emphasized especially among HIV-positive women not desiring to bear children with the aim of reducing the spread of Sexually Transmitted Infections (STIs) and complications resulting from both pregnancy and/or infection (WHO, 2015a). Family planning counselling should therefore focus on dual protection among HIV-positive persons wanting to avoid or delay pregnancies.

5.2 FACTORS ASSOCIATED WITH THE USE OF CONTRACEPTION

There was an association between HIV-positive women's discussion of sex-related matters with their partner and the use of contraception ($p=0.009$). Surprisingly, factors such as age ($p=0.760$), marital status ($p=0.513$), highest level of education attained ($p=0.365$), having a paid job ($p=0.953$), the moment the last pregnancy was reported ($p=0.113$), reaching an agreement on the number of children with the partner ($p=0.301$) and the HIV-status of the partner ($p=0.162$) weren't associated with the use of contraception although some studies in different contexts might have found otherwise. This could be explained by the fact that combined *behavioural, normative and control beliefs* which define the ultimate decision to use a method of contraception as explained in the Theory of Planned Behaviour (Ajzen & Klobas, 2013), differ according to context. According to the theory, factors such as age, income, level

of education and other factors could be influenced by general prevailing social norms and wider national or regional cultural values leading to modifications of perceived control for the individual. Furthermore, the context, policies and the wider economic and political environment, were likely to influence the perceived control which led to the use of contraception. Such differences could account for differences in association. These findings are examined in line with other studies below.

The discussion of sex-related matters with the partner was found to be associated with the use of contraception. In one study discussing challenges faced by couples confronting the challenges of HIV infection, HIV clearly impacted sexual discussions among couples negatively and most of those who discussed it, adjusted and used condoms almost routinely (Vandevanter et al., 1999). Such discussions which were challenging were largely dependent on trust between the partners, their level of commitment in the relationship and the couples' reproductive desire. Although the reproductive desires of these women are known and outlined below, this study didn't examine the level of trust between partners and their level of commitment which could have influenced communication between the HIV-positive women and their partners. According to Persson (2008) in another study, HIV couples could be helped to cope by addressing such challenges through communication rather than silence which was considered negative.

Neither age at the last pregnancy, nor marital status, were associated with the use of contraception in the women within the study. No association was observed between the use of contraception and highest level of education women had attained. These findings were different from those in a different study context in the Gondor clinic in Ethiopia receiving HIV-positive women where women with increased age were less likely to use a contraceptive method compared to younger women and associations between marital status and contraception use were also observed (Worke, Bezabih, & Woldetasdik, 2016). In a cohort study in seven sub-Saharan African countries, Myer and colleagues (2010) related a reduction in contraceptive use to factors which independently were associated with an increased risk of pregnancy such as younger age, lower educational level, being married or cohabiting. These differences could be accounted for by the different contexts of the studies. These findings of an absent association between factors such as age, marital status and highest level of education and the use of contraception could be explained by the fertility intentions of the participants, the fear of side effects of contraception (Graham, 2002), religious and cultural beliefs against contraceptive

use in Yaoundé (Mankaa, Kollo and Doh, 2005) and the partner's disapproval of contraceptive use (Vouking, Evina and Tadenfok, 2014).

Pregnant women in their post-partum period might choose a particular method of contraception to avoid pregnancy especially when they have the desire to avoid or delay/space births. In this study, no association was observed between the timing of the last pregnancy and the use of contraception. The need for immediate contraception might be influenced by evidence of intensive exclusive breastfeeding among HIV-positive women post-partum serving as a traditional/natural method to avoid a new pregnancy (Vekemans, 1997).

Having a steady source of income empowers and improves some degree of independence among women (Haneef et al., 2014). Such independence could influence their decisions and choices. In this study, having a paid job affected the women's use of contraception. This could be due to the fact that contraceptive methods were easily accessible, cheap and available locally to the women with paid jobs who could easily afford them in the urban setting where the study was conducted.

Evidence suggests that uninfected partners in sero-discordant couples are at high risk of HIV infection (Eyawo et al., 2010). The knowledge of the HIV status of the partner wasn't associated with the use of contraception in this study. Among sero-discordant couples wanting to delay or avoid pregnancy, safe contraception should be encouraged so as to minimize the risk of new infections and complications which might result from unintended pregnancies.

5.3 FERTILITY HISTORY AND INTENTIONS

Among HIV-positive women who had been pregnant once before (66.3%) and those who had been pregnant twice before (78.5%), 58.1% and 49.7% respectively would have preferred to delay their pregnancies to a later time. These women who would have preferred to delay pregnancies to a later time clearly needed guidance about access to and the safe use of contraceptive methods. This clearly expresses the unmet need of contraception among these women which although beyond the scope of this study needs to be investigated. Such findings of unmet contraceptive needs contradict the findings of increased use of contraception observed among this study population. This could be explained by the fact that factors affecting access and availability to contraception could have changed in this context over time. Although the desire to become pregnant at a later moment is a right which women living with HIV should

be able to exercise (Mantell et al., 2009), the burden of complications which could result from such unplanned pregnancies could be much reduced too.

The rate of respondents desiring to bear children “now” and in the “future” was 43.3% and 67.4% respectively. The main reasons in this study accounting for a positive fertility desire in the future were the desire to have a bigger family, the possibility of having children not infected with HIV, the partners’ desire to have more children and the improving health status of the study participants. These observed current and future desire rates were higher than the 36.86% observed in HIV-positive women by Mbu et al. (2014) in other day care units in Yaoundé. The observed future fertility desire was also higher than the 26% among 227 HIV-positive women in a study in South Africa attending a public sector ART service hospital (Myer, Morroni & Rebe, 2007). In another study by Kanniappan, Jeyapaul and Kalyanwala (2008) in India, the major factors prompting the desire for children in HIV-positive women were their levels of anxiety about the future and whether they had family support.

According to the participant responses, the two major reasons for not desiring children “now” or in the “future” were; the lack of money for care (60.5% *now*, 41.5% *future*) and desired number of children reached (22.2% *now*, 44.3% *future*). These findings are similar to those in a study of HIV-positive women conducted in Western Kenya in which the reasons for not desiring more children included already having reached or surpassed their desired ‘right number’ of children and concerns about the economic burden of feeding and sending additional children to school (Akelo et al., 2015). However, Cooper and collaborators (2009) in another study in Cape Town (South Africa) reported that 55% of HIV-positive women desired no children.

The major reasons provided by respondents for desiring children “now” or in the “future” were; the need to have a bigger family (57.4% *now*, 72.7% *future*), the possibility of having children not infected with the HIV (37.6% *now*, 26.4% *future*), an improving health situation (21.3% *now*, 13.6% *future*) and the partners’ desire for more children (27% *now*, 16.8% *future*). These reasons were similar to those in other studies in Durban (Oni et al., 2013) and Kenya (Mayhew et al., 2017). The findings were also similar to findings in the West Kenyan study by Akelo et al. (2015) in which HIV-positive women desired more children because they either had not yet reached their ‘right number’, had partners who wanted more children, wanted to fulfil God’s will or to prevent gossip about their family. In a different setting, Cooper et al. (2009) reported that being in a sexual relationship, having fewer children and having a partner who is not the

biological parent of their children as reasons for wanting more children among HIV positive women.

According to *Target Map*, the average household size in Yaoundé is about six per household (Target Map, 2017). This household size results from the fact that most youths engage in pre-marital sex resulting to the births of children born within informal sexual unions (Calvès, 2000). A high percentage of the respondents were single (59.6%). These single respondents who could be in informal unions need their intentions to be guided given that some of these informal unions might be a step towards formal unions or lead to them having children.

5.4 FACTORS ASSOCIATED WITH FERTILITY INTENTIONS AND CHOICE

Significant associations were observed between the respondents' desire to have children and several factors including the age ($p=0.003$), the marital status ($p=0.003$), having a paid job ($p=0.015$) and reaching an agreement on the number of children to have with the partner ($p<0.001$). However, there was no association between the desire to have children and factors such as the highest level of education attained ($p=0.065$) and the HIV status of the partner ($p=0.488$). These findings are examined in line with other studies below.

Age was identified as a factor associated with the desire to have children, with younger age groups desiring to have children more than the older age groups. This finding could be explained by the fact that younger persons are at the early stages of childbearing compared to those in older age groups and services for safe conception should target them most. Similarly, Oladapo et al. (2005) identified younger participant age as a factor positively and significantly associated with the desire to have children in a study in Nigeria. Only a very low percentage (6.4%) of the older age group 40 – 49 years desired to bear children.

The study showed a strong association between marital status and the desire to bear children. Both single (59.6%) and married (36.9%) participants had stronger desires to bear children compared to those divorced (0.7%) and widowed (2.8%). This finding could result from the fact that there were few persons in the divorced and widower categories, thus, causing the single and married categories to seem to desire childbearing more. The finding of single persons desiring more children more than married persons has to be treated with caution. It remains possible that single persons who are more likely to be younger compared to married persons would have higher desires for children than the married persons because they have fewer children. The finding is similar to the results in a study in Ethiopia by Asfaw and Gashe

(2014) where widowed and divorced persons were less likely to report childbearing intention compared to single persons.

Earning income through a paid job represents one of the sociocultural characteristics motivating childbearing in an African society like Yaoundé (Institut National de la Statistique, 2012). This study revealed that having a paid job was strongly associated with the desire to bear children. This finding could be explained by the fact that income-earning women are not only empowered to make their own decisions but have the means to take care of themselves and their family as some reasons cited for not wanting children by respondents was the lack of money for care. This finding is similar to that conducted in Kenya where by financial difficulties were a significant reason to avoid childbearing and vice-versa (Mayhew et al., 2017).

This study revealed a significant association between the desire to bear children and reaching an agreement on the number of children to have with the sexual partner. The childbearing desire of HIV-positive women could be influenced by the desire of their sexual partner to bear children or not (Oladapo et al., 2005). Therefore, arriving at an agreement through discussion on the number of children to have was important for women living with HIV in this context.

There was no observed association between the highest level of education attained and the desire to bear children. This finding is contrary to the findings in another study on reproductive health needs of women living with HIV in which Mbu et al. (2014) identify an inverse relation between the level of education and childbearing desire. According to their study, participants with the highest level of education desired to have less children. Generally, higher levels of educational attainment among women correlate with the fewer children they are likely to bear. This could represent a type 2 error as the sample selected doesn't fully represent the total population.

There was no association observed between the HIV status of the partner and the desire to bear children. This is similar to findings in Côte d'Ivoire where HIV-positive status was not shown to significantly influence childbearing (Aka-Dago-Akribi et al., 1999). However, there is the need to educate persons living with HIV on the risks of HIV infection to their children and partners and how to minimize these.

5.5 LIMITATIONS

Recall bias was a potential limitation in this cross-sectional study with a retrospective component because not every participant was able to retrospectively remember information with accuracy to fill the questionnaire (Raphael, 1987). Information collected on exposure variables such as the use of contraception and openness to dialogue with partner, HIV stigma, sensitization, cultural perceptions regarding family planning, marital/relationship status etc. might not have been very accurate.

Cross-sectional study designs in general allow no causal inference between variables (Aitkin, 2001). In this cross-sectional study, no causal inference could be made between the use of contraception and factors which influenced its use. The results obtained could equally have been different if another time frame was used given the design was cross-sectional.

Given the sensitive nature of this topic, it is possible that social desirability and stigma may have influenced the respondent's answers. The emotional state of the participants might have also influenced the answers to the questions by the respondents despite the efforts made by the interviewers in isolating participants. However, efforts were made to minimize this by using trained nurses working in the day care clinics to administer the questionnaire in isolated, quiet and calm locations within the health facilities.

The inability of this study to capture other elements/information about the environment such as the availability of contraception in the community (pharmacies etc.) and the perspectives and influence of friends, partners of participants and family of participants served as another potential limitation of the study. Furthermore, the attitudes of health care providers in the day care units might have influenced fertility intentions and contraception use as evidence in other settings have suggested (Cooper et al., 2009). In addition, factors affecting the availability and access to contraceptive methods could clearly influence the use of contraception.

During the data collection phase of the study, the ages of participants were matched according to ranges on the questionnaire. A typographic error which captured the 40 years age range in two classes was only discovered late into the study. This may affect the classification of some women aged 40 incorrectly in the study.

CHAPTER 6: CONCLUSION & RECOMMENDATIONS

6.1 CONCLUSION

This study on the contraceptive use and fertility intentions among HIV-positive women in the Biyem-Assi and Cite Verte hospitals serves as a baseline study. It is one of the few studies which examines use of contraception, dual protection and fertility intentions among HIV-positive women in Cameroon. However, more studies are required in other urban settings (with characteristics different from those of the districts where the study was conducted) and in rural settings to support the findings in this study.

The use of contraception and more especially dual protection among HIV-positive women wishing to delay/avoid/space pregnancies is relevant in preventing unintended pregnancies, curbing the spread of Sexually Transmitted Infections (including HIV) and avoiding complications which result from both pregnancy and/or infection (WHO, 2015a). These have been incorporated in the Cameroon National Guidelines on the Prevention and Management of HIV (Ministry of Health, 2015). The findings in this study indicate the need to strengthen the implementation of the National Guidelines for the Prevention and Management of HIV with special attention paid to client counselling based on their sexual needs.

This study revealed a prevalence of use of contraception in the Biyem-Assi and Cite Verte hospital day care units of 71.2% which is higher than those in other studies of HIV-positive women in other day care units in Cameroon of 39.5% (Yaoundé) and 50.7% (Maroua) (Mbu et al., 2014; Nkwabong et al., 2015). However, the use of dual protection among the study population of 85.8% was high despite HIV-positive women reporting mistimed/unwanted pregnancies. Family planning services should continue to focus on contraception and dual protection as a means of reducing STI spread and pregnancy complications among the HIV-positive persons wanting to avoid or delay pregnancies.

A review of the past fertility rates of the study participants revealed that most of the participants weren't satisfied with the timing of their pregnancies. According to the responses of women pregnant once before (66.3%) and twice before (78.5%), 58.1% and 49.7% of them respectively would have wanted their pregnancies at a later moment. Addressing these mistimed pregnancies requires that factors affecting the access to and the availability of contraceptives should be examined as unmet contraceptive needs still exist among these women in Yaoundé.

Study participants expressed their desire to bear children now (43.3%) and in the future (67.4%). Another 56.7% (now) and 32.6% (future) didn't intend to bear children. In order to respect the reproductive rights of these HIV-positive women, HIV care providers and clinical practitioners should inquire about HIV-positive women's reproductive plans and guide them accordingly. In addition, HIV-positive women who would want to delay having children should be provided preconception counseling about reversible methods of contraception.

The study identified factors associated with the use of contraception and those associated with fertility intentions. These factors were; the discussion of sex-related matters with the partner, age, marital status, having a paid job and reaching an agreement on the number of children to have. These factors should therefore be considered in existing programs which integrate HIV and reproductive health services.

6.2 RECOMMENDATIONS

The recommendations provided focus on the use of contraception (and dual protection), respecting the reproductive rights and desires of HIV-positive women. They equally stress on the need to reduce mistimed/unwanted pregnancies among HIV-positive women. In regard to the findings from this study, the following recommendations should be considered to improve the services offered to HIV-positive women visiting day care units in the Biyem-Assi and Cite Verte district hospitals.

- Efforts should be made to encourage women of childbearing age to know their HIV status before pregnancy. Some 35.9% didn't know their status before their last pregnancy. By means of a settings approach targeting women of childbearing age, HIV awareness campaigns and Voluntary Counselling and Testing (VCT) should be promoted across a spectrum of health programs to screen a maximum number of women of childbearing age.
- The skills of health staff dealing with persons living with HIV should be strengthened through trainings to enable them to counsel and help HIV-positive women to achieve their desired fertility by providing guidance on conception planning and child spacing. Counselling on fertility desire should be added to the checklist of routine activities of health staff dealing with persons living with HIV. Family planning counselling should focus on long-term/reliable methods by continuing to focus on dual protection among HIV-positive persons wanting to avoid or delay pregnancies.

- The Ministry of Health and National Aids Control Committee should continue efforts to render contraception available and lay emphasis on the use of dual protection for HIV-positive population wanting to delay or avoid pregnancies in its policy. This should be done by addressing impediments affecting the access to and the availability of these contraceptives among the targeted population. The use of dual protection should be encouraged and bolstered in health policies on HIV prevention.
- Since many women expressed a desire for future childbearing, HIV-positive women should be targeted with preconception counseling and provided with adequate knowledge in order to ensure that they are informed about and can ensure safer contraception. The health personnel in day care units should be trained and monitored weekly to raise the awareness of women visiting these care units on safe contraception.
- Given that the use of contraception was associated with HIV-positive women's discussion of sex-related matters with their partner, sensitization and awareness raising campaigns in day care units should put emphasis on promoting effective communication among HIV-positive persons. As a result, efforts should aim at helping HIV-positive person build trust with their sexual partners as a means of fostering effective communication. Such trust can be ensured by availing services of specialized and trained counsellors/psychologists on HIV within the spectrum of HIV services to these HIV-positive women.
- A similar study should be conducted in districts with characteristics different to the Biyem-Assi and Cite Verte districts and further research needs to be conducted to understand reasons contributing to the unmet need of contraception among HIV-positive women who would have preferred their past pregnancies at a later time.

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APPENDICES

Identification Number: [__|__|__|__]

APPENDIX 1 - QUESTIONNAIRE

IDENTIFICATION

Name		Surname	
Residence			

	Questions	Coding	Skip/Code
PERSONAL/FAMILY/SOCIO-ECONOMIC CHARACTERISTICS			
1.1	How old were you at your last birthday?	20 – ≤ 25 yrs.....1 26 – ≤ 30 yrs.....2 31 – ≤ 35 yrs.....3 36 – ≤ 40 yrs.....4 40 – ≤ 45 yrs.....5 46 – ≤ 49 yrs.....6	
1.2	Marital status	Single.....1 Married.....2 Divorced.....3 Widowed.....4	
1.3	What is the highest level of education you have attained?	Never attended school.....1 Primary school.....2 Secondary school.....3 High School.....4 University.....5 Technical.....6 Commercial or Secretarial.....7	
1.4	Are you currently working for pay?	Yes1 No2 I do not have a job3	

INFORMATION RELATING TO PREGNANCY & FERTILITY INTENTION			
2.1	Have you ever been pregnant? IF YES, How many times?	01 1.....2 2.....3 3.....4 4.....5 5.....6 > 57	If 1, go to 2.7 If 2 - 7, go to 2.2
2.2	Given that you have been pregnant before, can you tell me when last you were pregnant?	< 1 year1 2 years ago.....2 3 years ago.....3 >3 years ago.....4	
2.3	Thinking of the most recent pregnancy, did you want the pregnancy at that time or not want it?	Want.....1 Not want.....2	
2.4	Thinking of the last-but-one pregnancy (if applies), did you want the pregnancy at that time or not want it?	Want.....1 Not want.....2	
2.5	Would you have preferred to get pregnant at a later time considering your last pregnancy?	Yes1 No2	
2.6	Would you have preferred to get pregnant at a later time considering your last-but-one pregnancy? (if it applies)	Yes1 No2	
2.7	Did you know your HIV status before your last pregnancy?	Yes1 No2 Never pregnant3	
2.8	Do you plan on having children now?	Yes1 No2	If 1, go to 2.10 If 2, go to 2.9
2.9	Why don't you plan on having children now?	Stigma concerns.....1	Go to 2.11

		Cultural norms guide my choice.....2 Menstrual changes due to drugs or advanced age.....4 Lack of money for care5 Desired # of children reached.....6 My partner doesn't want any children.....7 I won't be alive to take care of my child or children.....8 My health situation is getting poor9 Other (specify) _____10	
2.10	What reasons have made you personally decide to have children now?	It is possible to have children who are not HIV infected.....1 I want a bigger family.....2 My partner wants more children.....3 Cultural norms guide my choice.....4 My health situation is improving.....5 Other (Specify) _____6	SELECT AS MANY THAT APPLY
2.11	Do you plan on having children in future?	Yes1 No2	If 1, go to 2.13 If 2, go to 2.12
2.12	Why don't you plan on having children in future?	Stigma concerns.....1 Cultural norms guide my choice.....2 Menstrual changes due to drugs or advanced age.....4 Lack of money for care5 Desired # of children reached.....6 My partner doesn't want any children.....7 I won't be alive to take care of my child or children.....8 My health situation is getting poor9 Other (specify) _____10	

2.13	What reasons have made you personally decide to have children in future?	It is possible to have children who are not HIV infected.....1 I want a bigger family.....2 My partner wants more children.....3 Cultural norms guide my choice.....4 My health situation is improving.....5 Other (Specify) _____6	SELECT AS MANY THAT APPLY If 1 to 6, go to 2.14
2.14	How many children do you personally intend to have in the future?	zero1 1 child2 Two children3 >Two children4	
2.15	Have you agreed on the number of children with your partner (for those in relationships)?	Yes1 No.....2 I am not in a relationship.....3	
2.16	Have you ever discussed sex-related matters with your partner? If YES Often or occasionally or never?	Often.....1 Occasionally.....2 Never.....3 I do not have a partner.....4	
2.17	Do you find it difficult or easy to talk with your partner about sex-related matters that are important to you?	Very easy.....1 Easy.....2 Not easy or difficult?.....3 Difficult.....4 Very difficult.....5	
INFORMATION ON HIV STATUS			
3.2	Do you happen to know the HIV status of your sexual partner (s)?	Yes, I know for all.....1 No, I don't know for all.....2 More than 1 and I know for all3 More than 1 and I don't know for all.....4	

3.3	What is the HIV status of your partner?	HIV-positive.....1 HIV-negative.....2 More than 1 partner who are all HIV positive.....3 More than 1 partner who are all HIV negative.....4 More than 1 partner who are both HIV positive and negative5	
3.5	Are you taking ARVs?	Yes.....1 No.....2	If 2, go to 4.1
INFORMATION ON CONTRACEPTION			
4.1	Have you used any method of contraception during the last 3 months?	Yes.....1 No.....2	
4.2	Did you and your partner ever use contraception to avoid pregnancy? IF YES Always or sometimes?	Always.....1 Sometimes.....2 Never.....3	If 1 or 2, go to 4.3 If 3, go to 4.4
4.3	If you used contraceptives ALWAYS or SOMETIMES, what contraceptive(s) did you use?	Condom.....1 Pill.....2 Injection.....3 Withdrawal.....4 Safe Period.....5 Other.....6	
4.4	What are the reasons why you never use contraceptives?	Cultural norm guiding my choice.....1 Religious norm guiding my choice.....2 They are expensive.....3 I am in a marriage and my partner doesn't want contraception.....4	

		I am not in a marriage and my partner doesn't want contraception.....5 I don't like using them.....6 We want to have children7 Other (specify) _____8	
4.5	Did you use a condom in combination with another method of contraception?	Yes.....1 No.....2	IF 1, go to 4.6 If 2, go to 4.8
4.6	What method of contraception did you combine to the condom?	Pill1 Injection.....2 Other (specify)3	
4.7	When did you last use a condom in combination with another method of contraception?	< 1 month1 Between 1 month and three months.....2 > 3 months.....3	
4.8	What method(s) do you and your current sexual partner mostly use?	Condom.....1 Pill.....2 Injection.....3 Withdrawal.....4 Safe Period.....5 None.....6	
4.9	When was the last time you used this contraceptive method mentioned above?	< 1 month1 Between 1 month and three months.....2 > 3 months.....3 Never4	
4.10	When was the last time you had sex?	< 1 month1 Between 1 month and three months.....2 > 3 months.....3	

4.11	How often did you use condoms during sexual relations?	Not all the time1 Always2 Not applicable3 Never4	
4.12	Whose decision was it to use any method of contraception or a combination always/sometimes/never? Was it mainly your decision, your current main sexual partner's decision or a joint decision?	My decision.....1 My partners decision.....2 Joint decision.....3	
4.13	Was the choice of the method ALWAYS your decision to make, that of your sexual partner or a joint one?	My decision.....1 My partners decision.....2 Joint decision.....3	
4.14	Did you ever become pregnant by your current sexual partner?	Yes.....1 No.....2	If 2, go to 4.13
4.15	What happened to the pregnancy with your current sexual partner?	Currently pregnant.....1 Abortion.....2 Miscarriage.....3 Live birth.....4	
4.16	Did you ever become pregnant by your last-but-one sexual partner? (if applicable)	Yes.....1 No.....2	If 2, go to end.
4.17	What happened to the pregnancy with your last-but-one current sexual partner?	Currently pregnant.....1 Abortion.....2 Miscarriage.....3 Live birth.....4	



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19 January 2017

Dr P Amaah
School of Public Health
Faculty of Community and Health Sciences

Ethics Reference Number: BM/17/1/29

Project Title: Contraceptive use and fertility intentions of HIV-positive women in two health districts in Yaoundé, Cameroon.

Approval Period: 15 December 2016 – 15 December 2017

I hereby certify that the Biomedical Science Research Ethics Committee of the University of the Western Cape approved the scientific methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval. Please remember to submit a progress report in good time for annual renewal.



The Committee must be informed of any serious adverse event and/or termination of the study.

A handwritten signature in black ink, appearing to read 'Patricia Josias', is written over a white rectangular box.

*Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape*

PROVISIONAL REC NUMBER -130416-050

APPENDIX 3 - ETHICAL CLEARANCE – CAMEROON

<p>REPUBLIQUE DU CAMEROUN <i>Paix – Travail – Patrie</i></p> <p>MINISTRE DE LA SANTE PUBLIQUE</p> <p>SECRETARIAT GENERAL</p> <p>COMITE REGIONAL D'ETHIQUE DE LA RECHERCHE POUR LA SANTE HUMAINE DU CENTRE</p> <p>Tél : 222 21 20 87/ 677 94 48 89/ 677 75 73 30 Mail : crersh_centre@yahoo.com</p>		<p>REPUBLIC OF CAMEROON <i>Peace – Work – Fatherland</i></p> <p>MINISTRY OF PUBLIC HEALTH</p> <p>SECRETARIAT GENERAL</p> <p>CENTRE REGIONAL ETHICS COMMITTEE FOR HUMAN HEALTH RESEARCH</p>
<p>CE N° 00264 / CRERSHC/2017</p>		<p>Yaoundé, le 09 MARS 2017</p>
<h3><u>CLAIRANCE ETHIQUE</u></h3>		
<p>Le Comité Régional d’Ethique de la Recherche pour la Santé Humaine du Centre (CRERSH/C) a reçu la demande de clairance éthique pour le projet de recherche intitulé : « Contraceptive use and fertility intentions of HIV-positive women in two Health Districts in Yaoundé, Cameroon » soumis par Monsieur Penn Amaah.</p>		
<p>Après son évaluation, il ressort que le sujet est digne d’intérêt, les objectifs sont bien définis et la procédure de recherche ne comporte pas de méthodes invasives préjudiciables aux participants. Par ailleurs, le formulaire de consentement éclairé destiné aux participants est acceptable.</p>		
<p>Pour ces raisons, le Comité Régional d’éthique approuve pour une période de six (06) mois, la mise en œuvre de la présente version du protocole.</p>		
<p>L’intéressé est responsable du respect scrupuleux du protocole et ne devra y apporter aucun amendement aussi mineur soit-il sans l’avis favorable du Comité Régional d’Ethique. En outre, il est tenu de:</p>		
<ul style="list-style-type: none">- collaborer pour toute descente du Comité Régional d’éthique pour le suivi de la mise en œuvre du protocole approuvé ;- et soumettre le rapport final de l’étude au Comité Régional d’éthique et aux autorités compétentes concernées par l’étude.		
<p>La présente clairance peut être retirée en cas de non-respect de la réglementation en vigueur et des directives sus mentionnées.</p>		
<p>En foi de quoi la présente Clairance Ethique est délivrée pour servir et valoir ce que de droit.</p>		
<p><u>Ampliation:</u></p> <ul style="list-style-type: none">- CNERSH		<p>LE PRESIDENT</p> <p>DOBO BEYE Casim Pharmacien</p>
<p>www.minsante.gov.cm</p>		

APPENDIX 4 – RESEARCH AUTHORIZATION

REPUBLIQUE DU CAMEROUN
Paix - Travail - Patrie

MINISTRE DE LA SANTE PUBLIQUE

SECRETARIAT GENERAL

DELEGATION REGIONALE DE LA
SANTE PUBLIQUE DU CENTRE

REPUBLIC OF CAMEROON
Peace - Work - Fatherland

MINISTRY OF PUBLIC HEALTH

SECRETARIAT GENERAL

CENTRE REGIONAL DELEGATION
FOR PUBLIC HEALTH

N° 00264 / AP/MINSANTE/SG/DRSPC

Yaoundé, le 13 MARS 2017

Accord de principe

A

Monsieur Penn Amaah

-Elève à l'Université de Western Cape, South Africa, Tél : +237 673 571 128 -

Suite à votre correspondance datée du 08 février 2017 et relative à la demande d'une Autorisation Administrative de Recherche pour la collecte de données auprès des PVVVIH-Sida et prises en charge au sein des UPEC de certains Districts de Santé de la ville de Yaoundé, dans le cadre de vos travaux de fin d'études en vue de l'obtention du Master en Santé Publique,

J'ai l'honneur de vous signifier mon accord pour la réalisation de cette étude dans la région du Centre, en collaboration avec les responsables des Districts de Santé ciblés.

Veuillez agréer, Monsieur, l'expression de ma parfaite collaboration.



LE DELEGUE REGIONAL,

Dr. Moussa Charlotte
MD - MPH

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