FACTORS ASSOCIATED WITH FERTILITY DESIRES, INTENTIONS AND CONTRACEPTIVE USE AMONG HIV-INFECTED AND UNINFECTED WOMEN ATTENDING SELECTED HOSPITALS IN KENYA

MILKER ATIENO SIMBA

DOCTOR OF PHILOSOPHY

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Milker Atieno Simba

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University

Signature….....Date.....

Milker Atieno Simba

This thesis has been submitted for examination with our approval as University Supervisors

Signature….....Date.....

Prof. Linus Gitonga, PhD

JKUAT, Kenya

Signature….....Date.....

Prof. Zipporah Ng'ang'a, PhD

JKUAT, Kenya

DEDICATION

I dedicate this work to all the strong HIV positive mothers and pregnant women, who fight stigma and discrimination by adhering to treatment and staying in care for themselves and their families to ensure a HIV free generation.

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ARV	Antiretroviral
BCC	Behavior Change Communication
CCC	Comprehensive Care Clinic
CPR	Contraceptive Prevalence Rate
C/S	Cesarean section delivery
CWC	Child Welfare Clinic
FP	Family Planning
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IM	Infant Mortality
IMR	Infant Mortality Rates
IEC	Information, Education, Communication
IATT	Inter Agency Technical Team
JRM	Joint IATT Technical Review Mission
KAIS	Kenya AIDS Indicator Survey
KDHS	Kenya Demographic and Health Survey
KFF	Kaiser Family Foundation
MCH	Maternal and Child Health
MMR	Maternal Mortality Ratio
MoH	Ministry of health
MoT	Mode of Transmission

MTCT	Mother to Child Transmission
PLWHA	People Living with HIV/AIDS
PMTCT	Prevention of Mother-To-Child Transmission
PSC	Patient Support Centre
QUAN	Quantitative
QUAL	Qualitative
RH	Reproductive Health
STI	Sexually Transmitted Infection
TFR	Total Fertility Rate
TPB	Theory of Planned Behavior
UNAIDS	Joint United Nations programme for HIV/AIDS
UNFPA	United Nations Fund for Population Analysis
WHO	World Health Organization

OPERATIONAL DEFIRNITION OF TERMS

Fertility desire	a sense of longing for something to happen in this case plan to have a child
Fertility Intentions	Readiness to act or accomplish an action in this case having a child
Attitude	A way of thinking or feeling about something. It is determined by behavioural beliefs and evaluation of behavioural outcomes. May be positive or negative
Normative influence/beliefs	The fact that people sometimes change their behaviour, thoughts or values to be liked or accepted by others.
Control factors	Having the power to influence or direct your behaviour and course of events
If husband is only child	Woman married to a husband who is the only child in the family
Replacing HIV + baby	If a HIV positive with a HIV positive baby attempts to get another baby who is negative in case the HIV positive one dies
Loneliness of one child	One child is considered lonely with no one to play with
Complication from previous with previous birth e.g C/S	Complicated delivery which ends in surgical delivery of baby

ABSTRACT

Of the total number of people infected with HIV globally, more than half are women 15 years and above and 2.1 million are children less than 15 years. In Eastern and Southern Africa, women and girls account for more than half (59%) of the total number of people living with HIV. Kenya continues to have high number of new infections among different population group. In 2017 8,000 children were infected with HIV through mother-to.child transmission (MTCT). Eliminating mother- to-child transmission of HIV is part of sustaining prevention focus to consolidate gains. The main objective of this study was to determine factors associated with fertility desire, intentions and contraceptive use among HIV-infected and uninfected women of reproductive age at selected hospitals in Nyanza and Central regions of Kenya. The study adopted a mixed method design. The study population included HIV-infected women of reproductive age attending Comprehensive Care Clinic and antenatal clinic and HIV-uninfected women attending Maternal Child Health (MCH) clinic. Total sample size was 802 (100 %) women, 437 (54.5 %) were HIV-infected while 365 (45.5 %) were HIV- uninfected. Quantitative data was collected from HIV-infected and HIV-uninfected women from all the six hospitals using semi-structured questionnaire while qualitative data was collected through FGD with HIV-infected and uninfected women and KII with health workers from CCC and PMTCT clinics from two hospitals in each region (a faithbased and a provincial hospital). Ethical clearance and approval was obtained from Scientific Steering Committee (SSC) and the Ethical Review Committee (ERC) of KEMRI. Women aged 30 to 34 years were 4.8 times more likely to intend to have more children than 15 to 19 years (OR=4.77, P< 0.001). Women residing in urban areas were 34% more likely to intend to have more children than those in rural (OR=1.34, P=0.028). While HIV uninfected women were 62% less likely than HIV infected women to intend to have children (OR=1.62, P=0.001). Age, employment status, marital status, region of residence and HIV status was significantly associated with intenton to use contraceptives. Regardless of region, whether HIV-infected or uninfected, fertility desire and intention was high among women. Ministry of Health should consider incorporating psychosocial approaches to PMTCT and enhance health education and promotion for HIV infected women as majority of HIV-infected women desired to have more children.

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Human Immunodeficiency Virus continues to be a major global public health issue. Globally 36.7 million people were living with HIV, 1.8 million people became infected with HIV, and 1 million died of AIDS related illnesses in 2016 (UNAIDS, 2018a). Africa region is the most affected with 25.7 million people living with HIV and two thirds of global total of new HIV infections (WHO, 2018). In Eastern and Southern Africa, women and girls account for more than half (59%) of the total number of people living with HIV while the total number of HIV accounts for 43% of global total new HIV infections (UNAIDS, 2016). Of the total number of people infected with HIV globally, more than half are women 15 years and above and 2.1 million are children less than 15 years (UNAIDS, 2018a). HIV can pass from a mother with HIV to her child during pregnancy, childbirth, or breastfeeding, referred to as perinatal transmission of HIV or mother to child transmission of HIV.

Annually, Kenya continues to have high number of new infections among different population groups. In 2017 8,000 children were infected by HIV through mother-to-child-transmission (NACC, 2018). Thirty nine thousand eight hundred and sixty eight women 15 years and above and 31,167 adult men 15 years and above were newly infected in 2016 (NACC, 2016). While there is steady increase in the number of people on treatment leading to reduced AIDS-related deaths, retention in care among people living with HIV receiving antiretroviral therapy still pose a challenge to viral suppression. Viral suppression is necessary not only for the wellbeing of the HIV-infected, including pregnant women but also a viral suppressed HIV-infected person cannot transmit the infection.

In 2014, UNAIDS launched an ambitious treatment target that covers all people regardless of age, the 90-90-90 targets which anticipated that by 2020, 90% of all people living with HIV know their HIV status, 90% of all people diagnosed with HIV infection receive treatment and 90% of all people receiving ART have viral

suppression, essentially leading to universal eligibility for ART for all HIV-infected people including pregnant and postpartum women (UNAIDS, 2014). The target represents an opportunity to lay the foundation for a healthier, more just and equitable world for future generations.

Following the launch of 90-90-90 targets, WHO made 'treat all' recommendation call and hence removed all limitations on eligibility for ART among people living with HIV, all populations and age groups are now eligible for treatment (WHO, 2015). Universal voluntary counselling and testing followed by immediate initiation of ART for all those diagnosed HIV-positive (universal testing and treatment, UTT) has the potential to reduce HIV incidence dramatically but would be very challenging and the aspect of retaining the clients in care is very imporatant (Jones *et al.*, 2016). Essentially it means pregnant women must access testing through PMTCT services, uptake the treatment, adhere to treatment and finally be retained in care to achieve viral suppression. Since the launch of the 90-90-90 target in 2014, programmatic results have confirmed that it is achievable (Sidibé *et al*., 2016a). HIV prevention strategies include targeted HIV testing services, voluntary medical male circumcision for traditionally non-circumcising communities, linkage to ARV treatment and care and prevention of mother to child transmission of HIV. The elimination of mother-to-child transmission of HIV and syphilis is an important milestone for ending paediatric HIV infection and AIDS.

1.2 PMTCT Approach is Four Pronged

PMTCT covers a package of interventions summarized as 4 prongs, which should be implemented simultaneously: Prong one entails primary prevention of HIV among women of reproductive age including those who are pregnant or breastfeeding with services related to reproductive health such as antenatal care, postpartum/natal care and other health and HIV service delivery points, including working with community structures with a target of reducing HIV incidence among women 15-49 years by 50%. It is the most efficient way to avoid HIV-infections in infants and saves women's lives (Hairston, 2012). The second prong deals with providing appropriate counselling and support to women living with HIV to enable them make an informed

decision about their future reproductive life with special attention to preventing unwanted pregnancies by reducing unmet need of family planning to zero. Prong three is ensuring that pregnant women get HIV testing as a first step in diagnosis of HIV infection and access antiretroviral drugs that will improve mothers' own health and prevent infection being passed to their babies during pregnancy, delivery and breastfeeding with a target of reducing mother to child transmission of HIV to less than 5%, while prong four calls for better integration of HIV care, treatment and support for women found to be HIV positive and their families with a target of reaching 90% pregnant women in need of ARV for their own health. Infant diagnosis still lies behind though there is a steady increase in roll-out of Early Infant Diagnosis (EID) but still too few exposed children are tested, 34% in 2011 to 43% in 2013 (Joint United Nations Programme on HIV/AIDS and others, 2014). Despite progress towards national targets much remains to be done to halt and reverse the spread of HIV in Kenya.

HIV prevalence and fertility pose serious challenges in prevention of HIV transmission through sexual or MTCT. Unmet need of family planning among PMTCT clients is at 17.5% (NACC, 2016). Mother to child transmission of HIV reduced from 14% to 11.5% in 2013 and 2017 respectively (NACC, 2018), this indicate that the improvement made in 2015 when MTCT rate improved to 8.3 % was lost in 2016, meaning large number of HIV positive pregnant mothers may still infect their children if necessary measures are not taken to prevent MTCT. When family planning services are offered, providers frequently limit the number of options for HIV-infected women (Steinfeld *et al*., 2013). This may be due to a lack of information and guidelines on which family planning services are appropriate for HIV-infected women or a manifestation of stigma and discrimination toward people living with HIV, especially toward sexually active HIV-infected women who are considering whether to have, delayed or not to have children. For these reasons HIV-infected women's unmet need for contraception is often higher than that of women in the general population (Ngure *et al.*, 2014). Studies suggest that the rate of pregnancy was significantly higher among women on ART compared to women not on ART (Myer *et al*., 2010). Sirengo *et al* (2014) found that HIV positive PMTCT clients are presenting with subsequent pregnancies without preconception counseling

and laboratory evidence of improved health putting their unborn baby at risk of HIV infection. ART reduces but does not completely remove chances of a mother passing HIV on to her child (Myer *et al*., 2010).

The use of contraception has the potential to reduce maternal mortality and infant deaths through increased birth spacing and avoidance of higher risk, unintended and mistimed pregnancies. Through this study the researcher was looking at the posibility that results may give an opportunity for HIV/AIDS and Reproductive Health program managers to learn from what is going on in Central which can then be tailored in support of Nyanza.

1.3 Statement of the Problem

Efforts to eliminate mother-to-child transmission of HIV (MTCT) continue to escalate globally and advances in prevention of mother-to-child transmission services have led to significant reductions in the number of paediatric infections across Africa (UNAIDS, 2016)

In Kenya 8,000 children were infected with HIV through mother-to-child-transmission in 2017 (NACC, 2018). Fertility desire and intentions of women have implications on perinatal transmission of HIV. However, poor HIV care retention impedes optimal treatment outcomes in persons living with HIV. Maternal concerns around mother-to-child transmission are thought to motivate care attendance during pregnancy in some HIV-positive women (Hairston, 2012). However a study conducted in South Africa found that there is little difference in care attendance among women with and without plans for childbearing (short-term or any), an indication that fertility intentions may not markedly impact care attendance (Ngure *et al*., 2014). The consensus in the research literature is that HIV-positive status does not lead to behavioural changes that would have any noticeable impact – negative or positive -- on fertility. Rather, the main factor is the continued importance of reproduction for both women and men in marginal socio-economic circumstances. In sub-Saharan Africa, cultural beliefs and practices have been shown to be critical determinants of fertility intentions and one's ability to prevent pregnancy if desired (Myer *et al.*, 2010; Tumlinson *et al.*, 2015; Steinfeld *et al*., 2013). The first issue is

whether seropositive status changes fertility desires. On this question, the evidence is mixed. One conclusion that emerges from a review of recent empirical studies is that African women are themselves deeply conflicted about the proper reproductive response to AIDS. One indication of this is the contradictory themes -both pronatalist and antinatalist – expressed by the same set of respondents (Sidibé *et al*., 2016a). Jones *et al* (2016), reviewing research from central and eastern Africa, concluded that reproductive responses are not based primarily on personal assessments of HIV risk to self, partner or child. Understanding the reproductive intentions of HIV-infected sero-concordant couples has received less attention (Ngure *et al.*, 2014). Limited information exists on desire and intention to have children and contraceptive use among HIV positive women 15-49 years old. Fertility desires, intentions and contraceptive needs of this sub group have implications for preventing vertical and heterosexual transmission of HIV. Women living with HIV intending to prevent unintended pregnancy need to have access to contraceptives, while those with intention to have a baby should also get adequate support to prevent perinatal transmission of HIV.

1.4 Justification of the Study

The Kenya Population-based HIV Impact Assessment (KENPHIA) survey of 2018 indicates that Kenya's HIV prevalence now stands at 4.9% with higher prevalence among women at 6.6% compared to men at 3.1% (NASCOP, 2018). Despite awareness of HIV and AIDS and availability of prevention services 34,000 adult women became newly infected in 2016 compared to 22,000 adult men, while 6,613 children 0-14 years became newly infected the same year (UNAIDS, 2018a). Maternal transmission accounts for vast majority of the new HIV infections in children. One conclusion that emerges from a review of recent empirical studies is that African women are themselves deeply conflicted about the proper reproductive response to AIDS. The findings of this study especially on determinants of fertility desire, intention and contraceptive use among HIV-infected and uninfected women of reproductive age will inform Ministry of Health to revise existing policy framework towards embracing appropriate approaches/interventions that will

enhance HIV prevention programs. Addressing this knowledge gap is important in improving mother to child transmission of HIV prevention programs.

1.5 Research Questions

1 What are the levels of fertility desires and intentions of HIV infected and HIV uninfected women of reproductive age in Nyanza and Central regions of Kenya?
2 What factors are associated with contraceptives use among HIV-infected and uninfected women of reproductive age in Nyanza and Central regions of Kenya?
3 What factors are associated with fertility desires and intentions among HIV-infected and uninfected women of reproductive age in Nyanza and Central regions of Kenya?

1.6 Objectives

1.6.1 General Objective

To determine factors associated with fertility desires, intentions and contraceptive use among HIV-infected and uninfected women of reproductive age in Nyanza and Central regions of Kenya.

1.6.2 Specific Objectives

1. To determine the level of fertility desires and intentions among HIV-infected and HIV- uninfected women of reproductive age in Nyanza and Central regions of Kenya.
2. To determine factors associated with use of contraceptives among HIV-infected and uninfected women of reproductive age in Nyanza and Central regions of Kenya.
3. To determine factors associated with fertility desires and intentions among HIV-infected and uninfected women of reproductive age in Nyanza and Central regions of Kenya.

CHAPTER TWO

LITERATURE REVIEW

2.1 Background

Human Immunodeficiency Virus (HIV) is an infection that attacks the body's immune system, specifically the white blood cells called CD4 cells. HIV destroys these CD4 cells, weakening a person's immunity against opportunistic infections, such as tuberculosis, fungal infections, severe bacterial infections and some cancers if not treated can lead to acquired immunodeficiency syndrome (AIDS). The virus can be transmitted through contact with infected blood, semen or vaginal fluids and through mother- to- child transmission (MTCT) (Brew & Garber, 2018).

HIV continues to be a major global public health issue, having claimed 40.1 million lives so far. In 2021, 650 000 people died from HIV-related causes and 1.5 million people acquired HIV. There is no cure for HIV infection. However, with increasing access to effective HIV prevention, diagnosis, treatment and care, including for opportunistic infections, HIV infection has become a manageable chronic health condition, enabling people living with HIV to lead long and healthy lives. There were an estimated 38.4 million people living with HIV at the end of 2021, two thirds of whom (25.6 million) are in the African Region (G*uo* et *al*., 2022). The use of antiretroviral drugs (ARV) has considerably reduced mortality from HIV infection (Redelings *et al.*, 2005). The reduced mortality rate is associated with increased life expectancy which can contribute to the increase of the pandemic rate *(Myer et al.*, 2010; Tumlinson *et al*., 2015; Steinfeld *et al.*, 2013). The HIV pandemic rate might continue to rise due to persistence of MTCT (Machiyama *et al*., 2017). It is possible to reduce MTC transmission in Kenya as MTC transmission has significantly reduced to less than 1% in high income countries (Sirengo *et al*., 2014).

In 2011, an estimated 330,000 children became newly infected with HIV worldwide (UNAIDS, 2012). Over 90% of these infections were acquired through mother-to-child transmission (MTCT), and more than 90% of these occurred in sub-Saharan Africa (UNAIDS, 2012). Worldwide, HIV accounts for 1.5% of all deaths in infants

younger than 12 months of age and 4.9% of deaths in 1- to 4-year-old children (Hairston, 2012). Kenya was among the 22 countries that collectively accounted for 90% of all pregnant women living with HIV. The country accounted for 4% of all new pediatric HIV infections globally and 7% of all child deaths, and each year an estimated 13,000 new HIV infections occurred among Kenyan children (UNAIDS, 2012).

Kenya subscribed to the UNAIDS Global Plan Towards the Elimination of New HIV Infections Among Children by 2015 and Keeping Their Mothers Alive, which seeked to reduce MTCT to below 5% by 2015 and prevent mothers from dying (UNAIDS, 2015). Kenya did not meet the global plan goal 2015. MTCT rate reduced from 14% to 11.5% in 2013 and 2017 respectively (NACC, 2018), this indicate that the improvement made in 2015 when MTCT rate was 8.3 was lost in 2016. According to 2017 county profile, study counties in Nyanza viz; Homabay and Kisumu had HIV prevalence of 20.7% and 16.3% respectively while Kiambu and Nyeri had a prevalence of 4% and 3.7% respectively while the MTCT rate was 11.5% nationally (NASCOP, 2018). In Kenya, as of 2020, prevention of mother-to-child transmission (PMTCT) coverage was 94% nationally and 98% in Homa Bay County. The national MTCT rate increased alarmingly between 2015 and 2020 from 8.3% to 10.8%. Pregnancy and breastfeeding remain periods of high risk of transmission. According to the National AIDS and STI Control Programme, 5% of mothers are newly infected with HIV during pregnancy and 17% during breastfeeding, which pose increased risk of transmission to the infants. Furthermore, 21% of mothers who are pregnant or breastfeeding and living with HIV do not receive antiretroviral therapy (ART) and 47% drop off of ART, which highlights the heightened risk for transmission and poor health outcomes in these phases. Approaches geared toward addressing MTCT need to be prioritized and employed nationally in order to make significant gains toward elimination

2.2 Fertility Intentions and HIV

Globally, studies estimate that 75% of all HIV-infected people are of reproductive age. Sub-Saharan Africa is home to 60% of all people with HIV, and more than half

of these are females (Pustil, 2016). HIV prevalence and fertility rates are high and modern contraceptive use is low. High fertility and aspiration to have more children are a normal phenomenon in many developing countries (Jones *et al*., 2016). The desire for people living with HIV/AIDS (PLWHA) to have children can have significant public health implication.

A study done in Ethiopia showed that almost one in every ten HIV-exposed infants became positive (Spencer *et al*., 2018) as evidence indicates that women living with HIV continue with desire of having more children at varying degrees. For example, two studies conducted in Canada (Raboud *et al*., 2011) and Malawi (Sidibé *et al*., 2016a) showed that the proportions of HIV-positive women who wanted to have children in the future were 69% and 17% respectively. In Ethiopia, different studies indicated different levels of fertility desire among HIV-positive women. A study done in Nekemt Town (Chen & Walker, 2010), Tigray, (Wang *et al*., 2016) and Addis Ababa (Steinfeld *et al*., 2013) demonstrated that the proportions of women living with HIV who had fertility desire were 42.1%, 45.5%, and 56.2%, respectively.

The effects of HIV infection on fertility have been studied in sub-Saharan Africa (Chen & Walker, 2010; Reimondos *et al*., 2009). This was of interest for two reasons: first, to forecast the demographic impacts of HIV and, second, because HIV prevalence among pregnant women was used for estimating general population HIV prevalence levels and trends. More recently, the need to plan and evaluate prevention of mother-to-child transmission (PMTCT) programmes has further increased the importance of accurate predictions of fertility of HIV-positive women and changes therein. Factors influencing fertility desires among HIV-infected individuals remain poorly understood. With universal acess to life –saving ART regardless of CD4 cell count or disease severity, the benefits including, reduced mortality and morbidity among HIV-infected individuals are seen.

A study in Tanzania aimed at quantifying the effect of ART program expansion on fertility rate of women living with HIV(WLWH) of reproductive age, showed that fertility rate among WLWH who were on ART was 50% higher than WLWH who

had not yet started ART (Mbita *et al*., 2019). The fertility rate in this study was inversely related to age and this finding align with other studies (Marston *et al*., 2017; Kabami *et al*., 2014; Maier *et al*., 2009) and mirrow the general population where women are mostly fertile between ages 20-24 years (Kabami *et al*., 2014).

Omoro *et al.,* (2018) found that HIV-infected subjects cited raising children as a way to give purpose to life. In addition, many HIV-infected women reported pregnancy and child birth as a way to regain their sense of womanhood and sexuality, often making childbearing a high personal priority (Hairston, 2012). Gregson *et al*., (2002) in a study of men and women living with HIV in Nairobi Slums showed that fertility desires are complex and ambivalent, reflecting tensions between familial and societal pressures to have children versus pressures for HIV (re-)infection prevention. In this study more than a third (34%) of men and women living with HIV expressed future fertility desires however they concluded that factors independently associated with desiring a child among people living with HIV/AIDS were age, sex, number of surviving children, social support and household wealth of the respondent.

Evidence indicates that HIV positive women continue to desire more children in the future, though to differing degrees in different contexts. Different studies have indicated different levels of fertility desire among HIV- positive women. A study in North Wollow Ethiopia, demonstrated that 15.7% of HIV-positive women had fertility desire (Spencer *et al*., 2018), while Mekonnen & Enquselassie (2017) showed that 44% of HIV-positive women had fertility desire in Addis Ababa as compared to 53% of women in Harari region (Nesredine, 2014) and 92% of women in Oromia region, Ethiopia (Nesredine, 2014). Studies in a number of settings have pointed to different factors which determine the fertility desire of HIV-positive women.

Raboud *et al*., (2011) found that 69% desire and 58% intend to become pregnant in the future. Studies conducted in Southern Africa indicated that fertility levels of HIV-infected individuals were not greatly influenced by their understanding of the risk of HIV infection to their partners and children (Hairston, 2012). This situation is further compounded by the negative attitudes of health professionals towards

childbearing by people living with HIV, which has continually raised questions on protection of their reproductive rights (Cohen *et al.*, 2011).

Iliyasu *et al*., (2019) in a a study in Nigeria, found that 68.4% of the female and 53.8% of male participants expressed the desire for children giving a total of 63.3% of all participants. Among those desiring children, only 4.3 % did not intend to bear any children in the future. In the same study, researchers found factors such as higher monthly income, being on HAART, longer duration of HIV clinic attendance, longer period since diagnosis of HIV infection, disclosure of sero status to partner and higher most recent CD_4 count significantly associated with lowered desire for children. These findings differ from those of Chen & Walker, (2010) in which women with better overall health and HIV positive men and women younger than 40 were more likely to desire children. However, other studies have found that HIV-infected women who are aware of their status are less likely to want to have a child following a HIV-diagnosis.

In South Africa, pregnancy desire was significantly lower in HIV positive than HIV negative women (Peltzer & Pengpid, 2013) and in Uganda only 7 per cent of HIV-infected women wanted to have a child (Makumbi *et al*., 2011). Age, marital, educational, and socio-economic status, cultural and religious beliefs, sexual behaviour as well as family size and losses and access to family planning services are documented predictors of pregnancy (Tumlinson *et al*., 2015). Homsy *et al.*, (2009) found that less than 7% of the women in 2.4years prospective cohort study of 711 HIV positive women on HAART reported wanting children, yet 120 (16.9%) women experienced pregnancies and pregnancy incidence increased from 3.46 per 100 women- years (WY) in the first quarter to 9.5 per 100WY at 24 months.

Studies in Kenya indicate that HIV-infected women were almost eight times less likely to want to have children than HIV negative women (Akelo *et al*., 2013). Mburugu & Adams (2005) in a study found that 13.7% of 468 women on antiretroviral therapy conceived when their CD4 cell count was below 350 cells/ml without receiving any preconception counseling. They further noted that women became pregnant by 'activating motherhood', that is actively planning and

strategizing to get pregnant and having children, further indicating variability of fertility desires and intentions among HIV-infected women. Parenthood remains a central life goal in most societies (Myer *et al*., 2010; Tumlinson *et al*., 2015; Steinfeld *et al*., 2013). In the African family a child is thought of as a prerequisite for fulfilled and happy life. A study from Kenya show that motherhood is important to women on HAART (Omoro *et al*., 2018).

Another study carried out among sero-concordant married couples in Kenya, Nyanza by Withers, *et al.,* (2013), demonstrated that HIV compelled many to reconsider fertility plans, sometimes promoting childbearing intentions in some individuals but reducing fertility plans among most, largely due to fears of early death, health concerns, stigma, perinatal HIV transmission and financial difficulties (particularly in men). Preferences for sons and large families influenced some couples' intentions to continue childbearing, although none had discussed their intentions with healthcare providers.

2.3 HIV and Contraception

Women remain disproportionately affected by HIV epidemic particularly in sub-Saharan Africa, where women comprise 58% of adults living with HIV (UNAIDS, 2012). In 2011, the incidence in children was also highest in sub-Saharan Africa representing more than 90% of children worldwide who become newly infected with HIV (UNAIDS, 2012). Treatment and prevention of HIV infection in women is required to prevent new infections in infants. The number of HIV-infected children <15 years old in sub-Saharan Africa is 91% of the total 3.4 million HIV-infected children globally (UNAIDS, 2012).

It is estimated from data collected from 42 countries in the sub-Saharan Africa that 14 million unintended pregnancies occur each year (Nkwabong *et al*., 2018). Among the 128 million women married or in a union who were 15 to 49 years old in Sub-Saharan Africa, the unmet need of family planning was estimated at 25% according to UNAIDS, 2012. In resource- limited countries too few women are receiving effective Family Planning (FP) of HIV prevention and treatment services to protect themselves and their children (Pustil, 2016). For elimination of mother- to- child

transmission of HIV, WHO recommends a comprehensive PMTCT strategy that includes 1) Primary prevention of HIV infection among women of child bearing age, 2). Family planning for preventing unintended pregnancies among HIV-infected woman, 3) preventing HIV transmission from HIV-infected women to their infants and 4) treatment, care and support of HIV-infected women and their children. The importance of Family planning (FP) has increasingly gained recognition as having a vital role in the prevention of HIVtransmission. Reducing unintended pregnancies among HIV infected women through contraceptives reduces the number of HIV-infected infants as much as the use of antiretroviral (ARV) prophylaxis for PMTCT (Hladik *et al*., 2009; Reynolds *et al*., 2005). It also reduces the number of children potentially orphaned when parents die of AIDS-related illness, decreases vulnerability of women and infants to morbidity and mortality related to pregnancy and breast feeding (Myer *et al*., 2010; Tumlinson *et al*., 2015; Steinfeld *et al*., 2013).

Moreover, FP has proven to be a cost-effective strategy for prevention of HIV transmission, as contraceptive costs are less then those of PMTCT (Reynolds *et al*., 2005).

The choice of contraception in people living with HIV is constrained by the need to prevent both sexual transmission of HIV and unwanted pregnancies (Sirengo *et al*., 2014). Dual function contraceptives that simultaneously prevent HIV transmission as well as unwanted pregnancies might be the most appropriate contraceptive method for women living with HIV and AIDS (NACC, 2016). Family planning is cost-effective for preventing HIV transmission, unwanted pregnancies and maternal mortality and results in fewer orphans (Machiyama *et al*., 2017). Many women do not receive appropriate information from health providers about contraceptive options, including dual protection, and lack of access to contraceptives and emergency contraception may lead to unplanned pregnancy (WHO, 2004). This applies equally to positive women who wish to avoid pregnancy and to those who discover their HIV status during pregnancy.

Although the risk of transmission of HIV from mother to infant can be decreased with prophylactic ARV treatment, maternal transmission accounts for almost all new

infections in children (Chen & Walker, 2010). Preventing unwanted pregnancy among HIV-infected women should be seriously considered if universal PMTCT is to be achieved. HIV-infected women are an important sub population whose counselling and heath service needs differ substantially from those of women who experience unwanted pregnancy (Chen & Walker, 2010). HIV-infected women have a particular need to avoid unintended pregnancy to protect their own health, and eliminate the risk of transmitting HIV to an infant. HIV prevention and family planning services must acknowledge the reproductive desires of HIV positive women and men. In a study among HIV positive women in care, 11 per cent reported becoming pregnant after being aware of their HIV status; all these pregnancies were reportedly unintentional (Ngure *et al*., 2014). Among women on HAART, 9% reported having been pregnant since commencing HAART, of these 30% of pregnancies were reportedly unintentional. High pregnancy desires, low contraceptive use were found among HIV-infected women (Pustil, 2016). Evidence shows that unmet need for contraception is common among women living with HIV/AIDS (Machiyama *et al*., 2017).

Numerous behavioural and contextual factors interact in a complex way to determine intended and unintended reproductive outcomes among women living with HIV. Women face the risk of unintended pregnancy and need for access to family planning remains high. The risk of an HIV-infected mother passing the virus to her infant during pregnancy, labour and delivery or in the postnatal period is 1 in 3 without treatment. Of the one third who becomes infected about 5-10% will be infected during pregnancy, 15% will be infected during labour and delivery while 5-15% will be infected during breastfeeding, (Kenya National Bureau of Statistics (KNBS), 2010). Providing these women with FP/RH care and contraceptive supplies improve their health and lowers risk of MTCT. Increasing contraceptive use among HIV-infected women through voluntary family planning services can avert almost 30 per cent more cases of mother-to-child transmission of HIV than antiretroviral alone (Pustil, 2016).

A study conducted in the US found that although overall rates of unplanned pregnancies are declining, they accounted for at least 45% of pregnancies, despite

progress made in recent years with increased contraceptive options, including long-acting, reversible contraceptives (LARC) with strong safety and efficacy data, unplanned pregnancy remain major public health challenge (Sutton *et a*l., 2018). Sutton *et al*., (2018) further found that most women used some form of birth control methods in the past year. Barrier methods (condoms) were most frequently reported form of contraceptive for women in their study; this is consistent with other studies elsewhere. Other studies by Steinfeld *et al*., (2013) and Homsy *et al*., (2009) indicate that even when women wish to end or delay childbearing, they often do not use contraceptives and engage in lower levels of protective sexual behaviour.

Another sudy in Uganda that looked at desire for children among HIV-infected men and women found that 33% of participants practiced pregnancy risk behaviour, yet only 18% desired more children. Of the 33% practicing pregnancy risk behaviours, 73% of those participants did not want more children and were at high risk for unwanted pregnancies (Snow *et al*., 2011). Demographic and Health survey data from 17 countries demonstrate that 50-88% of women would like to avoid pregnancy in the first year postpartum but are not using contraception, representing an exceptionally high unmet need for FP (UNAIDS, 2012).

According to the KDHS 2008-09, only 32% of women aged 15-49 used contraceptives methods despite high level of contraceptive knowledge. KAIS 2007 found low levels (45%) of modern contraceptive use among Kenyan women aged 15-49 who did not desire a child in the future (NASCOP & NACC, 2016). The low uptake of general population in Kenya presents a risk to the success of PMTCT. Analysis of demographic health survey data of HIV-infected women from Kenya (2003) and Malawi (2004-2005) indicated nearly three-quarters did not want more children within the next 2 years or ever, but only 26% in Kenya and 19% in Malawi were using modern contraceptives (Shapira, 2017). In another study conducted in Kitale District hospital in Kenya only 44% of respondants were using some form of FP (Bii *et al*, 2008).

Reports indicate an increasing trend in fertility among HIV-positive women, especially in Africa (Mekonnen & Enquselassie, 2017) However the attitudes of

some health workers towards the reproductive rights of these women remain unsupportive. For instance, in Kenya health workers reportedly drove HIV-positive pregnant women away, tested women without consent, or disclosed their clients' serostatus in the presence of others. Another study conducted in Mombasa, Kenya by Tumlinson *et al.*, (2015) among HIV-infected female sex-workers (FSWs) only 36.1% were using modern no-barrier contraceptives while 63.9% were not using any method translating to unmet contraceptive need further, unmet contraceptive need was associated with physical abuse in the past year by someone other than a regular partner. Desire for more children and having 2-3 previous pregnancies compared to 0-1 pregnancy, lower number of previous pregnancies and having desire for future children remained significantly associated with higher prevalence of unmet contraceptive need (Tumlinson *et al.,* 2015).

Smilarly, a study by Magadi & Magadi, (2017) among sexually active women of reproductive age from the Kenya Demographic and Health Surveys collected in 2003 and 2008 demonstrated striking differences in factors associated with contraceptive uptake between HIV-positive and HIV-negative women. Education and desire to stop child bearing were strongly associated with contraceptive uptake among HIV-uninfected women, but both factors were not significant among HIV –infected women for whom wealth is the most important factor. While HIV-negative women in the richest wealth quintile are about twice as likely to use contraceptives as their counterparts of similar characteristics in the poorest quintile, this gap is about sevenfold among HIV-positive women.

Due to conflicting findings from different studies it shows that there is varied information on desire and intention to have childen and contraceptives use among HIV-infected women. Different literatures have showed that unintended pregnancy has emergency obstetric complications for women living with HIV/AIDS. Furthermore, the magnitude of unintended pregnancy is 96%, 71%, and 43% in Thailand, South Africa, and Uganda (Gutin *et al.*, 2014; Ethiopia Demographic and Health Survey 2016). According to World Health Organization comprehensive prong two strategy, prevention of mother-to-child transmission of HIV/AIDS is the first strategy to prevent the vertical transmission of HIV to her baby; moreover, this

strategy could be achieved through increasing access to and use of effective contraception (Wanyenze *et al*., 2011; WHO, 2010). Systematic review and Meta-analysis carried out in Ethiopia demonstrated that partner discussion, having adequate information towards contraceptive use, and having desired number of children could increase the utilization; as a result, obstetric complication with HIV positive women due to unintended pregnancy can be significantly decreased (Machiyama *et al*., 2017). The recommended method of contraceptive for HIV-infected women is dual contraceptive method. Dual contraception is a utilization of one of the highly effective modern contraception coupled with condom to ensure protection from unintended pregnancy as well as STIs (Tumlinson et al., 2015). Gyimah *et al*., (2015) in a review of interaction between hormonal contraception and ART concluded that HIV-positive women should be offered a full range of hormonal contraceptive options, with conscientious counseling about possible reduced efficacy of combined oral contraceptives (COCs) and the contraceptive implant when taken with ARVs. Injectibe depot medroxyprogeterone acetate (DMPA) and the levonorgestrel intrauterine system (LNG-IUS) maintain their contraceptive efficacy when taken with ARVs.

Fertility desires, intentions and contraception needs of this sub group of women have implications for preventing vertical and heterosexual transmission of HIV. Experts recommend that prevention be based on "knowing your epidemic," that is, tailoring prevention to the local context and epidemiology, and using a combination of prevention strategies, bringing programs to scale, and sustaining efforts over time (Oppong Asante & Oti-Boadi, 2013). However, recent data shows that the pace of decline in new infections is too slow to reach global targets (UNAIDS, 2018b).

2.4 Fertility Intention and Other Associated Factors (attitudes, subjective norms, and perceptions of behavioural control)

For this study the intervening factors have been adapted from Theory of Planned Behaviour (TPB), a social-psychological framework (Machiyama *et al.*, 2017). TPB comprises three blocks of determinants of intention: attitudes, subjective norms, and perceptions of behavioural control each of which has several components. According

to TPB, to predict whether a person intends to do something, we need to know; whether the person is in favor of doing (attitude). Attitude is determined by behavioral beliefs and evaluation of behavioral outcomes. Behavioral beliefs refer to the perceived positive or negative consequences of having a child and subjective values or evaluation of these consequences. In their aggregate, behavioral beliefs lead to formation of positive or negative attitude toward having a child (Hairston, 2012). The second kind of consideration is to do with the perceived expectations and behaviours of important referent individuals or groups combined with the person's motivation to comply with the referents in question. These considerations are termed normative beliefs and they combine to produce a perceived social pressure or subjective norm with respect to having a child (Machiyama *et al*., 2017). The third construct, is control beliefs which are concerned with percieved presence of factors influencing a person's ability to have a child. Together with perceived power of these factors to facilitate or interfere with having a child, control beliefs produce a certain level of perceived control or self-eficacy, Wagner & Wanyenze (2013) in relation to having a child. The more favourable the attitude and subjective norm with respect to to having a child and greater perceived control, the more likely that a person will form an intention to have a child (Machiyama *et al*., 2017).

According to this model intention is readiness to act, which may be transformed into actual behaviors when condition permits (Dommermuth *et al.*, 2011). Other external factors, including psychological factors such as personality traits, and values, individual differences such as age, gender, cultural background, education, income and religion, and informational factors such as past experience, knowledge and media exposure have been shown to influence attitudes, subjective norm and perceived behavioral control (Makumbi *et al*., 2011). Variables like income, education, religion and parity define the context within which a decision is made (Dommermuth *et al*., 2011). The intention to perform a specific behavior is the proximate antecedent of behavior, in other words, TPB focuses on purposeful actions. Empirically, there is a positive relationship between specific intentions and specific behaviors (Sidibé *et al.,* 2016a). Figure 2.1 shows the conceptual Framework of the study

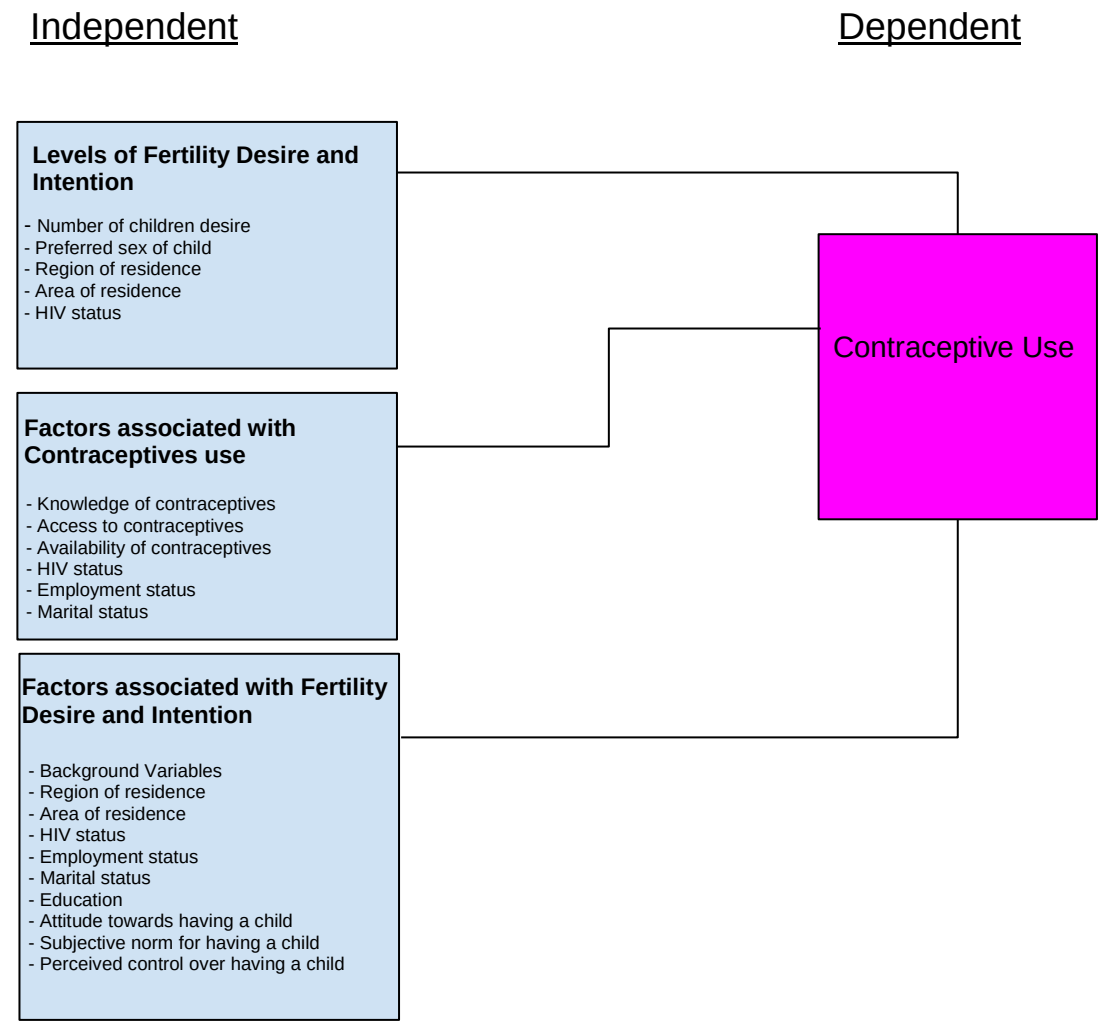

Figure 2.1: Conceptual framework on contraceptive use

CHAPTER THREE

MATERIALS AND METHODS

3.1 Study Areas

The study was conducted in 6 selected public health and faith-based hospitals in Kisumu and Homabay counties in Nyanza region and Nyeri and Kiambu in Central region The choice of these two regions is justified by a number of considerations; 1). Nyanza region has the highest HIV prevalence in Kenya and in particular the selected hospitals where the data was collected, Homabay and Kisumu.Total fertility rate in the region was 5.4% and the distribution of use of modern family planning method was 32.9% lower than overal rural distribution which was at 37.2% (Kenya National Bureau of Statistics, 2010). While in Central region HIV prevalence among women of reproductive age was 5.6% (Mumah *et al.,* 2013). Total fertility rate was 3.4 and distribution of use of any modern family planning method was 62.5% the highest in the country (Kenya National Bureau of Statistics, 2010). Central region data was collected from hospitals; Nyeri and Kiambu counties with HIV prevalence of 5.1% and 1.1% currently. Total fertility rate was 2.7% in both counties while use of modern contraceptive was at 67.1% in Nyeri and 67.8% in Kiambu.

for the higher use of contraception observed in this province in comparison with Nyanza, and hence with the observed regional differences in the use of modern methods of contraception.

3.1.1 Nyanza Region

In Kisumu county Jaramogi Oginga Odinga teaching and referral hospital (JORTH) and Ahero Level 4 and Kendu Adventist hospital in Homabay county were slected for the study. Nyanza region is predorminantly inhabited by the Luo community whose main livelihood hinges around fishing in Lake Victoria. Six counties were organised in the area of the former province. Kisumu county host Kenya's, third-largest city. According to 2019 Kenya census, Kisumu county has a population of

1,155,574. The HIV prevalence is 17.5% (NASCOP, 2021) while Homa Bay county has a population of 1,131,950 and HIV prevalence of 19.6% the highest in the country. HIV prevalence among women of reproductive age in Nyanza region was 16.1% (Mumah *et al*., 2013). (See figure 3.1).

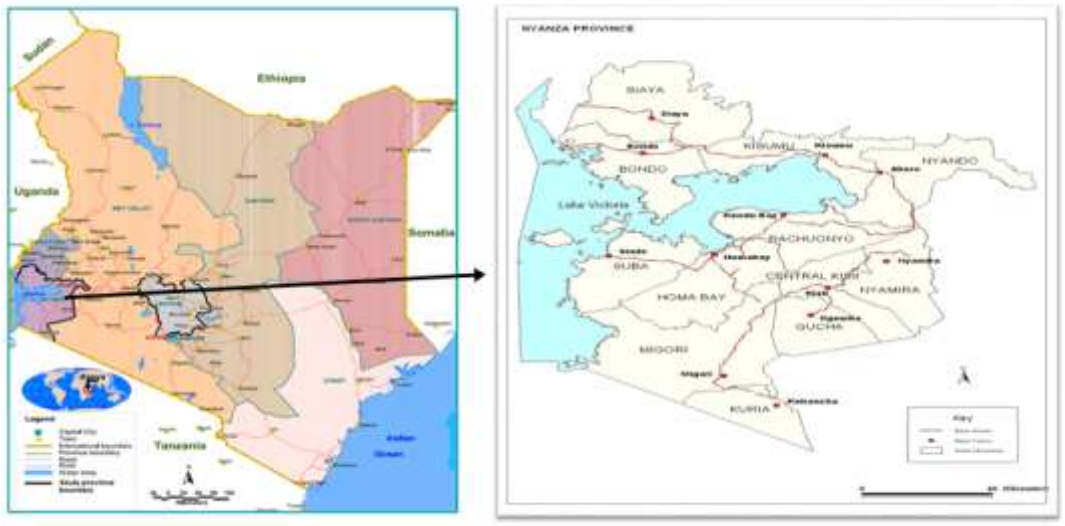

Figure 3.1: Map of Kenya and Nyanza province showing Kendubay, Kisumu and Ahero where the study was conducted (www.mapsofworl.com)

3.1.2 Central region

Central region has Six counties organised in the area of the former central province. It is located to the north of Nairobi and west of Mt. Kenya. The region is ancestral home of the Kikuyu people. It has highly fertile soil and cooler climatic conditions compared to other parts of the country. The land is known for it's production of coffee, Kenya's key export crop. Economic status of the region is higher than that of Nyanza due to the high levels of agricultural products and its proximity to the capital city Nairobi see (Figure 3.2). Nyeri General hospital in Nyeri county and Kiambu county hospital and Nazareth hospital (FBO) in Kiambu county were selected for the study in Central region. Nyeri county has a population of 759,164 and HIV prevalence of 4.3%, leading in Central region while Kiambu has a population of 2,417,735 and HIV prevalence of 2.9%.

The HIV prevalence among women of reproductive age in Nyanza region was 16.1%, while total fertility rate was 5.4% and distribution of use of any modern contraceptives was only 32.9% (Kenya National Bureau of Statistics, 2010) compared to Central region where HIV prevalence was 5.6% while total fertility rate was 3.4% and distribution of use of any modern contraceptives was 62.5% (Kenya National Bureau of Statistics, 2010). The study compared the regions because of the contrast in the various parameter e.g. Nyanza has high fertility rate, high HIV prevalence and contraceptive use is lower then that of Central region, to identify any factors that may be contributing to high fertility rate and HIV prevalence in Nyanza region compared to Central for learning and help inform improvement of reproductive health and contraceptive information in Nyanza. Both qualitative and quantitative methods were used to answer the research question. The mixed method design complemented each other as it allowed the researcher to view the study through multiple lenses or view point hence generating different kind of knowledge (Almalki, 2016).

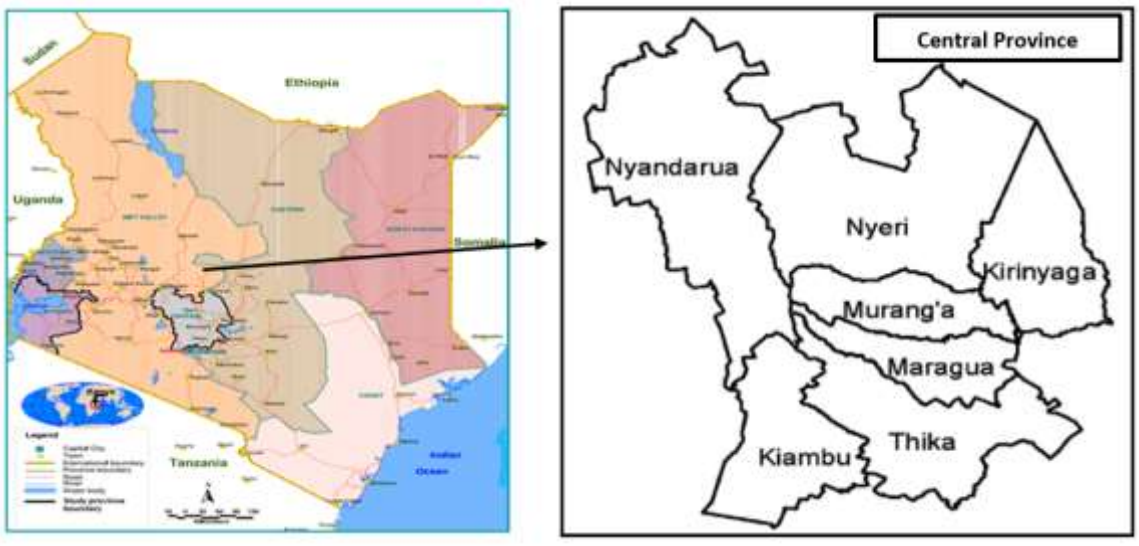

Figure 3.2: Map of Kenya and Central Province showing Nyeri and Kiambu where the study was conducted, Source: (www.mapsofworl.com)

3.2 Study Design

The study adopted mixed method design. Independent variables for comparison included HIV status (HIV-Infected versus HIV-Uninfected) and region of residence (Nyanza and Central). It involved collection of data from both qualitative and quantitative tecchniques

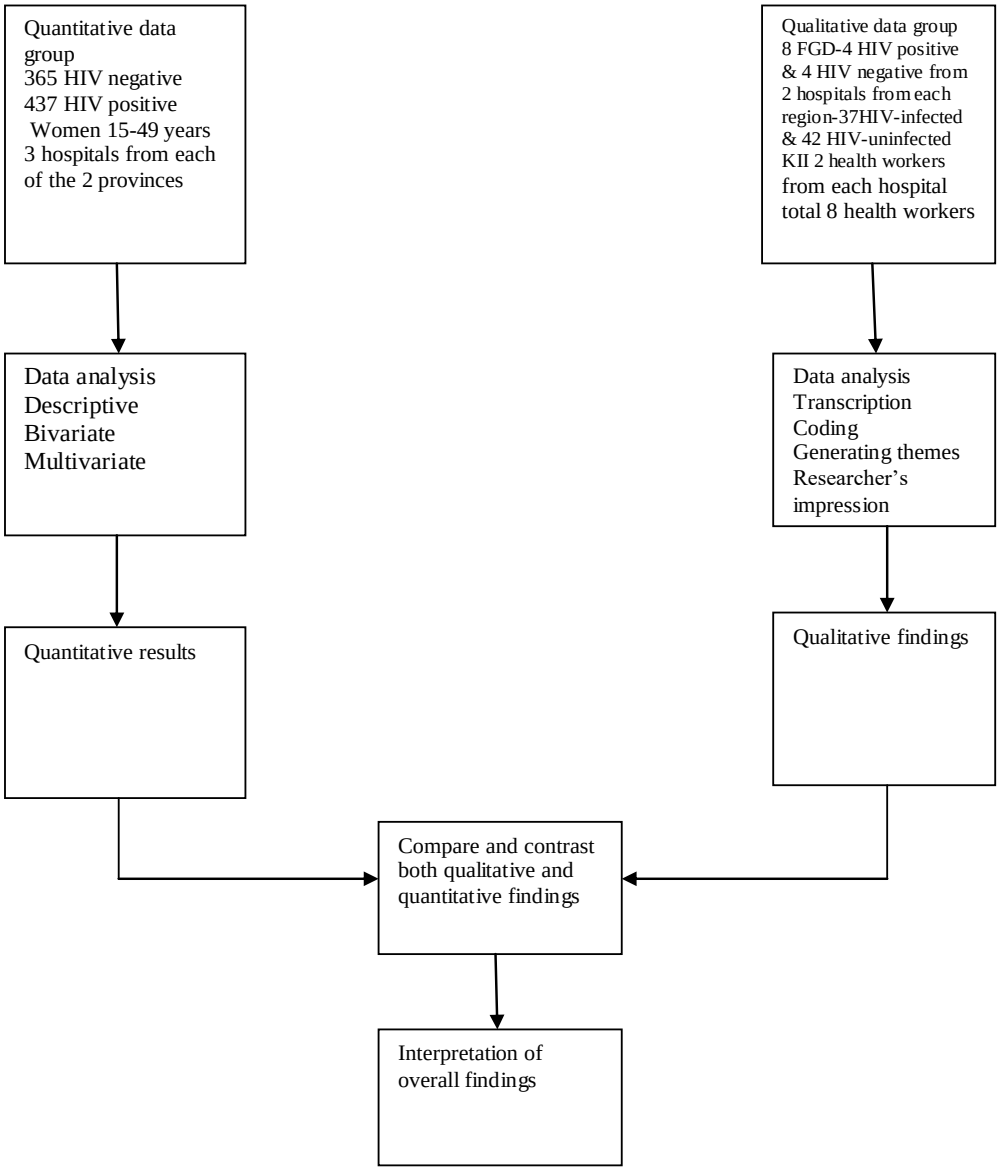

Figure 3.1: The summary of study design

3.3 Study Population

The study population comprised of HIV-infected and uninfected women aged 15 -49 years who were attending Comprehensive Care Clinic (CCC) also known as Patient Support Centre (PSC) and Child Welfare Clinic (CWC) respectively.

3.2.1 Inclusion Criteria

- Women of child bearing age 15-49 years with known HIV positive status confirmed by enrolment at the comprehensive care clinic.
- Women of child bearing age 15-49 years who were HIV-uninfected who had undergone rapid HIV test within twelve months preceding the study attending MCH
- Women of child bearing age 15-49 years who had voluntarily signed written consent (Appendix 1) to participate in the study.

3.2.2 Exclusion Criteria

- Women of child bearing age who were HIV-infected or HIV-uninfected but did not voluntarily consent to participate in the study**.**
- Women of child bearing age who were HIV-uninfected, tested more than 12 months before the study and had not consented for a repeat HIV rapid test

3.4 Sample Size Determination

For quantitative part of the study the sample was calculated by estimating the difference within 95% confidence interval within 5% of difference. Using the estimate of 39% of married women using modern contraception in Kenya (Kenya National Bureau of Statistics, 2010) the formula of Cochran, (1963) was used to calculate the minimal sample size as:

$n=Z^2pq/\alpha^2$, where

Z = 1.96, is the statistic corresponding to level of confidence. At 5% error ($p<0.05$), Z is 1.96. In majority of studies, p-values are considered significant below 0.05, hence 1.96 is used.

p= proportion of modern contraceptive users (Kenya National Bureau of Statistics, 2010).

q=1 - p,

α = allowable error (5%) P value (or alpha): is also known as *level of significance* and in every study we set an acceptable limit for P value. For example, we assume $P < 0.05$ is significant, it means that we are accepting that probability of difference in studying target due to chance is 5% or there are 5% chances of finding a statistically significant result, given that there is in fact no difference in the population

Therefore

$n=(1.96)^2 * (0.39) * (0.61)/(0.05)^2$

n=365 women

To allow for response failure 10% of total sample was added to 365 translating to a total sample of 402 HIV-infected women. A similar sample size was selected for HIV-uninfected women.

Note: The Cochran formula was used because it allows for calculation of an ideal sample size given a desired level of precision, (0.05), desired confidence level (95%), and the estimated proportion of the attribute present in the population (39% users of modern contraception).

In order to determine sample frame and the distribution of the sample within the six hospitals, sampling proportionate to size (based on client volumes) from each of the target hospitals was utilized. In order to estimate sample frame the month of October was randomly selected and number of HIV-infected women aged 15 -49 attended

comprehensive care clinic in October 2011 from each of the study sites were recorded and used as sample frame to calculate the expected sample from each hospital as shown in the Table 3.1

Table 0.1: Distribution of study sample

Facility name	**No of clients in 1 month Oct 2011**	**Proportions of total in %**	**No of respondents calculated from proportions**
Nyanza Provincial Hospital	1631	24.1	97
Ahero Sub District Hospital	463	6.9	28
Kendu Advestist Hospital	1343	20	80
Nyeri Provincial Hospital	1265	18.8	76
Kiambu District Hospital	641	9.50	38
Nazareth Mission Hospital	1398	20.7	83
Total	6741	100	402

The proportions above used to calculate the sample of HIV–infected women were also used to calculate the sample of HIV-uninfected women. One month data was used because it was estimated that collection of data would take one month. Table 3.2 shows summarised distribution of the sample across regions by HIV status

Table 0.2: Distribution of study sample by HIV status (HIV-infected and HIV – uninfected)

	Nyanza region	**Central region**	**Total**
HIV-infected women	205	197	402
HIV-uninfected women	205	197	402
Total	410	394	804

3.5 Sampling Techniques

Systematic random sampling was used in selection of survey participants. In each facility population of women aged 15 -49 and HIV positive attending comprehensive care clinic in the month of October 2011 was used to estimate the population universe from which the desired sample was drawn. The month of October 2011 was randomly selected. All active (women who have been coming to the clinic regularly within the last three months) women 15-49 years attending CCC at each of the hospitals were identified from the registers. A total of 6741 were identified from the six hospitals as active on a monthly basis. The proportion of active women attending CCC at each hospital was calculated. The proportion was then used to calculate the proportion of women to be recruited in each hospital (table 3.1).

Sampling interval was calculated by dividing the sampling frame or the total number of women identified as active with the required study sample as (6741/402) leading to 17. With a random number of two, systematic random sampling was used in the selection of participants. Starting from random number two and the next 17^{th} client, HIV-infected women were systematically recruited until the desired sample was reached. Because of the difficulty of getting clients booked from the CCC register because some did not have phone contact and some when contacted preferred to come during their appointment date and not any other time, clients currently attending the clinic were recruited on daily basis until the desired sample was reached. In cases where the next eligible client did not accept to participate in the study, the next client was requested to take part in the study. Since there was no register for HIV–uninfected women, the 2^{nd} client who came to MCH, was approached to participate in the study after recieving the services she came for that day and the next 17^{th} client, until the desired sample size was reached. An option of making appointment date or being interviewed the same day was given to participants who agreed to take part in the study.

Focus Group Discussion participants were women who had attended CCC or CWC and did not participate in the quantitative study who agreed upon request to participate in the study. Those who accepted to participate in the FGD were give the date and time of the FGD session. Health care providers working at PMTCT clinic and CCC in each hospital were requested to participate in the study as Key informant.

3.5.1 Data Collection Tools

For quantitative data collection, a structured questionnaire (Appendix 4) was used. It was divided into different parts corresponding to the research questions. Part one consisted of identification information including identification no, interviewers name and date of interview. Part two consisted of participants' background information but did not include name or any information that can identify the participant. Part three of the questionnaire contained reproductive health/ fertility history while part four contained fertility desire and intentions. Part five other associated factors/variables which were adapted from TPB constructs. TPB construct; behavioural beliefs (attitude), normative beliefs (subjective norm) and perceived behavioural control (control beliefs) were assessed using likert's type of instruments composed of statements which participants were asked to evaluate according to the level of agreement and disagreement. Variables constructed to assess each of the construct in response to a statement, "I want to have a/another child within the next two years". The results were generated by HIV status and by region. Responses were collapsed in to three condensed categories, strongly agree and agree, neutral and strongly disagree and disagree.

Part six of the questionnaire was about use of modern fermily planning and lastly part seven contained questions about knowledge and practice of HIV/AIDs including HIV status. The women were recruited from six hospitals in Central and Nyanza regions, three hospitals from each region. One of the hospitals from each region was faith-based.

For qualitative data collection, there were two guidelines, one for focus group discussion (FGD) with HIV –infected and uninfected groups (Appendix 6) and a Key

informant guide for health workers (Appendix 5). Qualitative data was collected from two hospitals in each region, a public hospital and a faith-based one. Qualitative methods composed of two parts; focus group discusiion and key informant interview (KII).Informed by saturation levels, eight FGDs were conducted, 4 in each region. In each region, 2 health facilities were used (a faith-based and a public hospital). In each hospital, 2 FGDs were conducted each with HIV-infected and HIV-uninfected women of reproductive age respectively. A total of 37 HIV-infected and 42 HIV-uninfected participated in the FGDs. Eight KII were conducted among health workers at PMTCTand CCC clinics in two hospitals in each region. Selection of KII participants was purposive.

Audio recording of FGD & KII was done to guarantee a full capture of the participants account and to facilitate the review of the subsequent transcripts. The average time for each FGD was 35-45 minutes.

3.5.1 Validity and Reliability

Pre-testing of the tools was done to give a better understanding of the concept and the tools. Pretesting was done a Mathare North health centre in Nairobi. The facility is located in the informal settlement and has a diversity of clients. The questionnaire was written in three languages, English, Kiswahili and luo. The research assistants were all trained on the useof the tool.

Reliability of the study was further enhanced by the mixed method design. Qualitative data guides were reviewed and tested withparticipants from the same health centre in Nairobi. However some approaches to enhance reliability of the qualitative results included constant data comparison and inclusive of deviant case. As data was being extracted from the original source the researcher verified their accuracy in terms of form and context with constant comparison.

The qualitative part of the study included two FGDs, one with HIV-infected and another with HIV-uninfected women of reproductive age per hospital in the two hospitals per region. In each region FGD was conducted at one Mission hospital and one referral public hospital selected for the study in each region. FGD was

conducted with between 8-12 current HIV-infected women attending CCC and HIV-uninfected women attending MCH who had not participated in the survey using a predetermined data collection tool (Appendix 7). A total of 37 HIV-infected and 42 HIV-uninfected women participated in the FGD. KII were conducted with two health care providers using a predetermined data interview guide (Appendix 6) in two hospitals per region. The interview was to get their perceptions about fertility desires, intentions and patterns of contraceptive behavior among HIV-infected and uninfected women of reproductive age attending services at these hospitals. The interview was also to get health care providers understanding of the existing gaps/obstacles and possible interventions using a predetermined guide to enrich the study. KII paricipants were from CCC and PMTCT clinic at same hospitals where FGDs were conducted. A total of eight health care providers were interviewed. KII took between 30- 40 minutes. FGD and KII was conducted by the investigator while notes and audio recording were done by the assistant moderator.

3.6 Data Management and Analysis

Both quantitative and qualitative data are stored in the computer with password protected for privacy. Quantitative data was entered in statistical package for social science (SPSS version 20) data base for management and storage. Data analysis was conducted using Stata 13 (College Station, TX, USA). Frequencies were generated and appropriate comparisons were made using Pearsons chi-square tests. Univariate and multivariate logistic regression analysis was applied to establish the association of the background factors and key survey domains relating to fertility desire, intention and contraceptive use/non-use among HIV-infected and uninfected women in the study. Logistic regression analysis was chosen because the dependent variables were dichotomous. All the statistical tests were evaluated to test significance of associations between dependent and each independent variable at 95% level of confidence ($P<0.05$). The univariate (unadjusted) and multivariate (adjusted) odds ratios, 95% confidence interval (CI) and respective P values were reported.

Analysis of qualitative data involved six steps. Thematic analysis was used to analyse the data as suggested by (Guetterman *et al*., 2015). The first step was getting

familiar with the data by reviewing the transcript and listening to the recordings again.

The second step involved generating initial codes which were reviewed to ensure that all necessary codes were included. The third step included searching for themes by examining how the codes combine to form overarching themes in the data. Then the codes were organized into a list of themes and broader patterns based on their significance to the research questions. In the fourth step, themes were reviewed and modified to ensure that they made sense and examining whether they supported the research questions. In step five the themes were defined and finally refined for the purpose of identifying the overall themes. Lastly in step six writing report by selecting the themes that contributed meaningfully to answering the research questions. Finally sifting data, sorting quotes and making comparisons within and between themes were done before data was interpreted. Conversely KII data was also processed through the six steps. Results from quantitative and qualitative data were compared and contrasted for interpretation of overall results.

3.7 Ethical Considerations

Ethical clearance and approval was obtained from Scientific Steering Committee (SSC) and the Ethical Review Committee (ERC) of KEMRI. Approval (Appendix 8) to conduct research at each of the hospital was also granted from the hospital In-charges before any recruitment of participants was initiated. All the hospitals granted permission to collect data without requiring any conditions apart from the KEMRI ethical clearance and approval document.The study upheld ethical standards during quantitative and qualitative data collection. The heightened vulnerability of Comprehensive Care Clinic clients due to their HIV positive status was explicitly noted. A lockable locker at mothers2mothers room at each hospital was used to lock all completed questionnaires each day,and the key kept by the Mentor Mother team leader.The data was only be shared by statistician who was under obligation not to share the data without permission from the principal investigator. Information derived from the study will be shared through publications.

CHAPTER FOUR

RESULTS

4.1 Socio-Demographic and Reproductive Profile of the Study Participants

4.1.1 Socio-Demographic characteristics

In all, 810 women were enrolled in the study. The analysis, however, was based on 802 respondents who revealed their HIV status. Of these, over half of them were HIV infected, while 45.5% were HIV uninfected. The majority of the respondents were young adults between the ages of 20 and 29 years (51%). Over half of the sample was from Nyanza region, whereas 48% were from the Central region. The vast majority of the participants reside in rural areas (58.4%). The Luo (46%) and Kikuyu (37.9%) ethnic groups account for the majority of the respondents. 60% of the women identified as Protestants and 36% as Catholic. Most of the women were self-employed (46.1%) and had completed primary level of education (46.1%). Similarly, most of the women were married (70.6%) and came from households that made less than KES 5,000 per month (39.5%) (Table 4.1).

Table 4.1: Soci-demographic characteristics of HIV-infected and uninfected women in the study

Variable	Categories	n (%)
HIV-status	HIV infected	437 (54.5)
	HIV uninfected	365 (45.5)
Age incomplete years	15-19 years	55 (6.9)
	20-24 years	168 (20.9)
	25-29 years	241 (30.1)
	30-34 years	157 (19.6)
	35-39	105 (13.1)

Variable	Categories	n (%)
	years	
	40-44 years	51 (6.4)
	45-49 years	25 (3.1)
Region of residence	Central	385 (48.0)
	Nyanza	417 (52.0)
Place of residence	Rural	468 (58.4)
	Urban	334 (41.7)
Ethnic group	Kikuyu	304 (37.9)
	Luhya	56 (6.9)
	Luo	369 (46.0)
	Kamba	23 (2.9)
	Meru	23 (2.9)
	Others	27 (3.4)
Religion	Catholic	289 (36.0)
	Protestant	480 (59.9)
	Muslim	15 (1.9)
	Traditional Religion	10 (1.3)
	Other	8 (1.0)
Education	No formal education	11 (1.4)
	Primary	370 (46.1)
	Secondary	301 (37.5)
	Post-secondary	120 (14.9)
Marital status	Married	566 (70.6)
	Single	165 (20.6)
	Divorced	6 (0.8)
	Separated	22 (2.7)
	Widowed	43 (5.4)
Employment status	Formally employed	132 (16.5)
	Self employed	394 (49.1)
	Unemployed	276 (34.4)
Household monthly income	<5,000	317 (39.5)
	5,000-9,000	237 (29.6)
	9,001-14,000	105 (13.1)
		63 (7.9)

Variable	Categories	n (%)
	14,001-19,000	.9)
	>19,000	

4.1.1 Reproductive Health and Fertility Profile of Women by HIV-status

As shown in Table 4.2, majority of the women had ever been pregnant (86.2%). Of these, there was a statistically significant difference between HIV infected and uninfected women (92.7% vs. 78.4%, $p<0.001$). More than half of the women had less than three children, with a significant difference between HIV infected and uninfected (53.8% vs. 68.2%, $p<0.001$).

Table 4.1: Reproductive health and fertility profile of women by HIV-status

Variable	Total n (%)	Bivariate analysis		
		HIV infectedn (%)	HIV uninfectedn (%)	P-value
Ever had a pregnancy				
Yes	691 (86.2)	405 (92.7)	286 (78.4)	<0.001*
No	111 (13.8)	32 (7.3)	79 (21.6)	
Number of children alive				
<3	410 (59.8)	215 (53.8)	195 (68.2)	<0.001*
3-6	272 (39.7)	182 (45.5)	90 (31.5)	
>6	4 (0.6)	3 (0.8)	1 (0.4)	
Number of children who died				
<3	139 (93.9)	108 (93.1)	31 (96.9)	0.429
3-6	9 (6.1)	8 (6.9)	1 (3.1)	
>6	-	-	-	
Status of preceding child				
Alive	663 (95.9)	385 (95.1)	278 (97.2)	0.160
Dead	28 (4.1)	20 (4.9)	8 (2.8)	
Sex of previous birth				
Male	382 (55.3)	219 (54.1)	163 (57.0)	0.447
Female	309 (44.7)	186 (45.9)	123 (43.0)	
Preceding birth interval				
<18 months	105 (15.2)	57 (14.1)	48 (16.8)	0.598
18-24 months	176 (25.5)	106 (26.2)	70 (24.5)	
25 months and above	410 (59.3)	242 (59.8)	168 (58.7)	

Notes: * - statistically significant at 5% level ($p<0.05$) for Pearson Chi-Square test

4.1.3 Reproductive health and fertility profile of women by region

Table 4.3 shows the bivariate comparison of HIV status by region.

Significantly more HIV infected women in Central (73.6%) wait more than two years before having another child than HIV infected women in Nyanza (46.1%).

Table 4.2: Reproductive health & fertility profile of HIV status by region

Variable	Bivariate analysis					
	HIV infected			HIV uninfected		
	Centraln (%)	Nyanzan (%)	P-value	Centraln (%)	Nyanzan (%)	P-value
Ever had a pregnancy						
Yes	201 (96.2)	204 (89.5)	0.007*	150 (85.2)	136 (71.9)	0.002*
No	8 (3.8)	24 (10.5)		26 (14.8)	53 (28.0)	
Number of children alive						
<3	109 (55.1)	106 (52.5)	0.766	100 (66.7)	95 (69.9)	0.459
3-6	88 (44.4)	94 (46.5)		50 (33.3)	40 (29.4)	
>6	1 (0.5)	2 (1.0)		0 (0.0)	1 (0.7)	
Number of children who died						
<3	48 (96.0)	60 (90.9)	0.284	18 (100.0)	13 (92.9)	0.249
3-6	2 (4.0)	6 (9.1)		0 (0.0	1 (7.1)	
>6	0 (0.0)	0 (0.0)		0 (0.0)	0 (0.0)	
Status of preceding child						
Alive	191 (95.0)	194 (95.1)	0.973	143 (95.3)	135 (99.3)	0.044*
Dead	10 (5.0)	10 (4.9)		7 (4.7)	1 (0.7)	
Sex of previous birth						
Male	103 (51.2)	116 (56.9)	0.257	77 (51.3)	86 (63.2)	0.042*
Female	98 (48.8)	88 (43.1)		73 (48.7)	50 (36.8)	
Preceding birth interval						
<18 months	32 (15.9)	25 (12.3)	<0.001*	35 (23.3)	13 (9.6)	0.007*
18-24 months	21 (10.5)	85 (41.7)		32 (21.3)	38 (27.9)	
25 months and above	148 (73.6)	94 (46.1)		83 (55.3)	85 (62.5)	

Notes: * - statistically significant at 5% level ($p<0.05$) for Pearson Chi-Square test

4.1.4 Reproductive health and fertility profile of women by region and HIV status

Table 4.4 compares women's reproductive health and fertility profiles across regions by HIV There was a significant difference by HIV status in both regions for women who reported waiting for more than 24 months before having their previous child (Central - 73.6% vs. 55.3%, p=0.001; Nyanza - 41.6% vs. 62.5%, p<0.001).

Table 4.3: Reproductive health and fertility profile of women by region and HIV status

Variable	Bivariate analysis					
	Central			Nyanza		
	HIV infected n (%)	HIV uninfected n (%)	P-value	HIV infected n (%)	HIV uninfected n (%)	P-value
Ever had a pregnancy						
Yes	201 (96.2)	150 (85.2)	<0.001*	204 (89.5)	136 (71.9)	<0.001*
No	8 (3.8)	26 (14.8)		24 (10.5)	53 (28.0)	
Number of children alive						
<3	109 (55.1)	100 (66.7)	0.070	106 (52.5)	95 (69.9)	0.006*
3-6	88 (44.4)	50 (33.3)		94 (46.5)	40 (29.4)	
>6	1 (0.5)	0 (0.0)		2 (1.0)	1 (0.7)	
Number of children who died						
<3	48 (96.0)	18 (100.0)	0.389	60 (90.9)	13 (92.9)	0.815
3-6	2 (4.0)	0 (0.0		6 (9.1)	1 (7.1)	
>6	0 (0.0)	0 (0.0)		0 (0.0)	0 (0.0)	
Status of preceding child						
Alive	191 (95.0)	143 (95.3)	0.894	194 (95.1)	135 (99.3)	0.033*
Dead	10 (5.0)	7 (4.7)		10 (4.9)	1 (0.7)	
Sex of previous birth						
Male	103 (51.2)	77 (51.3)	0.987	116 (56.9)	86 (63.2)	0.241
Female	98 (48.8)	73 (48.7)		88 (43.1)	50 (36.8)	
Preceding birth interval						
<18 months	32 (15.9)	35 (23.3)	0.001*	25 (12.3)	13 (9.6)	0.011*
18-24 months	21 (10.5)	32 (21.3)		85 (41.7)	38 (27.9)	
25 months and above	148 (73.6)	83 (55.3)		94 (46.1)	85 (62.5)	

Notes: * - statistically significant at 5% level (p<0.05) for Pearson Chi-Square test

4.2 Levels of Fertility Desires and Intentions among HIV Infected and HIV Uninfected Women in Nyanza and Central Regions of Kenya

4.2.1 Fertility Desires of HIV-infected and Uninfected Women by HIV status

Of the women interviewed, 98.5% intend to have a/another child in the future. Majority of them desire (72.7%) and intend (65.4%) to have between three and six children, with males being the preferred sex (36.1%) see (Table 4.5).

Table 4.4: Level Fertility desires of HIV-infected and uninfected women by HIV status

Variable	Total n (%)	Bivariate analysis		P-value
		HIV infected n (%)	HIV uninfected n (%)	
Intention to have another pregnancy				
Yes	790 (98.5)	429 (98.2)	361 (98.9)	0.393
No	12 (1.5)	8 (1.8)	4 (1.1)	
Number of children desired				
<3	206 (26.1)	107 (24.9)	99 (27.4)	0.696
3-6	574 (72.7)	316 (73.7)	258 (71.5)	
>6	10 (1.3)	6 (1.34)	4 (1.1)	
Number of children intended to have				
<3	267 (33.8)	131 (30.5)	136 (37.7)	0.101
3-6	517 (65.4)	295 (68.8)	222 (61.5)	
>6	6 (0.8)	3 (0.7)	3 (0.8)	
Preferred sex of child				
Male	285 (36.1)	147 (34.3)	138 (38.2)	0.191
Female	263 (33.3)	139 (32.4)	124 (34.4)	
Any	242 (30.6)	143 (33.3)	99 (27.4)	

4.2.2 Fertility desires of HIV infected and uninfected women by region

Comparatively fewer HIV infected women in Central want to have three to six children than in Nyanza (71.4% vs. 75.4%, p=0.021). Among HIV infected women, the percentage who would want to have a son is lower in Central than in Nyanza (20.7% vs. 46.5%, p<0.001) see (Table 4.6).

Table 4.5: Fertility desires of HIV infected and uninfected women by region

Variable	Bivariate analysis					
	HIV infected			HIV uninfected		
	Central n (%)	Nyanza n (%)	P-value	Central n (%)	Nyanza n (%)	P-value
Intention to have another pregnancy						
Yes	203 (97.1)	187 (98.9)	0.120	174 (98.9)	187 (98.9)	0.943
No	6 (2.9)	2 (1.1)		2 (1.1)	2 (1.1)	
Number of children desired						
<3	58 (28.6)	49 (21.7)	0.021*	56 (32.2)	43 (22.9)	0.107
3-6	145 (71.4)	171 (75.4)		117 (67.2)	141 (75.4)	
>6	0 (0.0)	6 (2.7)		1 (0.6)	3 (1.6)	
Number of children intended to have						
<3	67 (33.0)	64 (28.3)	0.162	69 (39.6)	67 (35.8)	0.678
3-6	136 (67.0)	159 (70.4)		104 (59.8)	118 (63.1)	
>6	0 (0.0)	3 (1.3)		1 (0.6)	2 (1.1)	
Preferred sex of child						
Male	42 (20.7)	105 (46.5)	<0.001*	51 (29.3)	87 (46.5)	<0.001*
Female	35 (17.2)	104 (46.0)		41 (23.6)	83 (44.4)	
Any	126 (62.1)	17 (7.5)		82 (47.1)	17 (9.1)	

Notes: * - statistically significant at 5% level (p<0.05) for Pearson Chi-Square test

The proportion of HIV infected women who want a boy in Central is significantly much lower than those who are not infected (20.7% vs. 29.3%, p=0.014) see (Table 4.7).

Table 4.6: Fertility desires of HIV infected and uninfected women within by HIV status

Variable	Bivariate analysis					
	Central			Nyanza		
	HIV infected n (%)	HIV uninfected n (%)	P-value	HIV infected n (%)	HIV uninfected n (%)	P-value
Intention to have another pregnancy						
Yes	203 (97.1)	174 (98.9)	0.235	226 (99.1)	187 (98.9)	0.850
No	6 (2.9)	2 (1.1)		2 (0.9)	2 (1.1)	
Number of children desired						
<3	58 (28.6)	56 (32.2)	0.405	49 (21.7)	43 (22.9)	0.741
3-6	145 (71.4)	117 (67.2)		171 (75.7)	141 (75.4)	
>6	0 (0.0)	1 (0.6)		6 (2.7)	3 (1.6)	
Number of children intended to have						
<3	67 (33.0)	69 (39.6)	0.214	64 (28.3)	67 (35.8)	0.262
3-6	136 (67.0)	104 (59.8)		159 (70.4)	118 (63.1)	
>6	0 (0.0)	1 (0.6)		3 (1.3)	2 (1.1)	
Preferred sex of child						
Male	42 (20.7)	51 (29.3)	0.014*	105 (46.5)	87 (46.5)	0.833
Female	35 (17.2)	41 (23.6)		104 (46.0)	83 (44.4)	
Any	126 (62.1)	82 (47.1)		17 (7.5)	17 (9.1)	

Notes: * - statistically significant at 5% level ($p<0.05$) for Pearson Chi-Square test

4.2.3 Fertility Intentions of HIV-infected and Uninfected Women by HIV status

One-fourth of the women in the study were pregnant at the time of the interview, with a significant difference between HIV infected and uninfected women (18.5% vs. 31.2%, $p<0.001$) see (Table 4.8).

Table 4.7: Fertility intentions of pregnant HIV infected and uninfected women by HIV status

Variable	Total n (%)	Bivariate analysis		
		HIV infected n (%)	HIV uninfected n (%)	P-value
Currently pregnant				
Yes	195 (24.3)	81 (18.5)	114 (31.2)	<0.001*
No	607 (75.7)	356 (81.5)	251 (68.8)	
Intended to have current pregnancy				
Yes	81 (41.5)	29 (35.8)	52 (45.6)	0.171
No	114 (58.5)	52 (64.2)	62 (54.4)	

Notes: * - statistically significant at 5% level (p<0.05) for Pearson Chi-Square test

4.2.4 Fertility intentions of pregnant HIV infected and uninfected women by region

A regional comparison, as shown in Table 4.9 reveals that a considerably smaller proportion of HIV infected women were pregnant than HIV uninfected (Central - 25.4% vs. 39.8%, p=0.003; Nyanza - 12.3% vs. 23.3%, p=0.003). More than half of the women reported that they did not plan for their pregnancy, although this finding does not vary significantly by HIV status or region.

Table4.8: Fertility intentions of pregnant HIV infected and uninfected women by region

Variable	Bivariate analysis					
	HIV infected			HIV uninfected		
	Central n (%)	Nyanza n (%)	P-value	Central n (%)	Nyanza n (%)	P-value
Currently pregnant						
Yes	53 (25.4)	28 (12.3)	<0.001*	70 (39.8)	44 (23.3)	0.001*
No	156 (74.6)	200 (87.7)		106 (60.2)	145 (76.7)	
Intended to have current pregnancy						
Yes	19 (35.9)	10 (35.7)	0.990	29 (41.4)	23 (52.3)	0.258
No	34 (64.2)	18 (64.3)		41 (58.6)	21 (47.7)	

Notes: * - statistically significant at 5% level (p<0.05) for Pearson Chi-Square test

Qualitative findings show that majority in the group HIV-infected and uninfected emphasized that fertility is very important in the African culture and nothing can prevent women from desiring and intending to have children as mentioned below;

> "Having children earns a woman respect in the community leave alone the other important factors to go with, such as starting a generation which will takeover from the parents when they are old or when they die". (FDG, 2)

> "Our culture a child is the most important thin in marriage… marriage without a child has a problem" (FGD, 5)

Majority of the participants reported that after marriage there is a period within which a woman is expected to be pregnant and when to have a child. If this does not happen people will start talking about you

> "Children are seen as a blessing to the marriage and without a child the marriage is as good as not blessed" (FGD, 3)

Many respondents (key informant) observed that desire for a child was motivated by many factors in particular societal expectation, partner influence/ desire and the womans expectation. Like in the quote below;

> "a good number of pregnancies in both HIV-infected and uninfected are unplanned—women do not have the power to bargain, women will get pregnant (unplanned and may get a positive baby)" when their partners want" (KII 39 years)

All (KII) said that the desire for the woman is really because of her expected role in the socit. Majority of the participants reported that they feel it is inorder for HIV-infected women to get pregnant because for every woman there is always a deep desire to have your own child.having a child will give you a place of respect in the community.

> "Free FP for HIV positive clients. Partner involvement but three quarters of them never come for services" (KII 42 years)

4.3 Factors Associated with Contraceptives Use among HIV Infected and Uninfected Women

4.3.1 Contraceptive Use among HIV-infected and Uninfected Women by HIV status

At the time of the study, 70% of the women were presently using family planning, and 61.4% intended to use it in the future. There was a statistically significant difference between HIV status and family planning method. For example, a lower proportion of HIV infected women used injections than HIV uninfected women (42.1% vs. 50.6%) while a higher proportion of HIV infected women used male condoms than HIV uninfected women (19.1% vs. 6.8%) see (Table 4.10).

Table 4.9: Contraceptive use among HIV-infected and uninfected women by HIV status

Variable	Total n (%)	Bivariate analysis		
		HIV infected n (%)	HIV uninfected n (%)	P-value
Currently using any modern family planning method				
Yes	423 (69.7)	256 (71.9)	167 (66.5)	0.156
No	184 (30.3)	100 (28.1)	84 (33.5)	
Future intention to use contraceptives				
Yes	113 (61.4)	58 (58.0)	55 (65.5)	0.299
No	71 (38.6)	42 (42.0)	29 (34.5)	
Contraceptive method				
Pills	46 (7.6)	24 (6.7)	22 (8.8)	<0.001*
Injection	277 (45.6)	150 (42.1)	127 (50.6)	
Condom	85 (14.0)	68 (19.1)	17 (6.8)	
Female condom	1 (0.2)	1 (0.3)	0 (0.0)	
Implants	128 (21.1)	74 (20.8)	54 (21.5)	
IUCD	38 (6.3)	20 (5.6)	18 (7.2)	
Lactation	5 (0.8)	0 (0.0)	5 (1.9)	
Female sterilization	24 (3.9)	16 (4.5)	8 (3.2)	
Male sterilization	2 (0.3)	2 (0.6)	0 (0.0)	
Don’t know	1 (0.2)	1 (0.3)	0 (0.0)	
Decision-making on contraceptive use				
Self	199 (32.8)	110 (30.9)	89 (35.5)	0.454
Partner	42 (6.9)	24 (6.7)	18 (7.2)	
Jointly	366 (60.3)	222 (62.4)	144 (57.4)	

Notes: * - statistically significant at 5% level ($p<0.05$) for Pearson Chi-Square test

4.3.2 Contraceptive Use among HIV-infected and Uninfected Women by region

Table 4.11 show that significantly more HIV infected women in Nyanza intended to use contraceptives in the future than in Central (68.5% vs. 45.7%, p=0.021). Similarly, more HIV infected women in Central reported to make contraceptive decisions with their partners than in Nyanza (73.7% vs. 53.5%, p<0.001).

More HIV uninfected women in Central reported making contraceptives choices with their partners than HIV uninfected women in Nyanza (73.6% vs. 45.5%, p<0.001).

Table 4.10: Contraceptive use among HIV infected and uninfected women by region

Variable	Bivariate analysis					
	HIV infected			HIV uninfected		
	Central n (%)	Nyanza n (%)	P-value	Central n (%)	Nyanza n (%)	P-value
Currently using any modern family planning method						
Yes	110 (70.5)	146 (73.0)	0.604	79 (74.5)	88 (60.7)	0.022*
No	46 (29.5)	54 (27.0)		27 (25.5)	57 (39.3)	
Future intention to use contraceptives						
Yes	21 (45.7)	37 (68.5)	0.021*	16 (59.3)	39 (68.4)	0.409
No	25 (54.4)	17 (31.5)		11 (40.7)	18 (31.6)	
Contraceptive method						
Pills	13 (8.3)	11 (5.5)	0.005*	16 (15.1)	6 (4.1)	0.003*
Injection	66 (42.3)	84 (42.0)		49 (46.2)	78 (53.8)	
Condom	38 (24.4)	30 (15.0)		4 (3.8)	13 (8.9)	
Female condom	1 (0.6)	0 (0.0)		0 (0.0)	0 (0.0)	
Implants	18 (11.5)	56 (28.0)		20 (18.9)	34 (23.5)	
IUCD	9 (5.8)	11 (5.5)		13 (12.3)	5 (3.5)	
Lactation	0 (0.0)	0 (0.0)		1 (0.9)	4 (2.8)	
Female sterilization	9 (5.8)	7 (3.5)		3 (2.8)	5 (3.4)	
Male sterilization	2 (1.3)	0 (0.0)		0 (0.0)	0 (0.0)	
Don't know	0 (0.0)	1 (0.5)		0 (0.0)	0 (0.0)	
Decision-making on contraceptive use						
Self	28 (17.9)	82 (41.0)	<0.001*	25 (23.6)	64 (44.1)	<0.001*
Partner	13 (8.3)	11 (5.5)		3 (2.8)	15 (10.3)	
Jointly	115 (73.7)	107 (53.5)		78 (73.6)	66 (45.5)	

Notes: * - statistically significant at 5% level ($p<0.05$) for Pearson Chi-Square test

In Nyanza region a higher proportion of HIV infected women were using contraceptives than HIV uninfected women, with significance (73% vs. 60.7%, p=0.016) (Table 4.13). In Central region, more HIV infected women were using condoms than the uninfected women (24.4% vs. 3.8%, p<0.001) (Table 4.12).

Table 4.11: Contraceptive use within Central and Nyanza regions by HIV status

Variable	Bivariate analysis					
	Central			Nyanza		
	HIV infected n (%)	HIV uninfected n (%)	P-value	HIV infected n (%)	HIV uninfected n (%)	P-value
Currently using any modern family planning method						
Yes	110 (70.5)	79 (74.5)	0.477	146 (73.0)	88 (60.7)	0.016*
No	46 (29.5)	27 (25.5)		54 (27.0)	57 (39.3)	
Future intention to use contraceptives						
Yes	21 (45.7)	16 (59.3)	0.262	37 (68.5)	39 (68.4)	0.991
No	25 (54.4)	11 (40.7)		17 (31.5)	18 (31.6)	
Contraceptive method						
Pills	13 (8.3)	16 (15.1)	<0.001*	11 (5.5)	6 (4.1)	0.074
Injection	66 (42.3)	49 (46.2)		84 (42.0)	78 (53.8)	
Condom	38 (24.4)	4 (3.8)		30 (15.0)	13 (8.9)	
Female condom	1 (0.6)	0 (0.0)		0 (0.0)	0 (0.0)	
Implants	18 (11.5)	20 (18.9)		56 (28.0)	34 (23.5)	
IUCD	9 (5.8)	13 (12.3)		11 (5.5)	5 (3.5)	
Lactation	0 (0.0)	1 (0.9)		0 (0.0)	4 (2.8)	
Female sterilization	9 (5.8)	3 (2.8)		7 (3.5)	5 (3.4)	
Male sterilization	2 (1.3)	0 (0.0)		0 (0.0)	0 (0.0)	
Don't know	0 (0.0)	0 (0.0)		1 (0.5)	0 (0.0)	
Decision-making on contraceptive use						
Self	28 (17.9)	25 (23.6)	0.127	82 (41.0)	64 (44.1)	0.144
Partner	13 (8.3)	3 (2.8)		11 (5.5)	15 (10.3)	
Jointly	115 (73.7)	78 (73.6)		107 (53.5)	66 (45.5)	

Notes: * - statistically significant at 5% level (p<0.05) for Pearson Chi-Square test

In qualitative findings, majority of the women (HIV-Infected and Uninfected) listed out what they had used and why they either dropped what they used before or not. Most of the users brought out some of the side effects they have suffered with particular methods they had used. However some of the participants were very objective in that they shared what they had used before and why they had to change and how they have coped with the new method. While some maintained that after suffering the side effects they did not go back to the facility and did not opt to try another method as in the quotes below;

> "I like implant you put it for 5 years but injection affected me" (FGD, 1)

> "I got pregnant when on injection, when I used pills, I was bleeding, my skin became dry and I grew thin" (FGD, 4)

> "I used injection but when injected I became breathless so stopped FP" (FGD, 8)

On use of contraceptives, majority or respondents (KII) said some women both HIVinfected and uninfected do not use contraceptives because of the following issues, myths and misconception, side effects like bleeding, missed menses which they say the blood is in the stomach etc while other have personal perception- they refuse because they say they will have back pains, will not deliver again, some talk of ther partners refusing them to use contraceptives.

> "some don't use because of side effects like bleeding, missed menses, others have personal perceptions----refusing because will have back pains, will never give birth again, some talk of their husband and partner refusing them" (KII, 42 years)

Majority of the respondents reported that the women need a lot of time to discuss all the issue they may have but this is not possible because there are usually several clients waiting outside and because of shortage of staff it is not possible in most cases to have a proper individual discussion with a client.

"Some if you keep them for afew minutes and since it's not a disease, its not sickness, the chances are that the woman will go and disappear" (KII, 38years).

4.3.3 Methods of Contraceptives Used by HIV status

4.3.3.1 Condom Use by HIV status and region

A significantly larger percentage of HIV infected women (72.9% vs. 53.5%) always used condoms see (table 4.13).

Table 4.12: Condom use among women by HIV status

Variable	Total n (%)	Bivariate analysis		P-value
		HIV infected n (%)	HIV uninfected n (%)	
Condom use in the last six months				
Yes	379 (62.4)	280 (78.7)	99 (39.4)	<0.001*
No	228 (37.6)	76 (21.4)	152 (60.6)	
How often have you used condom in the last six months?				
Always	257 (67.8)	204 (72.9)	53 (53.5)	<0.001*
Often	58 (15.3)	42 (15.0)	16 (16.2)	
Sometimes use	43 (11.4)	26 (9.3)	17 (17.2)	
Rarely use	21 (5.5)	8 (2.9)	13 (13.1)	
Who did you use the condom with?				
Regular sexual partner	351 (92.6)	262 (93.6)	89 (89.9)	0.230
Casual sex partner	28 (7.4)	18 (6.4)	10 (10.1)	

Notes: * - statistically significant at 5% level (p<0.05) for Pearson Chi-Square test

More women in Central always used condoms in the last six months than those in Nyanza (HIV infected: 87.9% vs. 60.9%, p<0.001; HIV uninfected: 71.4% vs. 36.0%, p=0.003) see (Table 4.14).

Table 4.13: Condom use among HIV infected and uninfected women by region

Variable	Bivariate analysis					
	HIV infected			HIV uninfected		
	Central n (%)	Nyanza n (%)	P-value	Central n (%)	Nyanza n (%)	P-value
Condom use in the last six months						
Yes	124 (79.5)	156 (78.0)	0.734	49 (46.2)	50 (34.5)	0.060
No	32 (20.5)	44 (22.0)		57 (53.8)	95 (65.5)	
How often have you used condom in the last six months?						
Always	109 (87.9)	95 (60.9)	<0.001*	35 (71.4)	18 (36.0)	0.003*
Often	3 (2.4)	39 (25.0)		3 (6.1)	13 (26.0)	
Sometimes use	8 (6.5)	18 (11.5)		6 (12.2)	11 (22.0)	
Rarely use	4 (3.2)	4 (2.6)		5 (10.2)	8 (16.0)	
Who did you use the condom with?						
Regular sexual partner	118 (95.2)	144 (92.3)	0.334	45 (91.8)	44 (88.0)	0.526
Casual sex partner	6 (4.8)	12 (7.7)		4 (8.2)	6 (12.0)	

Notes: * - statistically significant at 5% level ($p<0.05$) for Pearson Chi-Square test

In Central region, more HIV infected women used condoms in the past six months than HIV uninfected women (79.5% vs. 46.2%, $p<0.001$). The similar pattern is seen in Nyanza (78% vs. 34.5%, $p<0.001$) see (Table 4.15).

Table 4.14: Condom use among women in Central and Nyanza regions in the past 6 months by HIV status

Variable	Bivariate analysis					
	Central			Nyanza		
	HIV infected n (%)	HIV uninfected n (%)	P-value	HIV infected n (%)	HIV uninfected n (%)	P-value
Condom use in the last six months						
Yes	124 (79.5)	49 (46.2)	<0.001*	156 (78.0)	50 (34.5)	<0.001*
No	32 (20.5)	57 (53.8)		44 (22.0)	95 (65.5)	
How often have you used condom in the last six months?						
Always	109 (87.9)	35 (71.4)	0.064	95 (60.9)	18 (36.0)	<0.001*
Often	3 (2.4)	3 (6.1)		39 (25.0)	13 (26.0)	
Sometimes use	8 (6.5)	6 (12.2)		18 (11.5)	11 (22.0)	
Rarely use	4 (3.2)	5 (10.2)		4 (2.6)	8 (16.0)	
Who did you use the condom with?						
Regular sexual partner	118 (95.2)	45 (91.8)	0.399	144 (92.3)	44 (88.0)	0.348
Casual sex partner	6 (4.8)	4 (8.2)		12 (7.7)	6 (12.0)	

Notes: * - statistically significant at 5% level (p<0.05) for Pearson Chi-Square test

4.3.4 Reason for Condom Use by HIV Infected Women

Figure 4.1 show that 81.8% of the women in the study viewed condoms as a means of minimizing the risks of HIV re-infection. Other reasons for usage of condoms by HIV infected individuals include avoiding infecting partner (8.4%), contracting other STIs (7.0%) and prevent pregnancy (2.9%).

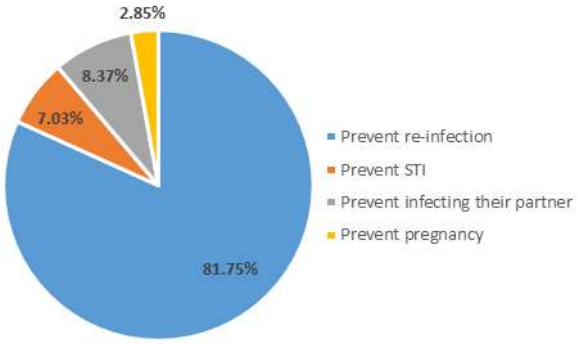

Figure 4.1: Reasons why HIV infected women should use condoms

4.3.5 Reason for Non-use of Contraceptives among HIV Infected and Uninfected Women

In Table 4.16, majority of women who did not use contraceptives (81.5%) were afraid of the side effects, while 10.3% indicated they were not sexually active. Compared to HIV uninfected women, 15% of HIV infected women did not use contraception due to their lack of sexual activity.

Table 4.15: Reason for non-use of contraceptives among women by HIV status

	Total n (%)	Bivariate analysis		
		HIV infected n (%)	HIV uninfected n (%)	P-value
Religious beliefs	5 (2.7)	4 (4.0)	1 (1.2)	0.100
Not sexually active	19 (10.3)	15 (15.0)	4 (4.8)	
Afraid of side effects	150 (81.5)	77 (77.0)	73 (86.9)	
Fear of partner's reaction	2 (1.1)	1 (1.0)	1 (1.2)	
Lack of access/too far	1 (0.5)	1 (1.0)	0 (0.0)	
Lack of knowledge	7 (3.8)	2 (2.0)	5 (5.9)	

Notes: * - statistically significant at 5% level ($p<0.05$)

Additionally, 78.1% of women from Central and 83.8% from Nyanza were afraid of the side effects (Table 4.17).

Table 4.16: Reason for non-use of contraceptives among women by region

	Bivariate analysis		
	Central n (%)	**Nyanza n (%)**	**P-value**
Religious beliefs	2 (2.7)	3 (2.7)	0.627
Not sexually active	10 (13.7)	9 (8.1)	
Afraid of side effects	57 (78.1)	93 (83.8)	
Fear of partner's reaction	1 (1.4)	1 (0.9)	
Lack of access/too far	1 (1.4)	0 (0.0)	
Lack of knowledge	2 (2.7)	5 (4.5)	

Notes: * - statistically significant at 5% level ($p<0.05$)

Side effects may be affecting the use of contraceptives negatively. Majority of the participants explained that because of the things women hear from other women who have used contraceptive e.g. how they have reacted to contraceptive methods like, if one uses injectable one will bleed a lot.

> "my friend told me how a woman delivered abnormal child and people said it was because she was using family planning" (FGD, 6)

Majority of the participants felt that they did not know if there is any interaction between the two drugs (ARVs and contraceptives). Majority of HIV-infected and uninfected women knew that HIV- infected women should use contraceptives and also discussed that HIV positive status will motivate HIV-infected women who intend to get pregnant to use contraceptives as a HIV-infected woman needs to have a birth interval of three years before getting the next child.

> *"*Having HIV can force one to use FP method-- Partners don't like us (women) to use FP" (FGD, 7)

Majority of the participants reported that most clients are influenced by peers. Seeing or hearing stories from their friend as most of them when they come for family planning they have an idea of what they want like in the quote below;

> "Some will insist on a method because a friend is using the same. Or they will say

I don't want this method because I will have backache. If they can't get what they want maybe it's out of stock at that time. They will go and not come back" (FGD, 5).

4.3.6 Perception of Family Planning among Non-users

Table 4.18 shows majority of HIV infected (97%) and uninfected (92.9%) women from Central and Nyanza region had no difficulty gaining access to family planning methods at a health facility.

Table 4.17: Reason for non-use of contraceptives among women by region

	HIV infected		HIV uninfected	
	Agree n (%)	**Disagree n (%)**	**Agree n (%)**	**Disagree n (%)**
I am not able to get family planning method at health facility	3 (3.0)	97 (97.0)	6 (7.1)	78 (92.9)
I have heard that family planning affects the body	53 (53.0)	47 (47.0)	44 (52.4)	40 (47.6)
Women who use contraception may become promiscuous	6 (6.0)	94 (94.0)	8 (9.5)	76 (90.5)
My husband does not want me to use contraceptives	8 (8.0)	92 (92.0)	12 (14.3)	72 (85.7)
I want another baby soon	7 (7.0)	93 (93.0)	9 (10.7)	75 (89.3)

Women in Central region disagreed that they had heard that family planning affects the body (58.9%) see (Table 4.19).

Table 4.18: Perception of family planning among non-users by region

	Central		Nyanza	
	Agree n (%)	**Disagree n (%)**	**Agree n (%)**	**Disagree n (%)**
I am not able to get family planning method at health facility	3 (4.1)	70 (95.9)	6 (5.4)	105 (94.6)
I have heard that family planning affects the body	30 (41.1)	43 (58.9)	67 (60.4)	44 (39.6)
Women who use contraception may become promiscuous	0 (0.0)	73 (100.0)	14 (12.6)	97 (87.4)
My husband does not want me to use contraceptives	2 (7.4)	71 (97.3)	18 (16.2)	93 (83.8)
I want another baby soon	4 (5.5)	69 (94.5)	12 (10.8)	99 (89.2)

4.3.7 Knowledge of Dual Protection

Figure 4.2 demonstrates that 64.7% of women are aware of dual protection. By HIV status, more HIV infected women know about dual protection than HIV uninfected (72.1-55.9%).

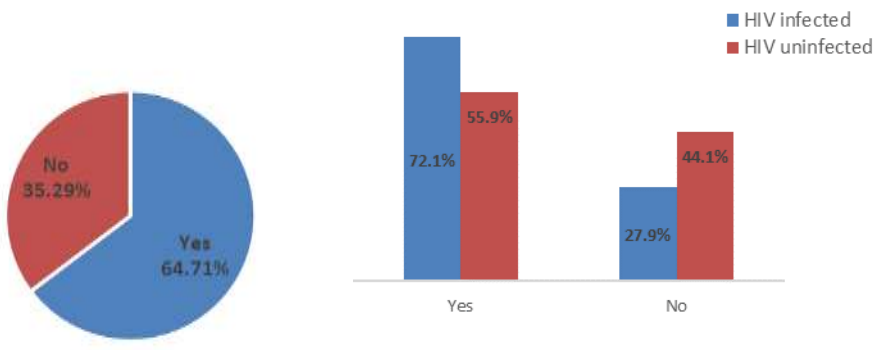

Figure 4.2: Knowledge of dual protection among HIV infected and uninfected women

More than half (57%) of the HIV infected women stated that dual protection refers to the "use of an effective family planning method and condom at the same time", while 34% did not know what it meant see (Figure 4.3).

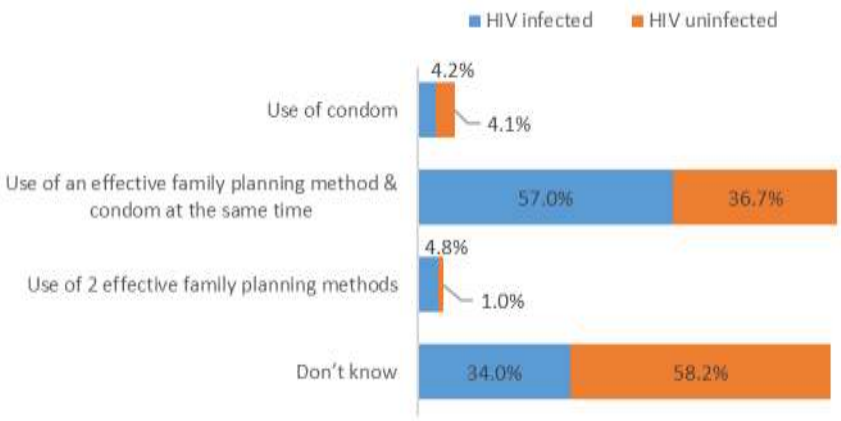

Figure 4.3: Women's understanding of dual protection

Access to Information on Family Planning

Radio was the most commonly accessed source of information on family planning among HIV infected and uninfected women.

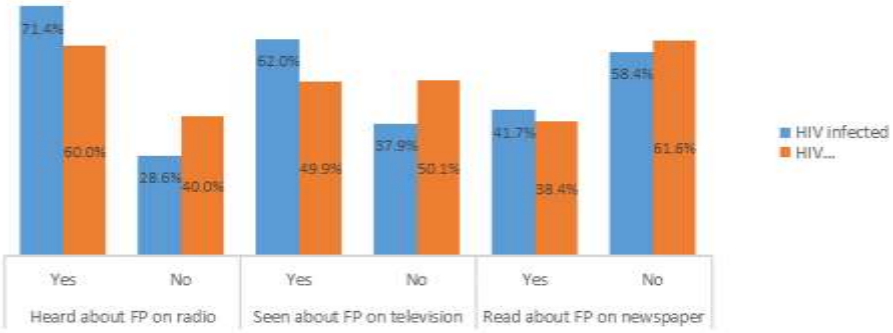

Figure 4.4: Participants' access to mass media information

4.3.8 Factors associated with intention to use contraceptives among HIVinfected and ninfected women of reproductive age

Women aged between 20-24 years were four times more likely than those aged 15-19 years to intend to use contraceptives (OR=4.05, p=0.020), whereas women aged between 45-49 years were 91% less likely to want to use contraceptives (OR=0.09, p=0.001).

Women from Nyanza were two times more likely to intend to use contraceptives than their counterparts in Central region (OR=2.11, p=0.003). Self-employed women were 45% more likely to intend to use contraceptives than formally employed women (OR=1.54, p<0.001). HIV uninfected women were 37% more likely to want to use contraceptives than HIV infected women (OR=1.37, p<0.001) (Table 4.20).

Table 4.19: Factors associated women's intention to use contraceptives

Variable	OR	95% CI (LQ – UQ)	P-value
Age			
15-19 years		Ref	
20-24 years	4.05	1.24 - 13.12	0.020*
25-29 years	1.27	0.433 - 3.71	0.664
30-34 years	0.38	0.22 - 0.67	0.001*
35-39 years	0.38	0.26 - 0.55	<0.001*
40-44 years	0.09	0.00 - 6.39	0.266
45-49 years	0.09	0.02 - 0.38	0.001*
Residence			
Central		Ref	
Nyanza	2.11	1.28 - 3.49	0.003*
Employment status			
Formally employed		Ref	
Self employed	1.45	1.29 - 1.64	<0.001*
Unemployed	2.12	0.87 - 5.14	0.097
Marital status			
Married		Ref	
Single	0.88	0.59 - 1.31	0.532
Divorced	-	-	-
Separated	0.38	0.04 - 3.77	0.405
Widowed	0.38	0.22 - 0.63	<0.001*
HIV status			
Infected		Ref	
Uninfected	1.37	1.37 - 1.37	<0.001*

Notes: * - statistically significant at 5% level (p<0.05); LQ – Lower Quartile, UQ – Upper Quartile

Age, employment status, marital status, and HIV status were significantly associated with the intention to take contraceptives in a multivariate regression analysis. Self-employed women were 2% less likely to intend to use contraceptives than employed women (OR=0.98, p=0.005). HIV uninfected women were 43% less likely to want to use contraception than HIV infected women (OR=0.57, p<0.001) see (Table 4.21).

Table 4.20: Factors associated women's intention to use contraceptives

Variable	OR	95% CI (LQ – UQ)	P-value
Age			
15-19 years		Ref	
20-24 years	4.68	2.09 - 10.52	<0.001*
25-29 years	1.03	0.51 - 2.08	0.992
30-34 years	0.28	0.28 - 0.29	<0.001*
35-39 years	0.23	0.17 - 0.31	<0.001*
40-44 years	0.06	0.00 - 3.14	0.162
45-49 years	0.06	0.01 - 0.33	0.001*
Residence			
Central		Ref	
Nyanza	0.96	0.80 - 1.14	0.610
Employment status			
Formally employed		Ref	
Self employed	0.98	0.97 - 0.99	0.005*
Unemployed	1.41	0.55 - 3.59	0.471
Marital status			
Married		Ref	
Single	0.42	0.19 - 0.91	0.028*
Divorced	-	-	-
Separated	0.79	0.05 - 11.54	0.863
Widowed	1.13	0.34 - 3.69	0.841
HIV status			
Positive		Ref	
Negative	0.57	0.56 - 0.58	<0.001*

Notes: * - statistically significant at 5% level (p<0.05); LQ – Lower Quartile, UQ – Upper Quartile

Some of the partcipants in the study reported how contraceptives have helped them and have felt that men should know more about contraceptives as they make most of the decisions regarding fertility.

Majority of the participants have indicated that as a woman you may know the importance of contraceptives and may want to use them but if your partner is not in favour of contraceptives you cannot use them and some partcipants feel this interferes with their fertility plans like in the quote below;

"Sometimes you really want to plan your family but some family member may influence your husband that the current child is big enough to have a follower" (FGD,1)

4.4 Factors Associated with Fertility Desire and Intentions among HIV Infected and Uninfected Women of Reproductive Age

4.4.1 Socio-economic factors associated with fertility intentions among HIV-infected and uninfected

On univariate analysis, older women were more likely than younger women to intend to have children. Compared to employed women, unemployed women were 44% less likely to intend to have children (OR=0.56, p<0.001). HIV uninfected women were 50% more likely to intend to have children than HIV-infected women (OR=1.50, p<0.001) see (Table 4.22).

Table 4.21: Analysis of the factors associated with fertility intentions among women

Variable	OR	95% CI (LQ – UQ)	P-value
Age			
15-19 years		Ref	
20-24 years	1.50	0.77 - 2.91	0.232
25-29 years	1.24	0.23 - 6.78	0.800
30-34 years	3.00	0.95 - 9.51	0.062
35-39 years	1.80	0.61 - 5.35	0.290
40-44 years	1.18	0.06 - 0.51	0.001*
45-49 years	2.00	0.06 - 0.51	0.001*
Residence			
Central		Ref	
Nyanza	1.32	0.89 - 1.96	0.167
Area of residence			
Rural		Ref	
Urban	1.003	0.74 - 1.36	0.987
Education			
No education		Ref	
Primary	0.81	0.55 - 1.21	0.305
Secondary	1.17	0.51 - 2.65	0.711
Post-secondary	-	-	-
Employment status			
Formally employed		Ref	
Self employed	0.51	0.31 - 0.82	0.006*
Unemployed	0.56	0.36 - 0.89	0.013*
Marital status			
Married		Ref	
Single	0.14	0.07 - 0.31	<0.001*
Divorced	0.90	0.13 - 63.13	0.962
Separated	0.60	0.12 - 3.08	0.543
Widowed	-	-	-
HIV status			
Infected		Ref	
Uninfected	1.50	1.50 - 1.50	<0.001*

Notes: * - statistically significant at 5% level ($p<0.05$); LQ – Lower Quartile, UQ – Upper Quartile

On multivariate analysis, women aged 30-34 years were 4.8 times more likely to intend to have more children than women aged 15-19 years (OR=4.77, $p<0.001$).

Women residing in urban areas were 34% more likely to intend to have more children than those in rural areas (OR=1.34, $p=0.028$).

Self-employed women were 71% less likely than employed women to intend to have more children (OR=0.29, p<0.001). HIV uninfected women are 62% less likely than HIV infected women to intend to have children (OR=1.62, p=0.001) see (Table 4.23).

Table 4.22: Analysis of the factors associated with fertility intentions among women

Variable	OR	95% CI (LQ – UQ)	P-value
Age			
15-19 years		Ref	
20-24 years	1.24	1.16 - 1.33	<0.001*
25-29 years	0.83	0.46 - 1.50	0.544
30-34 years	4.77	3.86 - 5.90	<0.001*
35-39 years	2.44	0.32 - 18.52	0.388
40-44 years	0.55	0.33 - 0.89	0.016*
45-49 years	-	-	-
Residence			
Central		Ref	
Nyanza	2.17	0.79 - 5.96	0.134
Area of residence			
Rural		Ref	
Urban	1.34	1.03 - 1.75	0.028*
Education			
No education		Ref	
Primary	0.77	0.30 - 1.97	0.586
Secondary	1.02	0.39 - 2.65	0.965
Post-secondary	-	-	-
Employment status			
Formally employed		Ref	
Self employed	0.29	0.15 - 0.58	<0.001*
Unemployed	0.29	0.13 - 0.67	0.003*
Marital status			
Married		Ref	
Single	0.09	0.05 - 0.17	<0.001*
Divorced	0.46	0.06 - 3.84	0.473
Separated	0.54	0.02 - 16.12	0.720
Widowed	-	-	-
HIV status			
Infected		Ref	
Uninfected	1.62	1.23 - 2.13	0.001*

Notes: * - statistically significant at 5% level (p<0.05); LQ – Lower Quartile, UQ – Upper Quartile

4.4.2 Factors associated with fertility desires among HIV-infected and uninfected women

In a univariate analysis women with higher levels of education are substantially more likely to desire more children than those with no formal education. Single, divorced,

separated, and widowed women were less likely to desire more children than married women. HIV uninfected women were significantly 68% more likely to desire more children than HIV infected women (OR=1.68, p<0.001) see (Table 4.24).

Table 4.23: Analysis of factors associated with fertility desires among women

Variable	OR	95% CI (LQ – UQ)	P-value
Age			
15-19 years		Ref	
20-24 years	3.09	0.08 - 118.68	0.544
25-29 years	1.09	0.16 - 7.42	0.924
30-34 years	1.44	0.99 - 2.07	0.054
35-39 years	1.93	0.30 - 12.26	0.488
40-44 years	0.45	0.04 - 5.25	0.527
45-49 years	0.44	0.02 - 9.37	0.602
Residence			
Central		Ref	
Nyanza	2.19	0.79 - 6.04	0.130
Area of residence			
Rural		Ref	
Urban	0.99	0.42 - 2.38	0.998
Education			
No education		Ref	
Primary	7.30	2.04 - 26.06	0.002*
Secondary	9.93	6.05 - 16.31	<0.001*
Post-secondary	3.90	3.39 - 4.47	<0.001*
Employment status			
Formally employed		Ref	
Self employed	0.42	0.44 - 4.03	0.454
Unemployed	0.52	0.22 - 1.24	0.138
Marital status			
Married		Ref	
Single	0.14	0.13 - 0.15	<0.001*
Divorced	0.01	0.00 - 0.02	<0.001*
Separated	0.04	0.01 - 0.13	<0.001*
Widowed	0.07	0.04 - 0.13	<0.001*
HIV status			
Infected		Ref	
Uninfected	1.68	1.68 - 1.68	<0.001*

Notes: * - statistically significant at 5% level (p<0.05); LQ – Lower Quartile, UQ – Upper Quartile

Age, education level, employment and marital status have a significant relationship with the fertility desires of women. The likelihood of fertility desires increased significantly with age. Women between the ages of 30 and 34 years were 3.4 times more likely to desire children than those between the ages of 15 and 19 years (OR=3.42, p<0.001). Women with higher levels of education were significantly more likely to desire more children. Self-employed women were significantly 82% less

likely than employed women to desire more children (OR=0.18, p=0.041). Similarly, unemployed women were less likely to desire children than employed women (OR=0.19, p=0.009) see (Table 4.25).

Table 4.24: Analysis of the factors associated with fertility desires among women

Variable	OR	95% CI (LQ – UQ)	P-value
Age			
15-19 years		Ref	
20-24 years	3.26	0.07 - 156.29	0.549
25-29 years	0.94	0.33 - 2.67	0.906
30-34 years	3.42	1.72 - 6.81	<0.001*
35-39 years	4.79	0.03 - 660.70	0.533
40-44 years	2.39	1.39 - 4.10	0.001*
45-49 years	3.08	2.98 - 3.19	<0.001*
Residence			
Central		Ref	
Nyanza	3.52	0.46 - 26.82	0.225
Area of residence			
Rural		Ref	
Urban	0.79	0.13 - 4.81	0.795
Education			
No education		Ref	
Primary	6.59	4.49 - 9.68	<0.001*
Secondary	6.97	6.11 - 7.94	<0.001*
Post-secondary	3.73	2.69 - 5.16	<0.001*
Employment status			
Formally employed		Ref	
Self employed	0.18	0.04 - 0.93	0.041
Unemployed	0.19	0.05 - 0.55	0.009*
Marital status			
Married		Ref	
Single	0.13	0.06 - 0.28	<0.001*
Divorced	0.004	0.00 - 0.06	<0.001*
Separated	0.02	0.01 - 0.16	<0.001*
Widowed	0.05	0.01 - 0.55	0.015*
HIV status			
Infected		Ref	
Uninfected	1.56	0.45 - 5.39	0.481

Notes: * - statistically significant at 5% level (p<0.05); LQ – Lower Quartile, UQ – Upper Quartile

Majority of the participants indicated that HIV positive status does not have any influence on fertility desire and intentions rather other factors do, for example, age, is an important factor because after one has completed college and is working the next thing is to have a family and this will influence fertility.

*"*There is an age that when one reaches as a woman people will start to ask when you are getting married or sometimes if you are married and delay in getting a child, they will ask when you are giving them a grand child and all these can influence a woman to get a child". (FGD, 3)

Majority of the participants indicated that Spouses play a major role particular the husband/male partner in fertility issue. Some of the participants reported that cultural factors like seeing children as a gift and not as something you plan for like in the quote below:

"Sometimes you had agreed to have two children but you find the influence of the male partners close family members interfere by encouraging the male partner about another child"(FGD, 2)

"Having a child for a woman lead to respect, continuation of generation, binding parents together/unity in marriage and as one of the qualifications to be called a mother, a title that is traditionally being seen as an honor. Those who have not given birth are usually stigmatized and are called "Lur" (a woman who cannot give birth) in Luo a name that stigmatize women with no children" (FGD, 4)

Majority of the participant felt that all these factors do not consider health and readiness of the individual making it difficult for the HIV infected women to make decisions and stick to them.

"It is very difficult to make any decision, imagine at the hospital you told you should do take family planning, use condoms, take ARVs etc but when you reach home you tell your husband and he may not even react or may not take anything serious. Our men need to be educated on reproductive health" (FGD, 5)

4.4.3 Factors Associated with fertility intention among HIV-infected and un-infecte

4.4.3.1 Behavioural beliefs

A significantly higher proportion of HIV infected (55.8%) and uninfected (61.4%) women agreed that they would want another child because of the care and security they may get in old age (p=0.014). The evidence that a HIV infected woman can give birth to an uninfected baby was also a significant reason for most HIV infected (51.5%) and uninfected women (35.6%) to have another child (p<0.001).

A significantly higher proportion of HIV infected (63.2%) and uninfected (49.9%) women agreed that economic constraints prevent them from having another child (<0.001) see (Table 4.26).

Table 4.25: Reasons for wanting or not wanting a/another child by HIV status

	Bivariate analysis						
	HIV infected			HIV uninfected			Pearson's chi-square p-value
	SA/A n (%)	N n (%)	SD/D n (%)	SA/A n (%)	N n (%)	SD/D n (%)	
Reasons for wanting another child:							
Fulfil agreement between husband & myself	209 (47.8)	48 (10.9)	180 (41.2)	196 (53.7)	34 (9.3)	315 (39.3)	0.247
Care and security you may get in old age	244 (55.8)	57 (13.0)	136 (31.1)	224 (61.4)	25 (6.9)	116 (31.8)	0.014*
Helper in the future	264 (60.4)	51 (11.7)	122 (27.9)	230 (63.0)	36 (9.9)	99 (27.1)	0.650
Inherit my property	267 (61.1)	53 (12.1)	117 (26.8)	225 (61.6)	37 (10.1)	103 (28.2)	0.649
Sex preference	175 (40.1)	66 (15.1)	196 (44.9)	174 (47.7)	44 (12.1)	147 (40.3)	0.083
In case of accidental death of one child	126 (28.8)	67 (15.3)	244 (55.8)	126 (34.5)	49 (13.4)	190 (52.1)	0.215
Proof that HIV+ woman can give birth to HIV- baby	225 (51.5)	56 (12.8)	156 (35.7)	130 (35.6)	111 (30.4)	124 (33.9)	<0.001*
As a bond between husband and wife	201 (46.0)	50 (11.4)	186 (42.6)	192 (52.6)	41 (11.2)	132 (36.2)	0.147
Closeness between husband and wife	165 (37.8)	55 (12.6)	217 (49.7)	178 (48.8)	27 (7.4)	160 (43.8)	0.002*
Closeness between me and my parents	166 (37.9)	54 (12.4)	217 (49.6)	163 (44.7)	32 (8.8)	170 (46.6)	0.085
Joy and satisfaction you get from life	272 (62.2)	39 (8.9)	126 (28.8)	251 (68.8)	18 (4.9)	96 (26.3)	0.045*

	Bivariate analysis						
	HIV infected			HIV uninfected			Pearson's chi-square p-value
	SA/A n (%)	N n (%)	SD/D n (%)	SA/A n (%)	N n (%)	SD/D n (%)	
Feel complete as a woman	276 (63.2)	38 (8.7)	123 (28.2)	258 (70.7)	17 (4.7)	90 (24.7)	0.026*
Reasons for not wanting a/another child:							
Economic constraints	276 (63.2)	49 (11.2)	112 (25.6)	182 (49.9)	68 (18.6)	115 (31.5)	<0.001*
Affect my health	240 (54.9)	46 (10.5)	151 (34.6)	108 (29.6)	81 (22.2)	176 (48.2)	<0.001*
Worries of getting a HIV infected baby	153 (35.0)	58 (13.3)	226 (51.7)	45 (12.3)	171 (46.9)	149 (40.8)	<0.001*
Separation if HIV status not disclosed	95 (21.7)	78 (17.9)	264 (60.4)	26 (7.1)	209 (57.3)	130 (35.6)	<0.001*
I have enough children	196 (44.9)	52 (11.9)	189 (43.3)	102 (27.9)	94 (25.8)	169 (46.3)	<0.001*

Notes: * - statistically significant at 5% level ($p<0.05$); SA/A - Strongly agree and agree, N - Neutral, SD/D - Strongly disagree and disagree

In Central and Nyanza regions, all of the reasons for wanting a/another child were significantly reported (all $p<0.001$). Majority of women in Nyanza region agreed that they would have a/another child to have a helper in the future, as property inheritance, gender preference, child replacement in case of accidental death of one child, evidence that an HIV infected woman can give birth to an uninfected baby while most women from central disagreed. Furthermore, across the Central and Nyanza region, all of the reasons for not having another child were significantly expressed. A significantly higher proportion of women in Nyanza (64.3%) versus Central (49.4%) regions agreed that economic constraints prevent them from having another child see (Table 4.27).

Table 4.26: Reasons for wanting or not wanting a/another child by region

	Bivariate analysis						
	Central			Nyanza			Pearson's chi-square p-value
	SA/A n (%)	N n (%)	SD/D n (%)	SA/A n (%)	N n (%)	SD/D n (%)	
Reasons for wanting a/another child:							
Fulfil agreement between husband & myself	104 (27.0)	46 (11.9)	235 (61.0)	301 (72.2)	36 (8.6)	80 (19.2)	<0.001*
Care and security you may get in old age	132 (34.3)	51 (13.3)	202 (52.5)	336 (80.6)	31 (7.4)	50 (11.9)	<0.001*
Helper in the future	152 (39.5)	45 (11.7)	188 (48.8)	342 (82.0)	42 (10.1)	33 (7.9)	<0.001*
Inherit my property	148 (38.4)	49 (12.7)	188 (48.8)	344 (82.5)	41 (9.8)	32 (7.7)	<0.001*
Sex preference	119 (30.9)	59 (15.3)	207 (53.8)	230 (55.2)	51 (12.2)	136 (32.6)	<0.001*
In case of accidental death of one child	47 (12.2)	72 (18.7)	266 (69.1)	205 (49.2)	44 (10.6)	168 (40.3)	<0.001*
Proof that HIV+ woman can give birth to HIV- baby	75 (19.5)	106 (27.5)	204 (52.9)	280 (67.2)	61 (14.6)	76 (18.2)	<0.001*
As a bond between husband and wife	92 (23.9)	52 (13.5)	241 (62.6)	301 (72.2)	39 (9.4)	77 (18.5)	<0.001*
Closeness between husband and wife	67 (17.4)	48 (12.5)	270 (70.1)	276 (66.2)	34 (8.2)	107 (25.7)	<0.001*
Closeness between you and your parents	62 (16.1)	50 (12.9)	273 (70.9)	267 (64.0)	36 (8.6)	114 (27.3)	<0.001*
Joy and satisfaction you get from life	158 (41.0)	39 (10.1)	188 (48.8)	365 (87.5)	18 (4.3)	34 (8.2)	<0.001*
Feel complete as a woman	161 (41.8)	38 (9.9)	186 (48.3)	373 (89.5)	17 (4.1)	27 (6.5)	<0.001*
Reasons for not wanting a/another child:							
Economic constraints	190 (49.4)	62 (16.1)	133 (34.6)	268 (64.3)	55 (13.2)	94 (22.5)	<0.001*
Affect my health	104 (27.0)	64 (16.6)	217 (56.4)	244 (58.5)	63 (15.1)	110 (26.4)	<0.001*
Worries of getting a HIV infected baby	40 (10.4)	138 (35.8)	207 (53.8)	158 (37.9)	91 (21.8)	168 (40.3)	<0.001*
Separation if HIV status not	20 (5.2)	153 (55.1)	153 (39.7)	101 (24.2)	134 (32.1)	182 (43.7)	<0.001*

	Bivariate analysis						
	Central			Nyanza			Pearson's chi-square p-value
	SA/A n (%)	N n (%)	SD/D n (%)	SA/A n (%)	N n (%)	SD/D n (%)	
disclosed							
I have enough children	152 (39.5)	72 (18.7)	161 (41.8)	146 (35.0)	74 (17.8)	197 (47.2)	0.287

Notes: * - statistically significant at 5% level (p<0.05); SA/A - Strongly agree and agree, N - Neutral, SD/D - Strongly disagree and disagree

4.4.3.2 Normative Beliefs

With significance (p=0.019), the majority of HIV infected (78%) and uninfected (69.3%) women disagreed that their mothers would disapprove them having a/another child within the next two years (Table 4.28).

Table 4.27: Normative beliefs about wanting or not wanting another child by HIV status

	Bivariate analysis						
	HIV infected			HIV uninfected			Pearson's chi-square p-value
	SA/A n (%)	N n (%)	SD/D n (%)	SA/A n (%)	N n (%)	SD/D n (%)	
Decision to have another child within the next 2 years depends on:							
Husband/partner	182 (41.7)	58 (13.3)	197 (45.1)	169 (46.3)	58 (15.9)	138 (37.8)	0.108
Mother-in-law	55 (12.6)	76 (17.4)	306 (70.0)	62 (16.9)	67 (18.4)	236 (64.5)	0.166
Father-in-law	35 (8.0)	78 (17.9)	324 (74.1)	37 (10.1)	67 (18.4)	261 (71.5)	0.543
Friends	54 (12.4)	67 (15.3)	316 (72.3)	49 (13.4)	53 (14.5)	263 (72.1)	0.876
Who would disapprove you having a/another child:							
Employing organization	57 (13.0)	60 (13.7)	320 (73.2)	54 (14.8)	56 (15.3)	255 (69.9)	0.574
Church members	13 (3.0)	57 (13.0)	367 (84.0)	10 (2.7)	54 (14.8)	301 (82.5)	0.766
Sisters	35 (8.0)	49 (11.2)	353 (80.8)	30 (8.2)	55 (15.1)	280 (76.7)	0.258
Brothers	35 (8.0)	50 (11.4)	353 (80.6)	25 (6.9)	60 (16.4)	280 (76.7)	0.114
Mother	47 (10.8)	49 (11.2)	341 (78.0)	53 (14.5)	59 (16.2)	253 (69.3)	0.019*
Father	28 (6.4)	52 (11.9)	357 (81.7)	23 (6.3)	57 (15.6)	285 (78.1)	0.309

Notes: * - statistically significant at 5% level (p<0.05); SA/A - Strongly agree and agree, N - Neutral, SD/D - Strongly disagree and disagree

Most of the women in the Central region (63.1%) disagreed that the decision to have another child is made by their husband/partner, whereas 64.8% of women in Nyanza agreed (p<0.001).

Table 4.28: Normative beliefs about wanting or not wanting a/another child by region

	Bivariate analysis						
	Central			Nyanza			Pearson's chi-square p-value
	SA/A n (%)	N n (%)	SD/D n (%)	SA/A n (%)	N n (%)	SD/D n (%)	
Decision to have a/ another child within the next 2 years depends on:							
Husband/partner	81 (21.0)	61 (15.8)	243 (63.1)	270 (64.8)	55 (13.2)	92 (22.1)	<0.001*
Mother-in-law	19 (4.9)	64 (16.6)	302 (78.4)	98 (23.5)	79 (18.9)	240 (57.6)	<0.001*
Father-in-law	15 (3.9)	63 (16.4)	307 (79.7)	57 (13.7)	82 (19.7)	278 (66.7)	<0.001*
Friends	17 (4.4)	58 (15.1)	310 (80.5)	86 (20.6)	62 (14.9)	269 (64.5)	<0.001*
Who would disapprove you having a/another child:							
Employing organization	31 (8.1)	313 (81.3)	41 (10.7)	80 (19.2)	75 (17.9)	262 (62.8)	<0.001*
Church members	4 (1.0)	41 (10.7)	340 (88.3)	19 (4.6)	70 (16.8)	328 (78.7)	<0.001*
Sisters	6 (1.6)	41 (10.7)	338 (87.8)	59 (14.2)	63 (15.1)	295 (70.7)	<0.001*
Brothers	5 (1.3)	43 (11.2)	337 (87.5)	55 (13.2)	67 (16.1)	295 (70.7)	<0.001*
Mother	8 (2.1)	42 (10.9)	335 (87.0)	92 (22.1)	66 (15.8)	259 (62.1)	<0.001*
Father	4 (1.0)	42 (10.9)	339 (88.1)	47 (11.3)	67 (16.1)	303 (72.7)	<0.001*

Notes: * - statistically significant at 5% level (p<0.05); SA/A - Strongly agree and agree, N - Neutral, SD/D - Strongly disagree and disagree

4.4.3.3 Control Beliefs

Majority of the HIV infected (51.7%) and uninfected women (52.6%) agreed that loneliness of one child would make it easier for them to have another child, p=0.007. Moreover, most of the HIV infected and uninfected women disagreed that if their husband is the only child, employment status and improved health status would lead to the birth of a/another child. Despite the fact that three out of every four HIV infected women agreed that their partner's poor health would prevent them from having another child, 36.7% of HIV uninfected women disagreed (Table 4.30).

Table 4.29: Control beliefs about wanting or not wanting a/another child by HIV status

	Bivariate analysis						
	HIV infected			HIV uninfected			Pearson's chi-square p-value
	SA/A n (%)	N n (%)	SD/D n (%)	SA/A n (%)	N n (%)	SD/D n (%)	
Factors that would make it easy or enable you to have a/another child within the next two years:							
Loneliness of one child	226 (51.7)	36 (8.2)	175 (40.1)	192 (52.6)	53 (14.5)	120 (32.9)	0.007*
Replacing HIV+ baby	121 (27.7)	58 (13.3)	258 (59.0)	39 (10.7)	178 (48.8)	148 (40.6)	<0.001*
If husband is only child	92 (21.1)	61 (13.9)	284 (64.9)	88 (24.1)	90 (24.7)	187 (51.2)	<0.001*
Employment	105 (24.0)	66 (15.1)	266 (60.9)	90 (24.7)	88 (24.1)	187 (51.2)	0.003*
Improved health status	184 (42.1)	57 (13.0)	196 (44.9)	107 (29.3)	102 (27.9)	156 (42.7)	<0.001*
Support from family members	81 (18.5)	64 (14.7)	292 (66.8)	71 (19.5)	89 (24.4)	205 (56.2)	0.001*
Factors that would make it difficult or prevent you to have a/another child within the next two years:							
Poor health	290 (66.4)	70 (16.0)	77 (17.6)	204 (55.9)	72 (19.7)	89 (24.4)	0.009*
Economic status	288 (65.9)	73 (16.7)	76 (17.4)	224 (61.4)	66 (18.1)	75 (20.6)	0.385
Complication from a previous birth i.e., CS	195 (44.6)	95 (21.7)	147 (33.6)	148 (40.6)	94 (25.8)	123 (33.7)	0.344
Stress of infant feeding option (EBF)	169 (38.7)	72 (16.5)	196 (44.9)	83 (22.7)	75 (20.6)	207 (56.7)	<0.001*
Partners poor health	198 (45.3)	78 (17.9)	161 (36.8)	131 (35.9)	100 (27.4)	134 (36.7)	0.002*

Notes: * - statistically significant at 5% level ($p<0.05$); SA/A - Strongly agree and agree, N - Neutral, SD/D - Strongly disagree and disagree

Control beliefs about wanting or not wanting a/another child by region

Most women in both regions disagreed that having another child would be easier if they had employment; the need to replace a HIV infected baby, support from family members, and a husband who is the only child. Conversely, most of the women in both regions significantly agreed that their poor health and economic status would prevent them from having another child see (Table 4.31).

Table 4.30: Control beliefs about wanting or not wanting another child by region

	Bivariate analysis						
	Central			Nyanza			Pearson's chi-square p-value
	SA/A n (%)	N n (%)	SD/D n (%)	SA/A n (%)	N n (%)	SD/D n (%)	
Factors that would make it easy or enable you to have a/another child within the next two years:							
Loneliness of one child	135 (35.1)	33 (8.6)	217 (56.4)	283 (67.9)	56 (13.4)	78 (18.7)	<0.001*
Replacing HIV+ baby	24 (6.2)	134 (34.8)	227 (58.9)	136 (32.6)	102 (24.5)	179 (42.9)	<0.001*
If husband is only child	17 (4.4)	87 (22.6)	281 (72.9)	163 (39.1)	64 (15.4)	190 (45.6)	<0.001*
Employment	82 (21.3)	76 (19.7)	227 (58.9)	113 (27.1)	78 (18.7)	226 (54.2)	0.158
Improved health status	96 (24.9)	93 (24.2)	196 (50.9)	195 (46.8)	66 (15.8)	156 (37.4)	<0.001*
Support from family members	41 (10.7)	89 (23.1)	255 (66.2)	111 (26.6)	64 (15.4)	242 (58.0)	<0.001*
Factors that would make it difficult or prevent you to have a/another child within the next two years:							
Poor health	158 (41.0)	86 (22.3)	141 (36.6)	336 (80.6)	56 (13.4)	25 (6.0)	<0.001*
Economic status	214 (55.6)	80 (20.8)	91 (23.6)	298 (71.5)	59 (14.2)	60 (14.4)	<0.001*
Complication from a previous birth i.e., CS	65 (16.9)	107 (27.8)	213 (55.3)	278 (66.7)	82 (19.7)	57 (13.6)	<0.001*
Stress of infant feeding option (EBF)	51 (13.3)	86 (22.3)	248 (64.4)	201 (48.2)	61 (14.6)	155 (37.2)	<0.001*
Partners poor health	43 (11.2)	106 (27.5)	236 (61.3)	286 (68.6)	72 (17.3)	59 (14.2)	<0.001*

Notes: * - statistically significant at 5% level ($p<0.05$); SA/A - Strongly agree and agree, N - Neutral, SD/D - Strongly disagree and disagree

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Levels of Fertility Desires and Intentions among HIV-Infected Women and HIV-Uninfected Women in Nyanza and Central region

Prevention of Mother to child transmission of HIV programs have focused on prong three, emphasizing provision of ART and other related services. Prong two entails providing appropriate counselling and support to women living with HIV to reduce unmet need for family planning and enable them make informed decisions about their current and future reproductive life with special attention to preventing unwanted pregnancies is equally vital. Child bearing among HIV-infected women poses the danger of transmitting HIV to the baby during pregnancy, delivery and breast feeding.

Evidence from this study indicates that diagnosis of HIV infection does not prevent HIV-infected women from desiring and intending to have children. Majority of the women interviewed desired (72.7%) and intended (65.4%) to have between three to six children with males being the preferred sex. This is not suprising as more than three-quarters (77.1%) of the women who were interviewed were aged below 35 years, representing a youthful group of participants, with more than half of HIV-infected women having less than three children. This is a prime child bearing and rearing years, many were already parents living in the context where a high premium is placed on parenthood. Desire for more children indicates future reproductive behaviour provided that the required family planning services are available, affordable and accessible to allow women to realise their fertility preferences (KDHS, 2014). More than half of the women who were pregnant at the time of the interview did not plan for the pregnancy, although this finding did not vary significantly by HIV status or region.

Similarly there was no significant difference between HIV-infected and uninfected in the number of of children they intended to have with a higher percentage of both groups intending to have 3-6 children. However regional comparison indicated

significant difference between the regions. Fewer HIV-infected women in Central region than Nyanza wanted to have 3-6 children (71.4%vs75.4%, P=0.021). Smilarly fewer HIV uninfected women in Central than Nyanza wanted to have 3-6 children (29.3% vs 46.5%, P<0.001). It means regardless of the HIV status, a higher number of women from Nyanza region wanted to have 3-6 children and if HIV infected women go ahead to have babies without plan, given that there is desire and intentions to have babies among more HIVinfected than uninfected it can lead to more babies being born with HIV. It is important that strategies are put in place to manage the high number of HIV infected pregnant women and their exposed babies. The study indicated that there was a significant difference between Nyanza and Central in their fertility desire and intention to have children and this may be as a result of cultural diffences between the two regions.

> "In the African culture a child is very important so women aspire to have children in any marriage" (FGD, 6).

> "For me I think it is a matter of being, for in that…it's natural"… Because of future…people know that marriage without kids is not complete" (FGD, 4)

This is consistent with a study in Kenya by Iyer & weeks (2009) who found that ethnic controls were significant among Kalenjins, Luhya, Mjikenda, Swahili and Luo. Moreover a study in Kenya indicated that the Kikuyu and Kamba show least preference for large families because they had earlier access to colonial education. A study conducted among HIV sero concordant married couples in Nyanza province indicated that HIV compelled many to reconsider fertility plans, sometimes promoting childbearing intentions in some individuals but often reducing fertility plans among most, largely due to fears of early death, health concerns, stigma, perinatal HIV transmission and financial difficulties. Preference for sons and large families influenced some couples' intentions to continue childbearing, although none had discussed their intentions with health care providers (Withers *et al*, 2014). A study by Mukami, (2012), sought to determine correlates associated with unintended childbearing in Nyanza and Central provinces of Kenya using KDHS data 2008/09 indicated that more than half of all births that occurred in Nyanza and Central

provinces were unintended at fifty two percent and forty seven percent respectively. Majority of unintended childbearing in Nyanza province, were associated with women from households classified as poor while households which were classified as rich in Central province recorded highest proportions of unintended childbearing.

Unplanned pregnancies were common among women including HIV-infected women. A quarter of women were pregnant at the time of study although there were more HIV-uinfected women then infected women half of them reported that they had not planned for their current pregnancy and therefore these were unplanned pregnancies. The study indicated that HIV diagnosis did not impact on fertility desire and intention rather a higher percentage of HIV-infected than HIV-uninfected women desired and intended to have more children. If a woman does not get a chance to discuss the timing and the readiness for a pregnancy depending on her health with her health care provider, the intention to get a pregnancy may lead to HIV-infected birth due to several factors for example, diagnosis of HIV in late pregnancy may lead to late initiation of treatment, lack of adherence to antiretroviral drugs, tolerability of ARVs, incorrect dosing or potential problems with absorption of ARV drugs all may lead to unsuppressed viral load which may lead to transmission of HIV to the unborn baby during pregnancy, delivery and breastfeed. Studies from sub-Saharan Africa suggest that the rate of pregnancy among women on ART was higher compared to women not on ART (Rosenberg et al., 2014; Guo et al., 2022). The improvement in MTCT rate from 14% in 2013 to 8.3% in 2016 (Akelo *et al*., 2017) was seen as a major milestone in Kenya. However current official NASCOP program data, 2018 indicate that the rate has gone up again to 12.4%, a cause of serious concerned. This increase may be due to unplanned pregnancies among HIV-infected women.

Similar studies from Canada and South Africa indicate that unplanned pregnancy is higher among HIV positive women than HIV negative women (Sidibé et al., 2016b; Dapaah, 2016). Early diagnosis of HIV-infected pregnant women is important for access to ARV drugs, support on adherence to ARV drugs and retention in care to achieve viral suppression, that help improve the mother's own health and prevent infection being passed to the baby. Despite significant progress, the number of

children becoming newly infected with HIV remains unacceptably high. In 2016, 24% of pregnant women living with HIV did not have access to ARVs to prevent transmission to their infants (UNAIDS, 2012). In the same year, around 160,000 children became infected with HIV; this equates to 438 children a day (Pustil, 2016). National PMTCT program data 2019 indicate that the gain on MTCT rate is being reversed as MTCT rate in Kenya increased from 11.5% in 2017 to 12.4% in 2018 (NASCOP, 2018). In addition to reducing the risk of HIV acquisition among children, a rights-based prevention of unintended pregnancies through use of family planning also helps reduce maternal morbidity and reduces maternal deaths.

According to Miller (2011), there is a three-step motivational sequence that drives fertility behaviour, beginning with motivational traits, continuing with fertility desires and concluding with fertility intentions. Interventions at any of the three stages can be effective in changing fertility behaviour of the women. The qualitative component of this study indicated lack of adequate education on fertility and HIV by health care providers apart from services which took the women to the hospital. A woman may be coming each time for ARV refill but miss on important concepts like planned pregnancy and use of contraceptives. This finding is similar to a study in India which showed that clinicians routinely do not discuss issues related to reproduction with women living with HIV (Jose, 2016) contributing to unplanned pregnancies. The study showed that male partners had a lot of influence on the women's fertility desires and intentions, some influence were positive like a higher percentage of both HIV-infected and uninfected women indicated that decision on use of family planning were discussed and made by the woman and her partner. However some could be negative and engaging male partners in counselling and education may empower them positively. This is similar to other studies from Ethiopia, Nigeria, and Kenya (Ayieko et al., 2017; Mekonnen & Enquselassie, 2017; Okeke, 2016). Although in the past, pregnancy was discouraged among HIV-infected women because of the risk of vertical transmission (Jose, 2016), women living with HIV continued to risk their lives and that of their unborn children through unplanned pregnancies. However with availability of ARVs, HIV-infected women can deliver HIV-uninfected babies safely provided viral suppression is achieved during pregnancy, delivery and continues to be so during breast feeding.

Preventing unwanted pregnancies in women living with HIV is a recognized HIV-preventing strategy. It is not clear why women not only HIV-infected find themselves with unplanned pregnancies, since family planning services have been free in Kenya for along time, although Counties which are currently responsible for health service delivery may be charging a small amount as service charge fee. Health care providers have a big task ahead if HIV- prevention is to succeed since family planning is one of the prevention strategies for mother-to-child transmission of HIV.

For all women, pregnancy needs planning inorder to improve maternal and neonatal outcomes. However for HIV-infected women pregnancy planning is very critical since studies show that the rate of unintended pregnancy among HIV-infected women in South Africa, sub-Saharan region and Canada is high (Iyun et al., 2018; Homsy et al., 2009). Unplanned pregnancies can continue to put children of HIV-infected women at risk of HIV infection. If quality client education is not feasible due to shortage of health workers, lay health educators such as trained Mentor Mothers/peer educators (NASCOP, 2016), can support quality education and counselling for HIV-infected women and their partners. Women normally seek guidance and support from other women who have been pregnant and probably with similar situations like them and engaging Mentor Mothers/peer educuators would help provide a platform for HIV-infected women to seek information from women who are just like them but trained and therefore will give accurate information and peer influence to reduce unplanned pregnancies among HIV-infected women. Currently it is documented that majority of children living with HIV are infected via mother-to-child transmission of HIV (MTCT) during pregnancy, childbirth or breastfeeding. MTCT can be stopped if mothers have access to PMTCT services during pregnancy, delivery and breast feeding (UNAIDS, 2016).

The implication of this finding is that if innovative ways of educating and supporting HIV-infected clients are not utilized, WLWHA will continue to have unplanned pregnancies to satisfy their desire or intention before ascertaining viral suppression thereby posing a risk of vertical transmission of HIV to their infants during pregnancy, delivery and breast feeding. This means Kenya may not reach the global target of less than 5% transmission rate (WHO|, 2016). HIV-infected women in the

study desired and intended to have children just like their HIV uninfected counterparts.

Fertility desire and intention was higher in Nyanza than in Central region. It is possible that due to socio-cultural norms, women from Nyanza were influenced to have more children however it could also be because of the high HIV prevalence many would like many children so that in case one dies or is infectd with HIV, there can still be some children remaining to carry the family name. Under five mortality is highest in Nyanza 82 deaths per 1000 live births but lowest in Central at 42 deaths per 1000 live births (KDHS, 2014).

5.2 Factors Associated with Contraceptives Use among HIV-Infected and Uninfected Women

The study evaluated several factors associated contraceptives among HIV-infected and uninfected women of reproductive age. At the time of the study 70% of the women were using some method and about 61% intended to use contraceptives in the future. Injection (medroxyprogesterone acetate, a contraceptive injection that contains the hormone progestin) was the prevalent method at about 45% followed by implant (a type of long-acting reversible contraception) at 21% and condoms were at 14%. However when condom use was analysed by HIV status about 62% of the women in the study had used condoms as a family planning method and a measure to prevent infection with HIV in the past six months. Majority (67.8%) of the participants claiming to always used condoms in the past six months with regular partners. A significant larger number of HIV-infected women than uninfected used condoms (72.9% vs 53.5% P<0.001), however it is not very clear if the condoms were used as a family planning method or as a preventive mease towards HIV reinfection. About 29% of the HIV-infected did not use condoms which may lead to baby being infected if pregnant. Regionally a larger percentage of HIV-infected women from Central than Nyanza used condoms always in the past six months (87.9% vs 60.9% p<0.001).

The results of this study are consistent with a study conducted in the USA which found that, regarding contraceptives, most women used some form of birth control

methods in the past year (Sutton & Austin, 2015). Barrier methods (condoms) were the most frequently reported form of contraception for women (Sutton *et al*., 2018). Most women (60.3%) in the study indicated that they made joint decision with partner on use of contraceptive; this can be an opportune chance for the male partner to be educated on contraceptive methods. In qualitative results women have identified the male partner as the weakest link in the successful use of contraceptives citing the fact that male partners did not want their female partners to use contraceptives for various reasons. There was statistically significant difference by HIV status and contraceptive use, lower proportion of HIV-infected used injections than HIV uninfected women (42.1% vs 50.6%). For all women, having planned pregnancies allows for early engagement in obstetrical care and subsequent antiretroviral treatment which would significantly decrease the chance of mother-to-child transmission. The importance of family planning has increasingly gained recognition as having a vital role to play in the prevention of HIV transmission. Reducing unintended pregnancies among HIV-infected women through family planning reduces the number of HIV-infected infants as much as the use of antiretroviral prophylaxis for PMTCT (Akelo *et al*., 2013). The main reason given for use of condoms was to minimize risk of HIV re-infection, other reasons included, avoid infecting partner (8.4%), prevent contracting STIs (7.0%) and preventing pregnancy (2.9%). It is not clear if these women were using another effective method of modern contraceptive to avoid pregnancy. It is advisable that HIV-infected women use an effective contraceptive and a condom to qualify as dual contraceptive which protect them from unintended pregnancy, HIV-reinfection, and infecting partner.

A systematic review and Meta analysis by Mumah *et al,* (2013) described dual contraceptive method as the usage of any modern contraceptive method with male or female condoms which could lower sexually transmitted diseases and unwanted pregnancy. Reasons for non use of contraceptives by HIV status were, afraid of side effects for HIV-infected and uninfected were 77% and 86% respectively. Others included not sexually active (15% for HIV-infected and 4.8% for HIV-uninfected. Similarly reasons for non use of contraceptives by region included, side effects (78.1% vs 83.9%) for Central and Nyanza respectively. Other reasons for nonuse

included “religious beliefs”, “not sexually active”, and “lack of knowledge”. It should be noted that, unintended pregnancy may have other consequences for the woman and her family of which the general population may often be unaware. Such consequences may include negative health outcomes for the woman leading to morbidity and mortality. The child may also be affected depending on complications of pregnancy that may arise during prenatal period of the woman. However, it should be noted that unintended pregnancies are not always regarded as negative outcomes by women and their families. Nevertheless, studies also suggest that the possible side effects of contraceptive use are few compared to the possible risks resulting from some types of pregnancies (Kost *et al.,* 1991; Thorne *et al*., 2006).

This study is consistent with a study conducted in low and middle income Countries (LMIC) using demographic and health surveys where the most prevalent reasons for nonuse of contraceptives were “health concerns” and “infrequent sex,” but the prevalence of each reason varied substantially across countries. Nonuse due to “opposition from others” was higher among married than unmarried women; in turn, the prevalence of nonuse due to “lack of access” or “lack of knowledge” was about two times higher in rural areas than in urban areas. Women with less schooling more often reported nonuse due to “lack of access.” Pro-rich inequality was detected for reasons “health concerns,” “infrequent sex,” and “method-related”, while the reasons “others opposed,” “fatalistic,” “lack of access,” and “lack of knowledge” were linked to patterns of pro-poor inequality (Moreira *et al.*, 2019).

Age, employment status, marital status and HIV status were significantly associated with intention to use Contraceptives. Women 45-49 years were 91% less likely to intend to use contraceptives, while women 20-24 years were four times more likely to want to use contraceptives (OR=4.05, p=0.020). Findings from this study indicate that fertility desires and intentions increased significantly with age. Older women were more likely than younger women to intend to have children. This is consistent with a study done by Forty *et al*. (2021), where for example, intention to use contraceptives decreased with age and was highest in age group 20–24 (84.1%) and lowest in age group 45–49 (17.1%%). Another study in Ethiopia indicated that women, who were between 35-49 years had fear of side effects and were unlikely to

use contraceptives (Sutton *et al.,* 2018). It is not clear if it is the intention to have children or fear of side effects, which made this sub group decline to use contraceptives or was it because they considered themselves to have natural sterility which comes with age. Steinfeld *et al.,* (2013) in a review indicated that the medical risks of unintended pregnancy are greater for older women than for younger women, and so the risks of contraceptive use need to be weighed against the risks of pregnancy. In addition, the most effective contraceptive methods should be emphasized in order to maximally decrease the medical risks of unintended pregnancy among older women.

Although fertility declines with age, effective contraception is still required in women over 40 years of age who wish to avoid pregnancy. According to international guidelines, there are no contraceptive methods that are contraindicated based on age alone. Effective non hormonal and progestin-only methods provide safe options for women who should avoid estrogen-containing contraceptives. For women who are using hormonal contraceptives, menopausal status and lack of need for contraception can be assumed at age 55. It is not clear whether this age group 45 to 49 years were avoiding contraceptives because they assumed they have reached a period of natural sterilization due of age or were they intending to get a/another child. European guidelines suggests that natural sterility can be assumed after age 55 in the amenorheic women. It is vital that the health workers provide individual education to such clients to identify their real needs, and educate them appropriately for effective contraceptive outcome. Self employed women were 45% more likely to intend to use contraceptives than formally employed women (OR=1.54, P<0.001). This is an unexpected result because employment is associated with use of contraceptives in many studies. However since using an effective contraceptive method allows women to control timing of reproduction, there may be difference in contraception behaviour between formally employed women and self employed women. Being self employed may not bring home fringe benefits that formally employed women may have for example in Kenya maternity leave is 3 months and it is in the law. So a formally employed woman is entitled to maternity leave and annual leave. Getting maternity leave during the early life of the infant when the infant needs the mother's presence is vital while a self employed woman may have to

close the business during that period which translates to loss of income and even loss of business. A study conducted in Turkey using the 2013 Turkey Demographic and Health Survey (TDHS) showed that employed women including family workers, are more likely to choose a modern method over traditional contraceptive, particularly those working as government employees (Pekkurnaz, 2020). Simlarly a study in Bangladesh found contraceptive use was higher among employed women (67%) than that of unemployed women. Conversely a study conducted in Uganda found that employment was not associated with greater use of modern contraceptives, but off-farm wage-employed women were more likely to use traditional contraception.

Single women were 58% less likely to use contraception than married women (OR=0.42, p=0.028). HIV uninfected women were 43% less likely to want to use contraception than HIV infected women (OR=0.57, p<0.001). Single women sometimes report they are not sexually active and therefore may not want to use contraceptives. However it's absolutely inorder for someone to take contraceptives even if they aren't sexually active. Women often choose to take the pill for benefits like protection against acne, cramps, heavy periods, and some premenstrual symptoms like headaches and depression. A study by Wang *et al.*, (2016) conducted in California found that women in casual relationships were likely to use effective contraceptive method compared to women in consistent relationship, also women in new relationships 0-3 months were less likely to use effective contraceptives compared to women in relationships more than one year. Increasing modern contraceptive method use requires community-wide, multifaceted interventions and the combined provision of information, life skills, support and access to family planning services. Interventions should aim to counter negative perceptions of modern contraceptive methods and the dual role of condoms for contraception and STI prevention should be exploited, despite the challenges involved.

5.3 Factors Associated with Fertility Desires and Intentions among HIV-infected and Uninfected Women

5.3.1 Socio-economic Factors Associated with Fertility Desires and Intentions among women

The study showed that factors including; place of residence (urban vs rural), age, education and employment status were significant associated with fertility desires and intentions among HIV-infected and uninfected women while marital status was a significant factor for fertility intentions regardless of HIV status. Although it is generally known that social context of urban areas accelerates adoption of new reproductive behaviour, the study indicated that women living in urban area were more likely to intend to have more children than one in rural area, contrary to findings from KDHS, 2014 where total fertility rate in urban was lower than rural at 3.1 and 4.5 respectively, However, study in sub-Saharan Africa has shown that modern contraceptives use has increased more among rural than urban women in both Ghana and Kenya (Gyimah *et al*., 2015).

Another study on Urban and rural fertility transition in developing world indicated that national definitions of rural and Urban may change overtime, as boundaries tend to move out into formerly rural areas (Sidibé *et al.*, 2016b). While a study by Askew (2014) noted that in Kenya, urban TFR stalled at 3.1 in 2014 with an increase of 0.2 births in the last five years whereas the rural TFR continued to decline rapidly to 4.5 in 2014 from 5.4 in 2003 which may explain these result. It is also important to note that the data was self reported and there may inaccuracy in determining whether most of the women knew the rural-urban boundaries well. Whatever the case, the results are showing a good trend because it may mean that development in Kenya has improved overtime and the the rural folks are also getting information and services just like the urban dwellers. Qualitative results from this study also showed that women desire and intend to have children despite HIV status similar to studies by Mekonnen & Enquselassie, (2017) in Ethiopia.

Analysis of the role of contraception use to the Millennium Development Goals showed that fulfilling unmet need of family planning in Kenya will prevent maternal and child mortality and reduce poverty (Moreland & Talbird, 2006). Many people particularly in the rural setting may not have clearly understood the benefits of

contraceptives such as reducing maternal and child morbidy by preventing unintended pregnancies and unsafe abortions. Family planning also enable birth spacing giving the the mother time to recover from childbirth and time for the baby to be cared for. Most people know only the negative aspects of contraceptives but contraceptives have many benefits which if critically analysed out weigh the side effects. Probably the rural community is getting to understand the benefits of contraceptives to the woman, the family and to the community in general and this can finally help in reducing maternal and child morbidity and mortality.

The likelihood of women between the ages of 45-49 years to intend to have more children was double that of women between the ages of 15 and 19 years (OR=2.00, p<0.001).This is in contrast to a systematic review carried out in LMIC which indicated that well-known factors such as younger age and fewer number of living children were consistently associated with increased fertility desires/ intentions (Mumah *et al*, 2013). This is unexpected finding as a woman at 40 years and above is considered old enough to have completed child bearing, however it may be due to the need to replace if they have had a HIV-infected children or lost children due to HIV. The introduction of efficacious ART to prevent mother-to-child transmission of HIV has improved maternal and neonatal outcomes which may appeal to an HIV-infected mother who would want to have a/another child but in this study participants were both HIV-infected and uninfected. Further research is needed to explore what may be the reasons for this. Further more this study found that the same older women were less likely to intend to use contraceptives compared to younger women. This supports findings by Klobas, (2011), that women using contraceptives are 2.5 times less likely to express an intention of child bearing. It is usually presumed that the older a woman is , the less likely her desire or intention to have more children, however fertility is a more complicated issue than may appear at a glance, and is indicated by the fact that, even in developed countries a large number of pregnancies are unintended and result in abortions or unwanted deliveries (Ventura *et al*., 2012).

HIV uninfected women were 62% less likely than HIV infected women to intend to have children (OR=1.62, p=0.001). Studies carried out in Kenya and South Florida indicate that fertility intention among HIV-infected women is barred by interplay of

socio-demographic, socio-cultural and relationship issues such as desire for sons and ability to carry on the family name, value placed on children by women and their community's social norm including partner fertility desire (Ayieko *et al.*, 2017; Jones *et al*., 2016). Similarly studies from Kenya and Ethiopia have reported that HIV does not negatively modify the women's subsequent fertility intentions on the contrary these studies indicate that use of ART significantly predict intention as having children is considered a prerequisite for a happy and fulfilled life (Ujiji *et a.*, 2010; Mekonnen *et al.*, 2017). Even as women may continue with their fertility, other studies from South Africa and Mozambique have shown that HIV-infected pregnant women are more likely than HIV-uninfected women to have maternal morbidity, poor pregnancy and neonatal outcomes (BodKin *et al*., 2006; Mekonnen *et al*., 2017). It is important that HIV-infected women understand that pregnancy and neonatal outcome may be poor and so getting pregnant needs to be discussed by the health worker and throughout the pregnancy she should visit the clinic as prescribed to monitor both the mother and the baby during pregnancy and after.

Depending on the pressure brought about by cultural factors, most HIV-infected women want to achieve their fertility desires and intentions regardless of their status and health condition. Studies have shown that the use of ART was a significant predictor in fertility intentions while fertility intention has been shown to provide a fairly accurate forecast of fertility behaviour in Malaysia (Tan &Tey, 1994; Mekonnen & Enquselassie, 2017). Given the argument above it is important that health care providers recognize that even HIV-infected women themselves are in a dilemma regarding the subject of reproduction and HIV status as society and family expectation may mean saving her marriage. Tailoring sexual and reproductive care and counselling to assist women and their partners in making decisions on issues such as number, spacing and timing of pregnancies and use of contraceptives methods is very important for all HIV and reproductive health programs.

There is international consensus that the goal of preventing mother-to-child transmission of HIV cannot be met without increasing access to family planning services. Offering integrated HIV and Sexual and Reproductive Health (SRH) services is considered an effective means to manage and deliver care for HIV-

infected women. Integration of SRH and HIV services has the potential to simultaneously address multiple patient needs in one location (Mekonnen & Enquselassie, 2017).

Although in terms of demographic factors, poor, uneducated and rural Kenyan women have high TFRs, low contraceptive use and high unmet need for contraceptives, in comparison with women with hgher eduction. It is also known that contraceptives were first adopted by educated women; educated women provided better care at home so has been said. Kenyan government has made substantial investment on education which has been based on an expectation that better educated people would also be a healthier one.

In this study women with higher levels of education were substantially more likely to desire more children than those with no formal eduation.This is in contrast to findings of KDHS (2014) where women in Nyanza have the highest level of secondary education but had higher fertility desires in this study. It is noteworthy that Central Kenya because of its proximity to the capital city of Kenya and good weather for agriculture is far richer than Nyanza and more parents can afford to take their children to school. A study by (Ettarh & Kimani, 2012) showed that high prevalence of under-five deaths was seen in the rural areas in the Coast, Nyanza and Western provinces, and in the urban areas of Nyanza Province. Household wealth in Kenya was a significant ($p<0.05$) determinant of under-five mortality. Contraceptive uptake is also higher in Central Kenya and by assumption fewer girls should drop out of school due to pregnancies. In contrast, Nyanza has the highest rate of teenage pregnancies associated with lack of education, as well as partner violence among teenage girls which are more important public health issues (Harrington *et al*., 2012). Occurrence of an unintended birth for example is more likely due to ineffective actual behavioural control than to rationality issues (Mumah *et al.*, 2013). Health workers' education and counselling support to women on matters fertility and contraceptives is therefore very important for development of effective behavioural control. Another study from Uganda found that patients do not feel comfortable communicating their desires with providers, effectively preventing an opportunity to

learn about options for safer contraception and limiting risks of horizontal transmission (Wagner & Wanyenze, 2013).

5.3.2 Social-psychological Factors Associated with fertility intention among HIV-infected and un-infected women based on TPB

In order to further understand factors accounting for fertility desires and intention by HIV status and region, TPB constructs, behavioural beliefs/attitude, normative beliefs, and control beliefs were evaluated.

Although the beliefs people hold may sometimes be inaccurate, unfounded, or biased, according to TPB, people's behavioural believes/attitudes, normative beliefs/subjective norms, and perceptions of behavioural control are thought to follow spontaneously and reasonably from these beliefs, to produce a corresponding behavioural intention, and ultimately to result in behaviour that is consistent with the overall meaning of the beliefs. Taken together, the total set of behavioural beliefs produces a favourable or unfaverouble attitude toward the behaviour, the total normative beliefs results in perceived social pressure to perform or not to perform the behaviour and control beliefs give rise to a sense of self-efficacy or perceived control over behaviour (Steinfeld *et al.*, 2013).

5.3.2.1 Behavioural beliefs about wanting/do not want a/another child within 2 years by HIV status and region

One of the significant beliefs that made HIV-infected women in this study have intention to have a/another child within 2 years was 'proof that HIV-infected women can give birth to HIV-uninfected baby'. It is known that HIV can be transmitted from an HIV-infected woman to her child during pregnancy, childbirth and breastfeeding without appropriate intervention. Vertical transmission (MTCT), accounts for the vast majority of new infections in children. Without treatment, the likelihood of HIV passing from mother-to-child is 15% to 45%. However, ART and other effective PMTCT interventions can reduce this risk to below 5% (WHO, 2016). Another important and significant behavioural belief that HIV-infected women disagreed with while HIV-uninfected women agreed with was; having a child 'create closeness

between the women and their partners' however both HIV-infected and uninfected women agreed that having a/another baby would 'create a bond between them and their partners'. This is in agreement with findings of a study from Austria, Bulgaria and France by Freitas &Testa (2017) that at least 80% of those individuals (women) who did not want to have a/another child and perceived their partner's agreement had no child, while 29% and 58% of those who wanted a/another child and perceived their partner's agreement had one child in the subsequent short-term period in Bulgaria and Austria respectively.

Negative disagreement (respondent does not want but perceives that partner does) seemed to be more predictive of the birth than positive disagreement (respondents wants but perceives that the partner does not want). Another study in Uganda by Gutin *et al*., (2014) found that over 40% of women believed that having more children was important for their partner. In addition a study conducted in Kenya, Namibia and Tanzania found that 25% of women with HIV believed that their partners wanted them to become pregnant (Ngure *et al*., 2014). Partner intentions are important to both HIV-infected and uninfected women even though the intentions of the partners may just be the women's perception. Health care providers providing fertility counselling and education need to always engage HIV-infected women in the discussion about the partner's perceived preference. While other studies from India, Ghana and Mali have cited family members and in-laws to influence women's fertility intentions (Jose, 2016; Reynolds *et al*., 2005; Gyimah *et al.*, 2015). In this study it was only partner's influence which mattered, indicating the level of empowerment of women in Kenya and reducing the subject of fertility negotiations to just the partner as opposed to other regions where the mother in-law plays a very important role in the couple's fertility decision. However what happens is that the mother in law and other family members who will speak to the man to emphasize why the wife must have a child just as was mentioned by the majority of the study participants;

> "When you are married you can be loved but after a few months they start to check if you have signs of pregnancy and after a period you will just see your partner asking you and this-- is …so hurting for the woman because as we

have said there is no woman who does not want a child and if you cannot get one and somebody is asking you its hurting" (FGD,1)

In response to the question *I do not want to have a/another child within the next 2 years*, HIV-infected and uninfected women significantly agreed that, they did not want to get a baby in the next 2 years because of 'economic status. This is a good thing, coming of a new baby has financial implication and recently because of the hard economic state of the country, women are conscious of the consequences. Kenyan stock market is highly sensitive to variations in inflation rate especially as it emerges from a financial or political turmoil brought about by a protracted presidential election in 2017 Omoro *et al.,* (2018), it is important to analyse suitability for a pregnancy in terms of affordability. It is important to note that decision making process as far as fertility is concerned is complex as several factors play within the individual, couple and family at large. Previous studies in Kenya, have noted that many HIV-infected women are reluctant to discuss reproductive desires and intentions with health care providers because of perceived judgemental attitudes, disapproval, and discrimination (Maier *et al*., 2009; Mumah *et al*., 2013).

HIV-infected women also significantly agreed that getting a baby within 2 years would 'affect their health' and their 'exposing them to opportunistic infections (OI)' This is an indication that HIV infected women are well informed of situations that can have far reaching consequences on their health. Being pregnant can be stressful with all the physiological changes going on in the body under normal circumstances. But being pregnant when you have HIV can make it more stressful particularly those who are diagnosed for the first time. Studies from South Africa, and sub-Saharan region comparing HIV-infected and HIV-uninfected pregnant women's maternal and neonatal outcomes found that HIV-infected pregnant women were more likely to present with poor maternal and neonatal outcomes such as low haemoglobin level, abnormal discharge, weigh significantly less than HIV-uninfected pregnant women and more likely to deliver neonates weighing less. HIV-infected women had over three times the risk of a puerperal sepsis compared with HIV-uninfected women [pooled OR: 3.43, 95% confidence interval (CI): 2.00–5.85], (Ngure *et al*., 2014). It is therefore important that HIV-infected women realize the risk that HIV infection

pose on maternal and neonatal outcomes and take precaution against unintended and/or mistimed pregnancy. Each woman needs to take time after delivery to rest the body from the stress of pregnancy and delivery before another pregnancy. WHO (2006), recommends that after live birth minimum interval before attempting the next pregnancy is at least 24 months in order to reduce the risks of adverse maternal, perinatal and infant outcomes.

Further a study by Iyun *et al.*, (2018) observed that ethnic controls were significant among Kalenjins, Luhya, Mijikenda-Swahili and Luo. Nyanza which was predominantly Luo ethnic group, both HIV-infected and uninfected women significantly agreed that *having a/another child within 2 years* is to 'fulfil agreement, between the women and their partners, care and security in old age, inherit property, sex preference, in case of accidental death of one child and as a bond between husband and wife' while women from Central disagreed. Another study in South Africa found that parenthood proved to be an important factor to all participants in continuation of the family and establishing their gender identities, despite the possible risk of HIV transmission and community stigmatization and noted that there are different cultural procreation rules for men and women (Askew, 2014). The variables connote socio-cultural understanding which brings out the level of socio-cultural influence in fertility desires and intentions. These results show how different the two regions behavioural beliefs are. A study on fertility prediction covering Austria, France and Bulgaria found that negative disagreement (respondent does not want but perceives that the partner does) seemed to be more predictive of birth than positive disagreement (respondents wants but perceives that the partner does not want. Similar to finding from this study that if a woman perceives that having a baby will fulfil an agreement with the partner she will go for pregnancy to fulfil the agreement no matter what (Freitas & Testa, 2017).

5.3.2.2 Normative beliefs about wanting/do not want a/another baby within 2 years by HIV status and region

Normative beliefs in combination with a person's motivation to comply with different referents determine the prevailing subjective norm or perceived social pressure to have intention.

Majority of women from both Central and Nyanza in the study strongly disagreed that their mothers would disapprove them *having a/another child*. This is in line with a study in the US which indicated that important normative referents for the decision to have a child include one's partner, parents and friends (Niragire *et al.,* 2021). Regionally both HIV-infected and uninfected from Central region significantly disagreed that normative referents influenced their intention to *have a child within the next 2 years.*This may explain why in analysis of five-year period before KDHS 2008/9, Gregson *et al*., (2002), found that the odds of transition to a third birth were lower for women with some education compared with women with no education. Odds were lower for women in Central, Eastern, and North Eastern provinces compared with women in Western province. From the above analysis, it can be understood that fertility transition started in Central region earlier than Western region and because having fewer children is the norm, the women may have been influenced by what is going on in the society. KDHS (2014) indicate that TFR in Kenya is 3.9 in urban and 4.9 in rural, regionally Central has TFR of 2.8 second to Nairobi with at 2.7 while Nyanza has TFR of 4.3 indicating that Nyanza and Central are at different stages of fertility transition. However women from Nyanza significantly agreed that husband/partner influence their intention *to have a child in the next 2 years.* This is in agreement with a study conducted in Western Kenya which showed that consideration in pregnancy decision-making was based on desire for motherhood, religious values, stigma and attitudes of partners (Omoro *et al.,* 2018).

Similarly another study conducted in Nyanza province Kenya found that men often distrust family planning information provided by their wives because they suspect infidelity or feared being viewed as "herded". Men also feared that providers might

pressure them into vacectomies or into disclosing extramarital sexual activity (Forty *et al*., 2021). Another study among men in Nyanza province found that key barriers to the use of family planning included concerns about side effects of contraceptives, lack of knowledge about contraceptive methods, myths and misconceptions including fear of infertility, structural barriers such as staffing shortages at HIV clinics, and a lack of male focus in family planning methods and service delivery (Steinfeld *et al*., 2013) indicating that the notion that most African communities men have the obligation to decide aspects of family life including fertility may be unsafe given the fact that their knowledge about family planning and fertility may be low.

Majority of the participants in the study reported that desire and intention to have children is driven by cultural factors for example thw study women indicated that by having children a woman greatly enhance her powere and influence within the lineage of the husband like in the quote below;

> "Women without children are not respected, sometimes you feel left out, and may pretend to be fine with it but within you there is something missing…continuation of generation" (FGD, 6)

5.3.2.3 Control beliefs about wanting/do not want a/another baby within 2 years by HIV status and region

By HIV status, the study found that both HIV-infected and uninfected women agreed that loneliness of one child would make it easier for them to have another. Having one child is not a norm in Kenya. According to KDHS (2014) the total fertility rate is at 3.9 births with rural women having at least one child more. Any woman with one child would therefore still have intention to have more children. 'Only children' are commonly stereotyped as lonely, spoiled and selfish but a study from China by Liu & Jiang, (2021) reported that 'only children' were more likely to report a close relationship with parents compared to children from multiple child families. Positive effects of 'only child' status were stronger in daughters than sons. Daughters benefitted more from being 'only child'. Further report indicated that sometimes they compensate by developing a stonger relationship with themselves.

Poor health and Economic status were seen as control factors in deciding when to have a child this is in agreement with a study by Ayieko *et al.*, (2017) conducted in Western Kenya which showed that initiating ART and anticipating improved health status did not necessarily translate to increased fertility desires. Instead, individual factors, such as age, parity, current health status, financial resources and number of surviving or HIV-infected children, played a crucial role in decisions about future fertility, in addition to societal influences, such as community norms. Similarly a study conducted in Ethiopia by Adilo and Wordofa, 2017 found that factors associated with fertility desire among PLHIV included; current health status and partner being tested for HIV were found to be factors associated with the fertility desire among PLHIV. Another qualitative study from Kenya revealed strong motivation among WLHIV to plan or prevent pregnancies to avoid negative health consequences. The findings show that women have knowledge about factors that can make their fertility behaviour compromise their health; this makes it easier for client education. Women from Central region disagreed that lonliness of one child, poor health, economic status and complication of a previous birth were control factors for having a/another child in the next 2 years. This may suggest that women from Central may have other factors that influence them not to have a child within 2 years. For example some participants stated that these days people consider certain factors before getting a child as in the quote below;

> "Culturally people usually do not plan to have children but these days we consider some things like financial stability" (FGD, 2)

5.4 Conclusions

From the discussions, this study therefore, makes the following conclusions;

- Regardless of the region, whether HIVinfected or uninfected fertility desire and intention is high among both groups of women.
- Desirability and intention of HIV-infected women is a public health concern not only to women and their yet to be born children butalso the health system of the country

- Contraceptive use among HIV-infected and HIV uninfected is largely influenced by socio-economic factors.
- Socio-economic and cultural issues informs the basis for desire and intention to have children among HIVinfected and uninfected.

5.5 Recommendations

The following recommendations are made;

- Ministry of Health to consider incorporating psychosocial approaches in the PMTCT settings, for increased uptake of services. A psychosocial guideline for PMTCT is available and not implemented as per the guideline.
- Ministry of Health to consider developing guideline for male partner involvement in family planning and PMTCT as this has been considered the weakest link in the provision of these services. In addition Reproductive health programs to consider establishing community capacity building programs about family planning to dimistify myths and misconception.
- There is need for the National AIDS Control Council (NACC) to incorporate feasible health education and promotion programs for HIV-infected women as majority of HIV-infected women desired more children, in addition embrace community engagement strategies involving all stakeholders in health education and promotion.
- County governments should forge partnership with community to establish a robust social support programs to address psychosocial and general health needs of both HIV-infected women and HIV-exposed babies.
- County governments should establish a special department of HIV under the ministry of health at the county level to handle repropductive health concerns of HIV infected mothers and children including addressing socio-economic and cultural issues.

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APPENDICES

Appendix IA: Informed Consent Document

The Information Sheet

Good morning/ Good afternoon my name is ----------. I wish to provide you with information for purposes of gaining your informed consent to participate in this study.

Title of Study: Fertility Desires, Intentions and Contraceptive Behavior of HIV-infected and Uninfected Women in two contrast regions of Kenya.

Study Location: The study is being tworegions of Kenya, Nyanza and Central. For the purpose of this study the old provincial names are used to enable use of available statistics which are currently captured by region. However the study will be done in two counties at each region (Nyeri and Kaimbu counties in Central and Kisumu and Homabay counties in Nyanza) In each of the two regions three hospitals one of which is a faithbased have been selected through random sampling to participate in the study. The three hospitals from Nyanza are within the Lake region with two Urban and one rural. In Central regions two of the hospitals are within the Urban region while one is in rural. Both faith-based hospitals in the study are rural based.

Principal Investigator

Milker Simba

Principal Investigator: Milker A. Simba Public Health PhD student at Jomo Kenyatta University of Agriculture and Technology.

Mobile no: +254 722 528 736

Supervisors

Prof; L. Gitonga:

Jomo Kenyatta University of Agriculture and Technology.

Mobile no: +254 721 582 723

Prof: Zipporah N'gan'ga:

Jomo Kenyatta University of Agriculture and Technology.

Mobile No: +254 722 794 883

Dr. Patrick Orege:

Kenya Medical Research Institute Kisumu

Mobile no: +254 733 221 366

Purpose of Research:

Is to understand factors influencing fertility desire and intentions among HIV positive women of reproductive age and how these factors may influence contraceptive use as compared to HIV negative women. Fertility intentions and unmet need of family planning among HIV infected women of reproductive age has implications for mother to child transmission of HIV. The results of the study will inform develop programs for effective reproductive health services that will meet the needs of HIV-infected women of reproductive age and support elimination of mother to child transmission of HIV infection.

Description of the Study

The study will involve women of child bearing age 15-49 years with known HIV positive status confirmed by enrolment at the comprehensive care clinic and HIV negative women of similar age attending child welfare clinic (CWC) with their

babies, tested negative within twelve months preceding the study. All women at CWC tested more than twelve month preceding the study will be counselled to have a repeat HIV test and retested upon signing consent form to ensure that participants who are negative are truly negative at the time of the study. Retesting will give HIV negative women opportunity to learn their current status and access care if the test is positive. You will have a prick in your finger to draw one drop (one drop is 0.05ml) of blood required to perform one rapid sensitive test as approved by Ministry of Health (MOH). If the test is negative you will be enrolled in the negative women sample. If the test is positive, another drop of blood will be drawn to perform a second, different specific rapid test as approved by MOH, if test is positive, results will be reported as positive and you will be referred to the HIV clinic for further investigations and care. If the test results is negative, specimen will be taken to the laboratory for Enzyme-linked immunosorbent Assay (ELIZA) test which will be a tie breaker if negative enrol client in the HIV negative sample and if positive refer client to HIV clinic for further investigation and care. Those who turn positive will be referred for peer education and psychosocial support by a mentor mother (a woman living positively with HIV, trained and employed at the facility to provide education and psychosocial support to PMTCT clients) to learn more about the status, understand the implication of her status and share her experience with a mentor mother to prepare her for PMTCT services before being referred for services.

HIV positive and HIV negative women will participate in the individual questionnaire and focus group discussion. Each participant will only participate in either individual questionnaire or focus group discussion to enable the study to get as many as possible people participate in the study. The individual, interviewer-administered questionnaire will take between 45minutes to one hour to complete. The questionnaire will be in English, Kiswahili and Luo languages and participants are allowed to choose which language they feel comfortable with. The questions will ask details about your socio-demographic characteristics, your intention to have a/another child and your contraceptive behavior. You will also be asked questions about your husband/partner and your HIV status. Your will not be record anywhere. You may choose not to answer questions you feel uncomfortable with and you can also withdraw from the study at any time with no consequences. All completed

questionnaires will be kept under lock and key at mothers2mothers room for confidentiality purposes. At the end of the data collection all questionnaires will be transported to Nairobi by Principal investigator. FGD for HIV –infected and HIV-uninfected will be conducted in two hospitals (one of which faith-based hospital) per region which will lead to a total of four FGD with HIV-infected and four with HIV-uninfected. In FGD, participants will be in a group of 8-10 and questions will be asked to all at the same time and each individual will be given a chance to give her opinion in the presence of the others. During FGD a note taker will take notes and audio recording will also be done to help verify participants' contribution for analysis and reporting the discussion. Real names will not be used during FGD seal their identity. KII will be conducted with health care providersparticipating in the study to provide their understanding of; availability and utilization of contraceptives among this age group. Principal investigator will conduct FGD and KII. All notes and audio recording from FGD and KII sessions will be stored in a confidential lockable place by the Principal investigation until five years after the completion of research.

Systematic random sampling will be used in the selection of participants starting with 2 as the random number and the interval will be 17. From the CCC register, clients seen in the last month before the commencement of the study will be used in the sampling of participants. The 2nd client will be identified as the first and the next will be the 19th .and it will continue with every 17th client being eligible to participate in the study. Participants will be rang using a standard script for calling CCC clients to request if could take part in the study. If the client accepts to participate in the study, appointment date for the interview will be made within one week as is convenient for the participants. Ksh. 200 reimbursement for transport will be given to each participant. In case the next client does not accept to participate in the study, the next client in the register will be contacted. Clients without telephone numbers will be omitted as it is not possible to reach them without telephone contact. Similar procedure will be followed for HIV-infected women participating in the FGD. Since there is no register for HIV –uninfected women, the 2nd client who comes to CWC, the next 19th client and every 17th client until desired sample is reached, will be approached to participate in the study after completing the services she has come for,

for the day. An option of making appointment date or being interviewed the same day will be given to participants who agree to take part in the study.

Key Informant Interview participants will be purposively selected. Health worker working at PMTCT clinic and CCC in each hospital will be requested to participate in the study through Key informant interview. Appointment will be made with the health care providersto have interviews when it is possible for them within a week.

Risks/Discomforts not part of ethical considerations?

There may be potential psychological and social risks that may result during interviews. Psychological risk may be associated with stress and embarrassment as a result of discussion of sensitive topics during the interview while social risk may be as a result of disclosure of status to the interviewer. The interviewers are well trained in ethical conduct of research with human participants to ensure the rights, welfare and safety of participants. Participants are assured that they can withdraw at any time from participating or decline to answer questions that they do not want to without any consequences.

Potential Benefits

The results from the study will give an understanding of fertility intentions, desires and factors affecting accessibility, availability and utilization of contraceptives and how these factors are determined among HIV infected and uninfected women of reproductive age. Understanding these factors will lead to development of interventions for effective reproductive health services that will meet the needs of HIV-infected and uninfected women of reproductive age and support elimination of HIV among children.

***Confidentiality*:**

Your response to the questions will not be shared beyond the study team, except as general answers combined with others who will participate in the study. Names will not be recorded on the questionnaires. In FGD, participants will take up pseudo names so as not to reveal their identity. The completed questionnaires will be placed

in a secure place at KEMRI for 5 years after completion of the study. Audio recording and notes taken during FGD and KII will be kept safely under the principal investigator for 5 years after completion of the study. Although the results of this study will be published, no information that could identify participants will be included. Feedback of the study results will be disseminated at workshops at the four counties and Survey feedback report will be sent to all hospitals in the study. These feedback reports could be shared with you but because no identification records are taken from you it will not be possible to send you the feedback individually. Feedback reports will be in a pamphlet form and the hospital authority can share them will clients who visit the hospital for services. In case you want us to share the findings with you directly you can contact the principal investigator at the telephone provided.

Reimbursement

There will be no compensation for participating in the study except a flat rate of Ksh. 200 reimbursement for transport will be provided to all participants. FGD participants will have refreshments after the FGD

Participation

Participation in this study is voluntary. Participants may choose not to answer any question or withdraw from the study at any time.

. ***Persons to contact***:

For any questions or concerns about the study or any study- related injury, Please contact Principal Investigator; Milker A. Simba at mobile no; 0722 528736 any time. Physical address: - Red Cross road, Eleganze Garden Estate, house no. 20 South C, Nairobi

For any questions pertaining to your rights as a research participant, Please contact: The Secretary of the KEMRI Ethics Review Committee, PO Box 54840 00200, Nairobi. Tel no: 020 2722541, 0722205901, 0733400003; Email address: erc-secretariat@kemri.org.

Consent Form

The study you are about to participate in is. *Fertility Desires, Intentions and Contraceptive Behavior of HIV-infected and Uninfected Women in two contract regions of Kenya.* The study intends to investigate factors influencing fertility desire and intention and how these factors affect contraceptive behavior among women of reproductive age. Participants will include women within the age group of 15-49 years old who are either HIV negative or HIV positive. The study consists of individual questionnaire and focused group discussions among HIV –infected and un-infected women. 2 Health providers from each hospital working in PMTCT clinic and CCC at study hospitals will also participate in the research to provide their understanding of, availability and utilization of contraceptives among this age group. Should you agree to participate in the study, you will be asked to answer questions that will take between 45-60 minutes to complete. I you are HIV negative and you were tested more than one year ago you will be requested to take another test after pre-test counseling to confirm your status before you can be enrolled in the study as negative. You will sign another consent for HIV testing if you agree to take the HIV test. If your results come out as positive you will be referred to mentor mothers for peer education and psychosocial support before you are referred for further HIV care. Only research study staff will have access to the information. At the end of the study, there will be no way to link your name with your data. Any additional information about the study will be provided to you including the final results.

You are free to withdraw or refuse to answer any questions at any time without any consequences. Should you agree to participate in the study, please sign your name below, indicating that you have read and understood the nature of the study, your responsibilities as study participant, the inconveniences associated with voluntary participation in the study and that all your questions and concerns concerning the study have been answered satisfactorily.

You will receive a copy of this signed consent form to take away with you.

Signature of Study Participant and Date Thumbprint of Study Participant and Date

Signature of Person Obtaining Consent and Date

Signature of Witness and date

Appendix IB: Kibali cha kushiriki katika Utafiti

Karatasi ya Habari

Habari za asubuhi / mchana mwema jina langu ni ----------. Napenda kutoa kwa habari kwa madhumuni ya kupata idhini yako sahihi ya kushiriki katika utafiti huu.

Kichwa cha somo: ***Mtakwa ya uzazi, malengo, na tabia wa uzazi ya wanawake walioambukizwa na wasioambukizwa katika to mikoa mbili fautii ya Kenya.***

Jifunzeni Location: utafiti ni kuwa mikoa miwili ya Kenya, Nyanza na Kati. Kwa madhumuni ya utafiti huu wa zamani wa mkoa majina hutumiwa ili kuwawezesha matumizi ya takwimu zilizopo ambayo kwa sasa alitekwa na jimbo. Hata hivyo utafiti itafanyika katika kata mbili katika kila mkoa (Nyeri na Kaimbu Wilaya ya Kati na Kisumu na Wilaya Homabay katika Nyanza) Katika kila moja ya majimbo mawili hospitali tatu moja ambayo ni ya faithbased wamekuwa kuchaguliwa kupitia sampuli random ya kushiriki katika utafiti. Tatu hospitali kutoka Nyanza ni ndani ya kanda ya Ziwa na mbili Mjini na moja ya vijijini. Katika mikoa ya Kati wawili wa hospitali ni ndani ya mkoa wa Mjini wakati mmoja katika maeneo ya vijijini. Wote hospitali ya kidini katika utafiti ni vijijini msingi.

Mpelelezi mkuu: Milker A. Simba mwanafunzi wa Public Health PhD katika Chuo Kikuucha Jomo Kenyatta cha Kilimo and Teknolojia.Simu ya mkono: +254 722 528 736

Wasimamizi

Prof; L. Gitonga: Chuo kikuu cha Jomo Kenyatta cha Kilimo na Teknolojia.

Simu ya mkono: +254 721 582 723

Prof: Zipora Nganga: Chuo kikuu cha Jomo Kenyatta cha Kilimo na Teknolojia. Simu No: +254 722 794 883

Dr Patrick Orege: Kenya Medical Taasisi ya Utafiti wa Kisumu.Simu ya Mkono: +254 733 221 366

Eneola Utafiti: Utafiti unafanyika katika mikoa mawili ya Kenya, Nyanza na Kati. Kwa madhumuni ya utafiti huu mkoa majina ya zamani hutumiwa ili kuwawezesha matumizi ya takwimu zilizopo ambayo kwa sasa alitekwa na mkoa. Hata hivyo utafiti itafanyika katika kata majimbo mawili katika kila mkoa (Jimbo la Nyeri na Kaimbu katika mkoa ya Kati na Kisumu na Homabay katika Nyanza) Katika kila moja ya mkoa hospitali tatu, moja ikiwa ni ya faithbased wame chaguliwa kupitia random sampuli kushiriki katika utafiti. Hospitali tatu kutoka Nyanza, wawili kutatoka Mjini na moja vijijini. Katika mikoa ya Kati wawili wa hospitali kutatoka Mjini na mmoja katika maeneo ya vijijini. Wote hospitali ya kidini katika utafiti kutatoka vijijini.

Madhumuni ya Utafiti:

Ni kuelewa mambo yanayoathiri hamu na nia ya uzazi kati wanawake wanao VVU katika umri wa kuzaa na jinsi mambo haya inaweza ushawishi matumizi ya upangaji uzazi kama ikilinganishwa na wanawake hawana VVU. Nia na mahitaji ya uzazi, na wa mpango wa uzazi yasiyofikiwa kati ya wanawake walioambukizwa VVU katika umri wa kuzaa ina madhara kwa mama kwenda kwa mtoto maambukizi ya VVU. Matokeo ya utafiti kuwajulisha kuendeleza programu kwa ajili ya huduma ya afya ya uzazi na ufanisi ambayo kukidhi mahitaji ya wanawake walioambukizwa VVU katika umri wa kuzaa na kuondoa msaada wa mama kwa mtoto maambukizi ya virusi vya ukimwi.

Maelezo ya Masomoutafiti utahusisha wanawake wa umri wa kuzaa mtoto, miaka 15-49 na hali ya VVU inayojulikana kuthibitishwa na uandikishaji katika kliniki ya kina huduma na VVU wanawake hasi wa umri sawa kuhudhuria ustawi ya kliniki ya watoto ambayo hawana virusi kulingana na kipimo cha VVU, ndani ya miezi kumi na mbili kabla ya utafiti. Wanawake wote katika kliniki ya watoto ambayo walipimwa zaidi ya mwezi kumi na mbili kabla ya utafiti watashauriwa kurudia kupimwa VVU tena, kuhakikisha kwamba washiriki hawana VVU wakati wa utafiti. Wanawake wata funzwa umuhimo wa kujua hali yao ya sasa na huduma upatikanaji

kama ukipatana na VVU. Utakuwa na shindano katika kidole wako na tone moja ya damu yanatakiwa kufanya moja ya haraka nyeti kipimo kama kuidhinishwa na Wizara ya Afya. Kama kipimo ni hasi utakuwa waliojiunga katika kundi ya wanawake ambayo hawana VVU. Kama kipimo kita kuwa na VVU, Uta kuwa na kipimo cha pili ku hakikisha huna VVU. Ukiwa na VVU uta pelekwa klinic ya huduma ya VVU kwa uchunguzi zaidi na huduma. Kama matokeo ya kipimo itatoka bila VVU, uta shauriwa na kupimwa tena na kipimo nyingine ya hali ya juu katika maabara. Wale ambao kugeuka chanya itakuwa inajulikana kwa rika na msaada wa kisaikolojia na mama mshauri (mwanamke wanaoishi na VVU, mafunzo na ajira katika kituo kutoa elimu rika na msaada wa kisaikolojia kwa wateja wa kuzuia maambukizi VVU ya mama kwenda kwa mtoto) na kujifunza zaidi juu ya hali yake, kuelewa kidokezo cha hali yake na kubadilishana uzoefu wake na mama na mshauri wa kuandaa yake kwa ajili ya huduma ya kuzuia maambukizi VVU ya mama kwenda kwa mtoto kabla kuwa pelekwa kwa ajili ya huduma.wanawake wanao VVU na wanawake hawana VVU watashiriki katika dodoso ya mtu binafsi na kuzingatia kundi majadiliano. Kila mshiriki kushiriki tu katika hojaji ama mtu binafsi au kikundi kuzingatia mjadala ili kuwawezesha utafiti kupata kama wengi iwezekanavyo watu kushiriki katika utafiti. Mhojaji-unasimamiwa dodoso itachukua kati ya 45minutes kwa saa moja ili kukamilisha. Dodoso itakuwa katika lugha ya Kiingereza, Kiswahili na Dholuo na washiriki wanaruhusiwa kuchagua lugha wao kujisikia vizuri. Maswali kuuliza maelezo kuhusu sifa yako ya kijamii na idadi ya watu, nia yako na / mtoto mwingine na tabia yako uzazi wa mpango. Unaweza pia kuulizwa maswali kuhusu mume wako / mpenzi na hali yako ya VVU. Yako kuwa rekodi popote. Unaweza kuchagua si kujibu maswali wewe kujisikia na wasiwasi na na pia unaweza kutoa kutoka utafiti wakati wowote na matokeo yoyote. Maswali yote kukamilika yatawekwa chini ya kufuli na ufunguo katika chumba cha wamama kwa wamama kwa madhumuni ya siri. Wakati wa mwisho wa ukusanyaji wa takwimu maswali yote itakuwa kusafirishwa kwenda Nairobi kwa mpelelezi Mkuu. Mkazo majadiliano ya kikundi kwa walioambukizwa VVU-na wasioambukizwa VVU itafanyika katika hospitali mbili (moja ya dini) kwa kila mkoa ambayo itasababisha mkazo majadiliano ya kikundi nne ya walioambukizwa VVU na nne wasioambukizwa VVU. Katika mkazo majadiliano ya kikundi, washiriki watakuwa

katika kundi la watu 8-10 na maswali utaulizwa wote kwa wakati mmoja na kila mtu atapewa nafasi ya kutoa maoni yake mbele ya wengine. Wakati wa mkazo majadiliano ya kikundi maelezo ita andikwa na kurekodi maneno yatasemwa hi kufanyika kusaidia kuthibitisha mchango wa washiriki kwa ajili ya uchambuzi na taarifa ya majadiliano. Majina halisi hayata tumika wakati wa mkazo majadiliano ya kikundi kwa sababu ya kuweka utambulisho wao siri. Mahojiano muhimi itafanyika kwa wafanyakazi wa afya ya kushiriki katika utafiti na kutoa uelewa wao wa; upatikanaji na matumizi ya uzazi wa mpango kati ya umri huu. Mpelelezi mkuu ndiye ata fanya mkazo majadiliano ya kikundi na mahojiano muhimu. Maelezo yote na kurekodi kutoka mkazo majadiliano ya kikundi na mahojiano muhimu itahifadhiwa katika mahali pa siri na upelelezi mkuu mpaka miaka mitano baada ya kukamilika kwa utafiti.

Utaratibu itatumika katika uteuzi wa washiriki kwa kuanzia na nambari 2 kama idadi na muda itakuwa nambari17. Kutoka kujiandikisha kliniki ya huduma ya VVU, wateja kuonekana katika mwezi wa mwisho kabla ya kuanza kwa utafiti zitatumika katika kundi ya washiriki. Mteja nambari 2 itakuwa kutambuliwa kama ya kwanza na ya pili itakuwa na 19. Itaendelea kwa kila mteja 17 kuwa amehitimu kushiriki katika utafiti. Washiriki wata pigiwa simu maandiko iyo tayarishwa kwa wito wateja wa kliniki ya huduma ya VVU kuomba iwapo wangeweza kushiriki katika utafiti. Kama mteja anapokea ya kushiriki katika utafiti, tarehe kuteuliwa kwa ajili ya mahojiano zitafanywa ndani ya wiki moja kama ni rahisi kwa washiriki. Ksh. 200 kutalipwa kwa ajili ya usafiri zitatolewa kwa kila mshiriki. Katika kesi ya mteja ijayo haina kukubali kushiriki katika utafiti, mteja ijayo katika daftari itakuwa ukawasiliana. Wateja bila namba ya simu itawachwa kama haiwezekani kuwafikia bila kuwasiliana simu. Utaratibu sawa itakuwa ikifuatiwa kwa wanawake walioambukizwa VVU kushiriki katika mkazo majadiliano ya kikundi. Tangu hakuna kujiandikisha kwa ajili ya wanawake wasioambukizwa na VVU, mteja nambari 2 ajaye klinik ya watoto, atachukuliwa nambari 19 ijayo mteja na kila mteja nambari 17 mpaka kundi taka ufikiwa, itakuwa akakaribia ya kushiriki katika utafiti baada ya kukamilisha huduma yeye alikuja kwa ajili ya, kwa siku. fursa ya kufanya miadi tarehe au kuwa waliohojiwa siku hiyo itapewa washiriki ambao unakubali kushiriki katika utafiti. Mahojiano muhimu kutachaguliwa kutoka kwa wafanyakazi wa afya wanaofanya

kazi katika kliniki ya kuzuia maambukizi VVU ya mama kwenda kwa mtoto na Kliniki ya huduma ya VVU katika kila hospitali kushiriki katika utafiti kwa njia ya mahojiano muhimu. Miadi hufanywa na wafanyakazi wa afya kuwa na mahojiano wakati inawezekana kwa wao ndani ya wiki mmoja.

Hatari / usumbufu

Kunaweza kuwa na uwezo wa kisaikolojia na kijamii ya hatari ambayo inaweza kusababisha wakati wa mahojiano. Hatari kisaikolojia inaweza kuhusishwa na dhiki na aibu kama matokeo ya majadiliano ya mada nyeti wakati wa mahojiano wakati hatari ya kijamii inaweza kuwa kama matokeo ya kutoa taarifa za hali ya mhojaji. interviewers ni pamoja na mafunzo katika maadili ya utafiti na washiriki wa binadamu ili kuhakikisha haki, ustawi na usalama wa washiriki. Washiriki ni uhakika kwamba wanaweza kuondoa wakati wowote kutokana na kushiriki au kupungua kwa kujibu maswali ambayo hawataki bila madhara yoyote.

Uwezekano wa Faida

Matokeo ya utafiti nitakupa ufahamu wa nia uzazi, tamaa na zinazoathiri upatikanaji, upatikanaji na matumizi ya uzazi wa mpango na jinsi mambo haya ni kuamua kati ya wanawake na wasioambukizwa VVU wenye umri wa kuzaa. Kuelewa mambo haya itasababisha maendeleo ya hatua kwa ajili ya huduma ya afya ya uzazi na ufanisi ambayo kukidhi mahitaji ya wanawake walioambukizwa VVU na wasioambukizwa umri wa kuzaa na kuondoa msaada wa VVU miongoni mwa watoto.

Usiri

Majibu yako ya maswali hazitashirikiwa zaidi ya timu ya utafiti, isipokuwa kama majibu ya jumla pamoja na wengine ambao watashiriki katika utafiti. Majina hautakuwa kumbukumbu juu ya maswali. Katika mkazo majadiliano ya kikundi, washiriki kuchukua majina ya bandia hivyo ndiye haya tangaza utambulisho wao. Dodoso kukamilika kitawekwa katika mahali pa amani katika KEMRI kwa miaka 5 baada ya kukamilika kwa utafiti. Rekodi na maelezo kutachukuliwa wakati wa mkazo majadiliano ya kikundi na mahojiano muhimu yatawekwa salama chini ya mpelelezi mkuu kwa miaka 5 baada ya kukamilika kwa utafiti. Ingawa matokeo ya utafiti huu itakuwa kuchapishwa, hakuna taarifa kwamba inaweza kutambua

washiriki watakaohusishwa. Maoni ya matokeo ya utafiti itakuwa kusambazwa katika warsha kwenye Wilaya nne na Utafiti wa ripoti maoni watapelekwa hospitali zote katika utafiti. Taarifa hizo maoni inaweza kuwa pamoja na wewe lakini kwa sababu hakuna kumbukumbu kitambulisho ni kuchukuliwa kutoka kwenu itakuwa si rahisi kutuma wewe maoni mmoja mmoja. Ripoti ya utafiti itakuwa katika pumplet amaye ita patiwa mkubwa wa hospitali. Wanaoshiri kwa utafiti wanaweza kupata kwa hospitali waki tembelea hospitali kwa ajili ya huduma. Lakini ukitaka matokeo ya utafiti kama moja kwa moja unaweza kuwasiliana na mpelelezi mkuu katika namabri ya simu zinazotolewa.

Kulipia

Hakutakuwa faida kwa ajili ya kushiriki katika utafiti isipokuwa kiwango cha Ksh. 200 kwa ajili ya usafiri zitatolewa kwa washiriki wote. Washiriki wa mkazo majadiliano ya kikundi watapata vinywaji baada majadiliano

Ushiriki

Kushiriki katika utafiti huu ni hiari. Washiriki wanaweza kuchagua si kujibu swali lolote au kutoa kutoka utafiti wakati wowote.

Watu kuwasiliana:Kwa maswali yoyote au wasiwasi kuhusu utafiti au kuumia kuhusiana na utafiti, Tafadhali wasiliana na Mpelelezi Mkuu; Milker A. Simba katika nambari ya simu; 0722 528736 wakati wowote. Anwani: - Red Cross road, Eleganze, Garden, nyumba nambari. 20 South C, Nairobi
Kwa maswali yanayohusu haki zako kama mshiriki wa utafiti, Tafadhali wasiliana na: Katibu wa Kamati ya Uchunguzi KEMRI Maadili, SLP 54840 00200, Nairobi. Tel: 020 2722541, 0722205901, 0733400003; Email address: erc-secretariat@kemri.org

Fomu ya Idhini

Idhini Utafiti wewe ni kuhusu kushiriki katika ni. Uzazi Tamaa, Malengo na Tabia uzazi wa Wanawake VVU-iliyoambukizwa na wasioambukizwa katika mikoa miwili ya mkataba wa Kenya. Utafiti inakusudia kuchunguza mambo yanayoathiri rutuba hamu na nia na jinsi mambo haya kuathiri tabia za kuzuia mimba miongoni mwa wanawake wenye umri wa kuzaa. Washiriki ni pamoja na wanawake ndani ya kundi

la umri wa miaka 15-49 ambao ni aidha VVU hasi au VVU. Utafiti lina maswali binafsi na majadiliano umakini kundi miongoni mwa wanawake walioambukizwa VVU na un-kuambukizwa. Wafanyi kazi wawili wa Afya kutoka kila hospitali ambaye wanafanya kazi katika kliniki ya kuzuia maambukiziVVU ya mama kenda kwa mtoto na kliniki ya huduma ya wale walio ambukizwa na VVU katika hospitali pia watashiriki katika utafiti na kutoa uelewa wao wa, upatikanaji na matumizi ya uzazi wa mpango kati ya umri huu. Je unakubali kushiriki katika utafiti, utaulizwa kujibu maswali kwamba itachukua kati ya dakika 45-60 kukamilisha. Kama huna VVU na ulipimwa zaidi ya mwaka mmoja uliopita utaombwa upimwe VVU tena baada ya ushauri nasaha kabla ya kupima ili kuthibitisha hali yako kabla unaweza kuwa waliojiunga katika utafiti kama hasi. Utaingia mwingine ridhaa ya kupima VVU kama unakubali kupima VVU. Kama matokeo yako kuja nje kama wewe chanya itakuwa inajulikana mama mshauri kwa rika na msaada wa kisaikolojia kabla ya wewe ni inajulikana kwa ajili ya huduma zaidi yaVVU.
Tu utafiti utafiti wafanyakazi itakuwa na upatikanaji wa habari. Wakati wa mwisho wa masomo, kutakuwa hakuna njia ya kuhusisha jina yako na data zako. Taarifa yoyote ya ziada kuhusu utafiti vitatolewa kwa wewe ikiwa ni pamoja na matokeo ya mwisho.

Wewe ni huru kwa kuondoa au kukataa kujibu maswali yoyote wakati wowote bila madhara yoyote. Je unakubali kushiriki katika utafiti, tafadhali ingiza jina lako hapa chini, kuonyesha kwamba umesoma na kuelewa asili ya utafiti, majukumu yako kama mshiriki utafiti, kuhusishwa na ushiriki wa kujitolea katika utafiti na kwamba wote maswali yako na wasiwasi kuhusu utafiti wamekuwa akajibu kuridhisha. Utapokea nakala ya fomu hii saini ridhaa kuchukua na wewe.

_____

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Sahihi ya Mshiriki katika utafiti na Tarehe Alama ya kidole ya Mshiriki na Tarehe

_____

____

Sahihi ya mtu wa kupata Idhini na Tarehe

_____

Saini ya Shahidi na Tarehe

Appendix IC: Weche mag yie mondo ibed achiel kuom jo ma donjo enonro

Wach mar gimondik madmong

Oyawore iriyo nadi? Nyinga en …… Agombo mar miyi wach kuom dwaro mar yudo thuolo nyisi kiyie to ibedie achiel kuom jo nonroni.

Nying mar Nonro: Gombo mar bedo gi nyalo mar nyuol, gik miparo gi tim kuom yedhe nyuol kuom Mon man gi kute ayaki gi ma onge kute, e mie ariyo mapogore gi wadgi e Kenya.

Kar nonro: Nonro nitie e gwenge ariyo ma Kenya, Gwen'g ma Nyanza gi Masawa. Kuom tij gimoro mar nonroni, nyinge machon mag gwenge itiyogo ma miyo tich mar gik mochok kendo ondik manyiso kwan gi romb gik moko mayudre momaki gi gweng. Kata kamano nonro ibi tim e kaunti ariyo e gwen'g ka gwen'g (kaunti ma Nyeri gi ma Kiambu e Masawa gi kaunti ma Kisumu kod ma Homabay e gwen'g ma Nyanza). E gwen'g kagwen'g mag gwenge ariyo, osubtande adek machiel kuom gi en mar din ose yier kokadho sampul moyiedhi mondo obedie e nonro.Osubtande adek moa gweng, Nyanza nie aluora mar ataro malolwe kata Victoria kod ariyo man e boma to achiel manie kadala. E gweng ma Maswawa ariyo kuom osubtande niei gweng mar boma to achiel ni kadala. Osubtande duto mag dinde e nonro ni kadala.

Janronro maduong

Janonro maduong: Milker A. Simba maen japuonjre mar ngima jite e mbalariany mar agrikacha kod sayans mar loso gik moko ma Jomo Kenyatta. Namba simb ong'we yamo: +254 722 528736

Jokwa Ji.

Prof. L. Gitonga

Mbalariany mar agrikacha gi sayans mar loso gik moko ma Jomo Kenyatta. Namba simb ong'we yamo: +254 721 582723

Prof: Zipora Nganga

Mbalariany mar agrikacha gi sayans mar loso gik moko ma Jomo Kenyatta. Namba simb ong'weyamo: +254 733 221366

Thuolo monyis mar Nonro:

En mondo ong'e gik miyo makelo lokruok gombo bedogi nyalo mar nyuol kod gik miparo ekind mon man gi kute ayaki man gi hike manyoul kod kaka gikmomiyo gi nyalo kelo lokruok etiyo gi yedhe mageng'o nyuol kaka gi mon maonge gi kute ayaki. Nyalo mar nyuol gi dwaro mapok oyudi mar chenro ma geng'o nyuol e kind mon man gi kute ayaki mag hike nyuol nigi chandruok kuoma keyo kute ayaki koa kuom min nyath nyaka nyathi.

Duoko mar nonro biro nyiso chenro gik matimre mamiyo lokruok kuom tij ngima mar nyuol man gi nyalo mabiro chopo dwaro mar mon man gi kute ayaki mag hike manyalo nyuol kendo konyo golo chiro kute ayaki koa kuom min nyathi nyaka ni nyathi.

Kit Nonro

Nonro biro bedo gi mon man gi hike man gi nyalo mar nyuol. Koa higni apar gabich nyaka pierang'wen kod ochiko mong'ere ni gi kute ayaki mosebedo adiera kod nyinge mose ndiki e klinik man gi rit maber kod mon man gi higni marom ma onge kute ayaki machopoe e klinik nyithindo ma gi gik modok karka rito ngima gi dak (CWC) kod nyithiind gi, manopim bi oyud ni onge kute e kind dweche apar gariyo kapok otim nonro ibiho mondo oyud pim moro kendo mar kute ayaki kendo pim gi kendo ewi keto seyi efom mar thuolo mondo ong'ere maber ni Jomabetie maonge kute ayaki kuom adier giongego e kinde nonro. Pim kendo biro miyo mon maonge kute thuolo mar somo chalgi kendo yudo rit ka pim en man gi kute ayaki ibiro chuow lith lweti mondo ogol (ton achiel mar remo moromo 0.05ml) midwaro mondo otimigo pim achiel mapiyo man gi rieko mar fwenyore mapiyo kaka okalie gi migawo mar ngima (MOH).

Kapim owuok ni onge kute, ibi ndiki e sampul mar mon maonge kute, ka pim owuok nitie kute, ton moro mar remo ibi gol mondo otimgo pim mar ariyo mopogre moromo kaka dwarre.

Kaka okalie gi migawo mar ngima, ka pim nigi kute ayaki, dwoko ibi gol ni mar kute kendo ibeteri e klinik mar kute ayaki kuom rit gi nonro mamoko machielo. Ka duoko mar pim en maonge kute, gima okaw kaka ranyisi ibiter kar sayans mar nonro kuom pim matutmondo oyangre ka kute ayki nitie koso. Ka kute onge to indiki e sampul mar ngamaonge kute to ka in gi kute, iteri ethieth e klinik mar kute ayaki kuom nonro matut gi rit bende. Joma oyud gi kute ibi ter e puonj matut man kare gi kony mar winjruok mar Saiko loji gi mama majahocho (dhako modak gi kute, motieg kendo ondik kar nonro mar chiwo puonj minono matut man kare kod kony winruok mar saikoloji mar jomaitimo ni PMTCT mar tiegruok mang'eny mar ehal, ng'eyo chandruok mar chalne kendo tudruok kony mare gi mama majaocho mondo oike kuom tij geno kute kuom mama mapek dhi kuom nyathi (PMTCT) kapok otere ethieth mamoko moluwore kod kute ayaki.

Mon man gi kute gi maonge kute biro dhie kitap penjo mar ng'ato kang'ato kata e twak ogomda man gi paro. Jabet kajabet biro manabetie e kitap penjo ka kitap penjo kod twak mar ogomda man gi paro mondo omi nonro oyud ji mang'eny kaka nyalne mabetie e nonro. Japenjoe kajapenjo mar rango. Kitap penjo biro kawo e kind nyiriri pieroan'gwen gabich nyaka sachiel mondo otiek. Penjo biro bet e dhok mag kisungu, dhoswayo (Kiswahili) gidholuo kendo Jomabetie oyieni yiero dhok magihero mowanjre kodgi. Penjo biro penjo maiye kuom tim gi demografia mar lony gi kar rang'iny nyuol gi chandruok oganda gi kor ka mwandu gi yuto mar piny, geno mari mar bedo gi nyathi/kata nyathi moro machielo kod chal yedhe mageng'o nyuol. Kendo ibi penji, kuom chal chuori/nyawadu kuom kute ayaki. Ok bi ndik nyingi kamoro amora. Inyalo yiero kata weyiero duoko penjo miwinjo mokowinnjore kodi kendo inyalo wuok e nonro e sa asaya maonge kum moro. Buge penjo duto moromo ibi kan kolor kendo ofungu e udi ariyo mag mine gi mine kuom gik malingling. Egiko weche buge duto mag penjo ibiter Narobi gi Janonro maduong. FGD kuom joma nigi kute gi maongego ibi tim e osbutande ariyo (achiel kuom gi en mar din) e gweng ka gweng mabiro kelo kwan moromo angwen mar FGD man gi kute kod

angwen maonge kute. E FGD, jomabetie biro bedo e oganda mar ji abaro nyaka apar kendo penjo ibi penj jidu to e kinde achiel. Kendo jabet kajabet ibi mi thuolo mar golo, pache e nyim jomoko. E kinde, FGD jakaw paro biro kawo paro kendo paro makaw miwinjo bende ibi tim mondo okony chiwo adier e winjo e nenruok mar del mar jomanitie chiwo mar nono kendo chiwo ripot mar twak. Nyinge madeira ok bi tigo e kinde mar twak ratiro mar ji mar FGD. KII ibitim gi jotij ngima mantie e nonro mondo ogol winjo margi mar bedoe kendo tiyo gi yedhe mageng'o nyuol edier/kind oganda mine manie higa mar nyuol. Jamonro maduong biro timo FGD gi KII. Paro mokaw duto te gi momak mawinjre koa kinde FGD gi KII ibi kan kar jik malingling mogo kiful gi janonro maduong nyaka higiri abich bang tieko nonro.

Sampul maonge chenro mar okang kokang ibi tigo e yiero Jomabetie nonro kochakre gi ji ariyo kaka namba maonge chenro kendo kinde mokadho matin biro bedo apargabiriyo kuom kitabu motingo nying ji kaka rapar mar CCC, Jomithiedho ibi manone e dwe mokadho/mokalo kapok nonro ochakre ibi tigo e sampul mar jomabetie kata jomothiedho. N'gamithiedho mar ariyo ibing'e kaka mokuongo kendo maluwore biro bedo mar apar gochiko kendo obiro dhi nyime gi ng'amithiedho mar apar gabiriyo mowinjore mondo obedie nonro. Jobetie ibi gochni kitiyogi ndiko lwedo mar oboke mar gochoni jomithiedho mag CCC mikwayogigo kadi gi bedie e nonro. Kang'amithiedho oyie betie e nonro, inyise tarik mar yango penjo, penjo ibi tim e wik achiel kaka owinjre ni jomabetie. Siling ma Kenya miariyo ibi duok mar wuotho, ibi mi ng'ato kang'ato mabirobetie. Kadipo ni ngamithiedho machielo ok oyie betie e nonro, ng'amithiedho machielo e bug ndiko nyinge ibi gochni. Jomithiedho maonge namb simo ibi we oko nikech ok nyal yudgi kaonge namba simo. Yo makamano ibi luw kuom mon man gi kute mabetie e FGD. Nikech onge bug ndiko nyinge mag mon maonge kute, n'gamithiedho marariyo mobiro e CWC, ng'amachielo mar apargochiko kod ng'amithiedho mar apar gabiriyo nyaka sampul midwaro ochopi, ibidhiire, mondo obedie e nonro bang tieko thieth mobironi osiptal kuom odiechieng. Yiero mar loso tarik mar penjo kata mipenjoe odiechien'gno ibi chiw ni jobetie moyie betie e nonro. Jagol wach penjo mabiro betie ibi yier goyiem. Jakony ngima matiyo e klinik mar PMTCT gi CCC e osubtal kosubtal ibi kwaa mondo obedie e nonro. Jokony nonro biro kwayo Jakony ngima kanyalo bedo gi kinde penjo kanyalore kuom gi e wik.

Chandruok/Parruok

Nyalo betie chandruok mag saikoloji mar manyalo betie nyalo wuok e kmde mag penjo. Chandruok mar saikoloji nyalo luwre gi chandruok eparo gi wich kuot kaluwore gi duoko mag twak mag gima iwuoye man gi rieko e kinde penjo to chandruok mar riwruok eparo gi wichkuot kaluwore gi fwenyruok mar chal del ni japenjo. Jopenjo otieg maber e chik mar nonro gi mabetie mondo ong'e adiera mar dwaro makare mag ji, gik madok kor rito ngima, rito ngima jomabetie. Jomabetie onyis ni ginyalo wuok, e sa asaya kuom betie kata tamre duoko penjo ma ok digi her duoko maonge achune kata kummoro.

Ohala kata ber manyalo betie

Dwoko moa e nonro biro kelo winjo mar dwaro bedo gi teko nyuol, gombo gi gikmomiyo manyalo chando chopo ethieth mantie gi tij yedhe ma gen'go nyuol kendo kaka chalgi biro kelo dongruok kuom tij nyuol man gi ngima mabiro konyo dwach mon man gi kute kod maonge kute ma hikgi oromo nyuol kendo golo oko tuo mar kute ayaki kuom nyithindo.

Maling ling maok ongere

Duoko mari ni penjo ok bi ke madhi oko mar tim nonro, mak mana dwoko mar ji duto moriw gijomoko mabiro betie e nonro. Nyinge ok bi ndik e buge mag penjo. E FGD, jomabetie biro kawo nyinge ma ok nikare mondo kik gi fueny chal gi. Buge penjo motiek ibi ket kama rit nitie e kar sayans mar nonro ma KEMRI kuom higni abich bang tieko nonro. Ndiko rapar mawinjre gi andike mokaw kinde FGD gi KII ibi kan maber e bwo Jamonro maduong kuom higni abich bang tieko nonro. Kata kamano dwoko mag nonroni ibiland, to onge wach manyalo fwenyo jobetie. Dwoko mar chopo winjruok mar duoko nonro ibike e riwruok maji ochokore (Workshop) e twak moro e kaunti an'gwen kendo ripot dwoko mar chop winjruok mar nonro ibi or e osubtande duto man e nonro. Ripode mag dwoko mag chopo winjruok nyalo losie kodi mak mama nikech onge andika fweny mokaw koa kuomi, ok bi nyalre oroni

dwoko mar chopo winyruok ni ng'ato. Ripode dwoko mar chopo winjruok biro bedo ei buk matin. Jomanigi teko mar chiwo chik mar osubstal nyalo pogo gijomaithiedho mabiro limo osustandego kuom thieth. Kadipo idwaro ni watudre e dwoko kodi kachiel, iyalo tundra gi Jamonro maduong e simo mochiw.

Manyonge miduoko

Biro bedo maonge chudo kuom betie nonro mak mama manyonge maromre mar siling Kenya miariyo (200/-) miduoko mar wuoth ibi gol ni jobetie duto. Jobetie mag FGD biro yudo metho bang FGD.

Bedoe

Betie e nonroni en chiwruok maonge chudo jobetie nyalo yiero weyo maok oduoko penjo moro amora kata wuok e nonro sa asaya.

Ji Mitudruokgo

Kuom penjo moro amora, dwero mag gik moko ewi nonro kata nonro moro amora, modok kor winjruok, kiyie tudri gi Janonro maduong; Milker A. Simba e simb ong'we yamo namba 0722 528736 e sa asaya. Kar dakna en – Red Cross road, Eleganze Garden Estate, namba dhoot en 20 South C, Nairobi. Kuom penjo moro amora maluore gi dwachi kaka jabetie majanonro, kiyle tudri gi; Jagoro mar komiti mar timbe/tich mar n'gicho kendo neno ni gik moko ni kare mar kar sayans ma KEMRI, sandukl mar posta 5484000200 Nairobi simo: 020 2722541, 0722 205901, 073 400003; address Email: erc-secretarial@kemri.org

Fomb mar thuolo

Nonro michiegni betie en; Gombo bedogi teko mar nyuol, paro gi kit yedhe mageng'o nyuol mar mon man gi kute ayaki gi maonge gi kute ayaki e gwenge ariyo mag singruok ma Kenya. Nonro geno nono gik maketo bedo gi teko nyuol gi geno kendo kaka gigi miyo tiyo gi yedhe mageng'o nyuol e kind mon man gi higni moro mo nyuol. Jobetie biro riwo mon mane oganda mar higni apargabich nyaka pierang'wengochiko ma gin maonge kute kata man gikute. Nonro otungo bug ng'ato

kang’ato kod tuak oganda maparo e kind mon man gi kute kod maonge go. Jokony ngima ariyo moa e osbutal kosubtal matiyo e klinik mar PMTCT gi CCC e osbtande nonro bende biro betie e nonro mondo ochiw ng’eyo margi mar gik mayudre gi tiyo gi yedhe mageng’o nyuol e kind ogonda mar higani kiyie ni ibetie e nonro, ibi penji ni iduok penjo mabiro kawo nyiriri pierangwen gabich nyaka pierauchiel mondo orum. Ka ionge gi kute to nopimi moloyo higa achiel mokadho ibi kwayi mondo ikaw pim moro bang hocho mar pim mondo ing’ego adiera chalmari kapok ondiki e nonro kaka ng’ama onge kute – ibiro keto seyi e thuolo moro, kuom pim mar kute kiyie kawo pim kute ayaki. Ka duoko mari owuok ni in gi kute, ibi teri e mama mahocho kuom tiegruok makare kod kony riwruok mar saikoloj kapok oteri kuom rit mar kute momedore. Nonro kende mar Jomanono ema biro yudo wach. E giko nonro, biro bedo maonge yoo moro mar tudo nyingi gi weche mag pim. Wach moro momedore ewi nonro, ibi miyi kanyakla gi dwoko mogik.

In thuolo mar wuok kata tamruok duoko penjo moro amora e sa asaya maonge kum moro kiyie betie e nonro, kiyie ket seyi mari e bwo nyingi, kinyiso ni isesomo kendo ng’eyo chal mar nonro, ting mari kaka jabetie majanonro, kethni manyalo miyo iwinj marach maluore gi bet mari kata chiwruok e nonro kendo ni penjoni duto kod dwachi duto maluore gi nonro oseduok eyo maber mowinjore.

Ibiro yudo fwanu mari machal kode fom mar thuolo moketie seyi.

Seyi mar Jabetie nonro kod tarik alam mar lwedo mathuon marjabetie nonro kod tarik

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Seyi mar ng’ama chiwo thuolo kod karik

Seyi mar janeno gilkod tarik

Appendix IIA: Informed Consent for HIV Counseling and Testing

Pre-test HIV Information

HIV is transmitted through body fluids as blood, semen, vaginal secretion and through MTCT. HIV can lead to acquired immune deficiency syndrome (AIDS). People living with HIV may appear and feel health for several years. However, even if you feel healthy, HIV is still affecting your body. You can only know if you have HIV through taking a test. Knowing your HIV status can help one access treatment early and prevent one from developing AIDS, which is fatal if not treated.

Currently there are medications that slow down destruction of immune system, improve health of people living with HIV and reduce MTCT. HIV test will take 20 minutes

You will have a prick in your finger to draw blood required for a rapid test. This sample will be tested for the antibody to HIV with a screening test kit. An antibody is a substance that blood cells make to fight infection. A positive HIV test means that your blood sample tested positive for HIV and that confirmatory testing will be performed to prove this finding with a different rapid test kit. If your sample is proved to be positive for HIV, it means that you are a carrier of HIV. A negative HIV test means that at this time, no antibody to HIV is in your blood sample based on the result of the initial screening test, or a confirmatory test. If the results from the first and the second test are different your blood will be sent to the laboratory for a more advanced test to confirm which test is correct.

If it is confirmed you test positive then it is important to know that you will be done other advanced test to find out if you will need antiretroviral drugs which reduce the number of virus in the body but does not cure HIV infection. These drugs are beneficial and if taken properly one can leave a normal life for a long time. It means that you can pass the virus to others by intimate sexual contact, by sharing needles, and through donating blood and organs to others even when taking, you also have the

risks for developing AIDS if you take the available treatments for HIV infection. You will get the results immediately as the test will be done as you watch.

Benefits

The benefit of taking this test is that you will be tested for HIV infection and counseled regarding HIV infection at no cost to you.

If you are HIV negative you will be educated on how to remain negative. If you are positive, you will also benefit from information on how to live positively and you will be referred for proper medical care

Risk

The risks of participating are minimal. They include the discomfort of drawing a sample of blood, rare bruising and infection at the site of needle stick. There may be emotional discomfort or stress associated with knowledge of the results of this test. Care will be taken to give you support to overcome emotional discomfort

Costs and Payments:

There will be no costs for participating in this testing and the associated counseling. The blood tests will be free of charge. Also, you understand that you will receive no payment for taking the test.

Confidentiality

You understand that your name is not recorded anywhere in the files for this study. Consequently, you understand that any information obtained from this testing will be anonymous and be stored in locked files. You will not be identified in any publication. You understand that all information will be handled in compliance with the Kenyan law on HIV-related confidential information.

Right to refuse

You understand that you do not have to take part in this testing. However, once you have the test performed you understand that it is a requirement that you be informed of the results. You understand that counseling is available to you before you make the decision to participate in this testing and after the test.

Post Test Counseling

HIV negative test result

A negative test means you have no antibodies in your blood. It can take some time for the immune system to produce enough antibodies for the antibody test to detect, and this is called "window period" between infection with HIV and the ability to detect it with antibody tests can vary from person to person. Window period take between 8 -12 weeks, during this time, HIV viral load and the likelihood of transmitting the virus to sex, needle-sharing partners or your baby if you are pregnant or breastfeeding. Even so there is small chance that some individuals will take longer to develop detectable antibodies. Therefore, a person should consider a follow-up test more than three months after a last potential exposure to HIV. Because the most common ways HIV is transmitted is through sex or sharing drug injection equipment with a person infected with HIV, it is important to take steps to reduce the risks associated with these. If you are at increased risk for HIV, you should be tested for HIV at least once a year.

HIV positive test result

If you have HIV, you can get medical care, treatment, and supportive services to help you stay healthy and reduce your ability to transmit the virus to others. Practice safer sex through correct and consistence use of condoms. Condoms are available free from most public health facilities. There are condoms for female and males. Male condoms are more available because they are cheap. Do not share needles. If you are pregnant and find that you have HIV, treatments are available to reduce the chance that your baby will have HIV. It will be important to disclose you status to a close person so that you can get support. Support is important because once you start HIV drugs you will take them for life as there is no known cure but available drugs and

treat HIV and one can live normal life. Refer your partner for testing. You may have the virus but it is possible that you partner may not be infected a term called discordant and the only way to confirm this is if he also get tested. The mentor mother program in this hospital is also another way of getting support if you are still not able to disclose. They provide one on one HIV education and psychosocial support share their experiences as women living positively with HIV. They also have support groups which you can attend and share experiences with other women living with HIV. You will be taken for more tests to find your next course of treatment. The test will show the status of your immune system.

Consent Form

You are about to take a HIV test, you will have a prick in your finger to draw blood required for a rapid test. This sample will be tested for the antibody to HIV with a screening test kit. An antibody is a substance that blood cells make to fight infection. A positive HIV test means that your blood sample tested positive for HIV and that confirmatory testing will be performed to prove this finding with a different rapid test kit. If your sample is proved to be positive for HIV, it means that you are a carrier of HIV. A negative HIV test means that at this time, no antibody to HIV is in your blood sample based on the result of the initial screening test, or a confirmatory test. If the results from the first and the second test are different your blood will be sent to the laboratory for a more advanced test to confirm which test is correct. Should you agree to participate in the study, you will be expected to get your results and will be taken through posttest counseling no matter the test results

You are free to withdraw or refuse to take this test without any consequences. Should you agree to take the test, please sign your name, below, indicating that you have read and understood the nature of the test, your responsibilities as a study participant, the inconveniences associated with voluntary participation in the test and that all your questions and concerns concerning the test have been satisfactory.

You will receive a copy of this signed consent to take away with you.

Signature of Study Participant and Date Thumbprint of Study Participant and Date

Signature of Person Obtaining Consent and Date

Signature of Witness and date

Appendix IIB: Idhinisho Ya Ushauri wa Upimaji Virusi Vya Ukimwi (VVU)

Tarifa ya upimaji wa Virusi Vya Ukimwi
VVU huambukizwa kwa njia ya maji maji ya mwili kama damu, shahawa secretion, uke na njia ya MTCT. HIV inaweza kusababisha ugonjwa wa ukosefu wa kinga mwilini (UKIMWI). Watu wanaoishi na VVU wanaweza kuonekana na kujisikia wako na afya bora kwa miaka kadhaa. Hata hivyo, hata kama wewe kujisikia afya yako ni bora, VVU bado yanayoathiri mwili wako. Unaweza tu kujua kama una VVU kwa njia ya kuchukua atua ya kupimwa. Kujua hali yako ya VVU inaweza kusaidia moja kupata matibabu mapema na kuzuia moja kutoka zinazoendelea UKIMWI, ambayo ina kusababisha kifo kama si kutibiwa.
Hivi sasa kuna dawa za kupunguza kasi ya uharibifu wa mfumo wa kinga, kuboresha afya ya watu wanaoishi na VVU na kupunguza MTCT. Kupimwa VVU itachukua dakika kama 20

Utadungwa shindano katika kidole yako kuteka damu kidogo inahitajika kwa ajili ya kupimwa wa haraka. Kipimo hiki kita kwa uchunguzi ya antibody ya VVU . Antibody ni dutu kwamba damu seli kufanya kwa kupambana na ukimwi. Chanya ya kupimwa VVU ina maana kwamba damu yako sampuli kupimwa chanya kwa kupima VVU na kwamba kuthibitisha itakuwa kutumbuiza kuthibitisha hili kutafuta na test tofauti wa kupima haraka. Kama damu yako imeonekana kuwa na VVU, ina maana kwamba wewe una VVU kwamwili. Hasi ya kupimwa VVU ina maana kwamba wakati huu, hakuna antibody na VVU ni katika sampuli ya damu yako kwa kuzingatia matokeo ya kupimwa wa awali wa uchunguzi, au kupimwa kuthibitisha. Kama matokeo ya kwanza na wa pili ni tofauti damu yako itapelekwa kwenye maabara kwa ajili ya kupimwa kwa kiwango ya juu zaidi kwa laboratory ili kuthibitisha matokeo sahihi.
Kama umethibitisha kwamba uko na VVU basi ni muhimu kujua kwamba wewe utafanywa tests nyingine ili kujua kama unahitaji dawa za kurefusha maisha ambayo kupunguza idadi ya virusi katika mwili. Lakini ni muhimu hujue VVU haina tiba. Madawa haya ini manufaa ikiwa ina chukuliwa vizuri. Unna weza kuishi maisha ya

kawaida kwa muda mrefu. Kwa na VVU ina maana kwamba unaweza kupita virusi kwa wengine kwa kuwasiliana kwa njia ya ngono, na kugawana sindano, na kwa njia ya kuchangia (donate) damu na viungo vya mwili Wewe pia kuwa na hatari kwa ajili ya kuendeleza UKIMWI uki kosa kuchukua matibabu ya VVU. Utapimwa ukiwa hapa ukichunguza na utapata matokeo mara

Faida

Faida ya kupimwa ni ya kwamba, utapewa ushauri and utapimwa VVU bila gharama ya malipo. Hata ikiwa uto patikana hauna VVU uta fundishwa jinsi ya kubaki hasi Kama wewe ni VVU hasi utakuwa kuelimishwa juu ya jinsi ya kubaki hasi.
Ukiwa uko na VVU pia uta saidika kwa kupata matibabu mapema

Hatari

hatari ya kushiriki ni ndogo. Wao ni pamoja na usumbufu wa kuchora sampuli ya damu, nadra bruising na maambukizi katika tovuti ya sindano.
Kunaweza kuwa na kihisia usumbufu au stress yanayohusiana na maarifa ya matokeo ya kupimwa huu. Huduma zitachukuliwa kukupa msaada wa kushinda usumbufu kihisia

Gharama na Malipo:

Hakutakuwa gharama kwa ajili ya kushiriki katika hii kupima na ushauri nasaha kuhusishwa. vipimo vya damu itakuwa bure. Pia, wewe kuelewa kwamba hakuna malipo utapokea kwa ajili ya kuchukua atua na kupimwa.

Usiri

Unaweza kuelewa kwamba jina yako haija andikwa popote katika rekodi yoyote ya utafiti huu. Hivyo, wewe kuelewa kwamba yoyote taarifa zilizopatikana kutoka kupima hii itakuwa bila majina na kuhifadhiwa katika rekodi umefungwa. Huwezi kuwa na kutambuliwa katika chapisho yoyote. Elewa kwamba taarifa zote itakuwa ya utafiti hii ita fuata sheria ya Kenya juu ya habari yanayohusiana na siri ya VVU.

Haki ya kukataa

Unaweza kuelewa kwamba huja lazimishwa kupima. Una weza kukata ku pimwa na hakuna chochote kitafanywa kwako. Lakini ukikubali kupimwa ita bidi uchukue matokeo na upate ushauri . Unaweza kuelewa kwamba ushauri nasaha inapatikana kwa wewe kabla ya kufanya uamuzi wa kushiriki katika kupima huu na baada ya kupimwa.

Ushauri ya VVU baada ya kupata matokeo ya pimwa(post test counseling)

Matokeo ya Kupimwa VVU (HIV negative test result)

Kupimwa hasi ina maana huna VVU katika damu yako. Inaweza kuchukua muda kwa mfumo wa kinga ya kuzalisha kingamwili vya kutosha kwa ajili ya kupimwa na kugundwa antibody, na hii huitwa "window period" kati ya maambukizi ya VVU na uwezo wa kuchunguza hayo antibody kwa damu wanaweza kutofautiana kutoka mtu hadi mtu. Window period kuchukua kati ya wiki 8 -12, wakati huu, VVU virusi mzigo na uwezekano wa kuambukiza virusi kwa njia ya ngono, hisa sindano ya kugawana au mtoto wako kama wewe ni mjamzito au kunyonyesha. Hata hivyo kuna nafasi ndogo ya kuwa kuna watu ambaye wana weza chukua muda mrefu wa kuendeleza kingamwili kabla antibody kuoneka kwa damu yao waki pimwa. Kwa hiyo, mtu anatakiwa kufikiria kurudia kupimwa VVU baada ya miezi mitatu. Njia ya kapata VVU vinavyoenezwa ni kupitia ngono au kushirikiana sindano ya madawa ya kulevya vifaa na mtu mwenye VVU, ni muhimu kuchukua hatua za kupunguza hatari zinazohusiana na hayo. Kama wewe ni katika hatari ya kuongezeka kwa VVU, unapaswa kuwa kupima VVU angalau mara moja kwa mwaka.

Ushauri matokeo ikiwakuna VVU(Post test counseling)

Kama una VVU, unaweza kupata huduma ya matibabu, matibabu, na huduma ya saidizi kukusaidia kukaa na afya na kupunguza uwezo wako wa kusambaza virusi kwa wengine. Njia salama kupitia matumizi sahihi na kuhakikisha kwamba matumizi ya kondomu. Kondomu zinapatikana bure kutoka vituo zote ya afya ya umma. Kuna kondomu kwa wanawake na wanaume. Kondomu ya kiume ni hupatikana raisi, inapatikana kwa sababu bei wao ni nafuu. Usishirikiane sindano kwasababu unaweza ambukisha. Kama wewe ni mjamzito na una VVU, matibabu zinapatikana ili kupunguza uwezekano kwamba mtoto wako apate VVU. Itakuwa muhimu ku mwambia mtu wa karibu ili uweze kupata msaada. Msaada ni muhimu kwa sababu ukianza kutumia madawa ya VVU itakwa mzuri kama uko na mtu wakaribu ambaye anaweza kukumbusha wewe kuchukwa dawa yako. Mpaka sasa dawa yakutibo VVU haijapatikana. Lakini mtu akitumia dawa inapatikana ya VVU mtu anaweza kuishi maisha ya kawaida. Mpeleke mpenzi wako kwa ajili ya kupima. Unaweza kuwa na virusi lakini inawezekana kwamba mpenzi yako anaweza kua

hana aitwaye discordant. Njia pekee ya kuthibitisha hili ni kama yeye pia kupimwa. Mama mshauri (Mentor mother) katika hospitali hii pia ni njia nyingine ya kupata msaada na ushauri. Wao kutoa moja kwa moja elimu ya VVU na msaada wa kisaikolojia kubadilishana uzoefu wao kama wanawake wanaoishi na VVU. Wao pia kuwa na vikundi msaada ambayo unaweza kuhudhuria na kubadilishana uzoefu na wanawake wengine wanaoishi na VVU. Zitachukuliwa kwa vipimo zaidi ili kupata kozi yako ya pili ya matibabu. Kupimwa zinaonyesha hali ya mfumo wako wa kinga.

Fomu ya Idhinisho

Unatarajia kupima VVU, utadungwa katika kidole yako kuteka damu inahitajika kwa ajili ya kupimwa wa haraka. Damu hii itakuwa kipimo wakuchunguza kwa antibody ya VVU. Antibody ni kingaya kupambana na ukimwi. Kama damu yako imeonekana kuwa na VVU, ina manisha kwamba wewe ni carrier ya VVU.

Hasi ya kupimwa VVU ina maana kwamba wakati huu, hakuna antibody na VVU ni katika sampuli ya damu yako kwa kuzingatia matokeo ya kupimwa wa awali wa uchunguzi, au kuthibitisha. Kama matokeo ya kwanza na wa pili ni tofauti damu yako itapelekwa kwenye laboratorya kwa ajili ya kupimwa kwa hali ya juu zaidi ili kuthibitisha ambayo matokeo ni sahihi. Je unakubali kushiriki katika kupimwa VVU. Ukikubali kushiriki kwa kupimwa matokeo ita kwa ya siri. Ukikubalikupimwa itabidi upate matokeo na ushauri na mafundisho bbaada ya kujua hali.

Wewe uko huru kwa kuji ondoa au kukataa kupimwa bila madhara yoyote. Je, ume kubali kupimwa, tafadhali weka sahihi lako, chini, kuonyesha kwamba ume someshwa na kuelewa asili ju ya kupimwa VVU, majukumu yako kama mshiriki kwa kupimwa kwa utafiti, inconveniences kuhusishwa na ushiriki wa kujitolea katika utafiti na kwamba maswali yako na wasiwasi kuhusu utafiti imejibiwa kuridhisha. Utapokea nakala ya idhini hii saini kuchukua na wewe.

_____

____

Sahihi ya Mshiriki wa utafiti na Tarehe Alama ya kidole ya Mshiriki na Tarehe

_____

_____

Sahihi ya mtu anayechukua Idhinisho na Tarehe

_____

_____

Sahihi ya Shahidi na tarehe

Appendix IIC: Chip thuolo mar puonj kod hocho gi pim kute mag ayaki

Wach motelo/mokuongo mar pim mar anyo mar kute mag ayaki

Kute mag ayaki ichiwo kokalo pi maliw mag del kaka remo, nyodo mar dichuo, pimaliw mawuok e duong Jomamon gi kokadho kuom mama mayach man gi kute kadi kuom nyathi (MTCT). Kute nyalo kelo AYAKI.Jomaodak gi kute nyalo nere, kata winjore mangmia kuom higni mang'eny.Tokata kamano, kata kiwinjo ningima, kute pod nyalo hinyo dendi.Inyalo mana ng'eyo ka in gi kute kokadho e pim.N'geyo chalni ma kute, nyalo konyo ng'ato yudo thieth gichon kendo geng'o ngato kikdongkute maneko kaokothiedhe.

Ekinde ma sani mtie yedhe maduoko chien kethruok mar kido mar tuo manyalo medo konyo ngima mag ji modak gi kute kendo duoko chien mama ma yach miyo nyathin kute. Pim mar kute biro kawo nyiriri pierariyo kende. Ibi chuow lith lweti mondo ogol remo midwaro kuom pim mapiyo. Sampul ni ibipim kuom rageng del kuom kute gi rapim mar pimo mar neno touché. Rageng del en gimoro manyai e remo man gi ngima magore gi tuo. Pim mar bedo gi kute nyiso ni in jating' kute, pim ma bedo maonge kute nyiso ni e kindeni, onge rageng mag kute manie sampul rembi. Kaluwore gi duoko mar pim mokuongo mar nonro mar ng'eyo kit tuo kata pim manyiso chuth kata mar a dier kaduoko kuom pim mokuongo gi marariyo opogre, rembi ibi or kar Josayans mar nonro kirom piim mar rang'iny mamalo mar ng'eyo adiera pim madier.

Kong'e adiera ni in gi kute, ta berng'ey ni ibitimni pim mamoko marang'iny mamalo mondo ong'e ka ibiro dwaro amwonya mag duoko kwan teko kute chien e del to ok thiedh kute. Amuonyagi kelo ber kendo komuony gi e yo maber ng'ato nyalo dak engima mapile kuom kinde mang'eny. Nyiso ni inyalo chiwo kute ni jomoko e yor terruok kata ka itiyo kanyakla gi sindande kendo kokadho eyor chiwo remo kod fironde del ni jomoko kata ka imuonyo yath. In bende in gi lit kata chandruok mar dongo ayaki ka ok ikaw thieth. Ibiro yudo duoko mapiyo ka pim ibi tim king'iyo.

Ohala

Ohala mar kawo pimni en ni ibipimi kendo ibiro yudo hocho ma ok ichule gimoro amora

Kaionge gi kute, ibi puonji kaka onego ibed maonge kute. Ka in gi kute bende ibiro bedo gohala koa kuom wach kaka inyalo dak gi kute kendo ibi teri kuom rit makare mar ngima.

Chandruok/thagruok

Chandruok ma betie ni piny. Giting'o bedo maonge mor kata kwe mar golo sampul mar remo, buth manok gi chip tuo kar dho sindan. Nyalo betie maonge mor kod parruok maluwore gi rieko mar duoko mar pimni. Rit ibikaw mar miyi kony mar konyo bedo maonge kwe.

Nengo gi chudo

Biro bedo maonge nengo mar bedoe epimni gi hocho maluore. Pim mar remo biro bedo maonge chudo. Kendo, ing'eyo ni ok ibiyudo chudo mar kuom kawo pim.

Bedo gi malingling

Ing'eyo ni nyingi ok ndik kamoro amora e rating kalatese kuom nonroni. Maluwore, ing'eyo ni wach moro amora moyud kuom pimni biro bedo maonge nying kendo ibikan e rating kalatese mogo kuful. Ok bifwenyi e lendo moro amora. Ing'eyo ni weche duto ibitim kaluwore gi chike ma Kenya kuom kute maluwore gi wach malinghing.

Adieri mowinjore mar tamruok

Ingeyo ni ka ok idwa bedie e nonroni tok ochuno ni nyaka ibedi. Kata kamano, ka osetim pim ing'eyo ni en dwaro ni onego nyisi duoko. Ing'eyo ni hocho nitiere kapok ikawo okang' mar betie e nonroni kod bang pim

Hocho kod puonj bang' dwoko pim mar kute

Dwoko mar pim mar ng'ama onge kute

Pim mar bedo maonge, kute nyiso ni ionge gi rageng del e rembi. Onyalo kawo kinde moko kapok del ogolo rageng del makopim to nenore kata fuenyore, kendo ma iluongo ni "thuolo matuo pok onenore" e kind lando tong tuo gi kute kendo nyalo mar fwenyo gi pim mar rageng del nyalo pogre kuom ng'ato ka ng'ato. Kinde matuo pok owuok bedo kinde wige abaro nyaka apargariyo. E kindeni, kar kwan kute e remo gi chal mar lando tuo rirruok kata nindruok, konyruok kanyakla mar sindan gi nyawadu, kata nyathini mayom ka ipek kata idhodho. Kata kamano, nitie kinde matin ma Jomoko biro budho mar golo rageng del manere. Kata kamano ng'ato onego ket paro pim maluwore mohingo dweche adek bang wuok mogik manyako betie kute.

Nikech yore mayot ma kute mayudre en riwruok kata nindruok, tiyo kanyakla gi yedhe ma chwopo gi ngama nigi kute, en gima ber mar kaw okang mar duok chien chandruok mar yudo kute mag ayaki. Onego pimi kuom kute kata dichiel e higa.

Dwoko mar pim man gi kute

Ka in gi kute, inyalo yudo rit mar ngima thieth gi kony ma idag kingima kendo duoko chien mari mar lando kute ni jomoko. Ng'i timo nindruok man gi rabuoyunga kokadho yo makare mapile mar tiyo gi rap oyimga.

Rabuoyunga yudre nono kuonde mang'eny mag chieth mag sirikal.Nitie rabuoyunga mag mon gi chow. Rabuoyunga mag chuo ema yudore ahinya nikech nengogi yot.Kik uriw sindande. Kaipek kata in gi ich, kendo iyudo ni in gi kute, thieth yudre kuom duok chien thuolo ni nyathini biro bedo gi kute. Biro bedo maber mondo ifweny chalni ng'ama chiegni kodi mondo iyud konyruok. Konyruok en gima ber nikech samaichako tiyo gi yedhe kute, ibiro muonyogi kata tiyo kodgi engimani duto kaka onge thieth mong'ere mak mana ni yedhe mantie kedo gikute kendo ng'ato nyalo dak kak pile. Ter nyawadu e pim. Inyalo bedo gi kute, kendo nyalre ni nyawadu nyalo bedo ni onge kute wach miluongo ni 'kinde maonge winjruok' to yo makende ma ng'eyo adierani en mana pim. Chenro mar mine majohocho e ospitandei ok nyal fulo kata chiwo fweny. Gimiyo ng'ato kamg'ato pwonj mar kute gi kony mar saikoloji mar ngiyo konyruok kanyakla mar lony gi kaka mon modak gi kute. Kendo

gin gi grube konyruok minyalo dhie gi mon moko modak gi kute. Ibiteri e prim momedore mondo oyud thieth mowinjore kodi. Pim biro nyiso chal mari.

Fom mar thuolo

Ichiegni kawo pim mar kute, ibiro chuowo lith lweti mondo ogol remo midwaro mar pim mapiyo, sampul ni ibi pim kuom rageng del ni kute gi gir pim manenore mar kit tuo. Rageng tuo en gimore kata kit gimoro manyai gimoro kata sel mag remo loso mar geng'o yudo tuo. Pim mar ng'ama nigi kute nyiso ni sampul magi mag remo noyud gi kute kendo ni pim mar yudo adiera ibi tim mondo ofweny adiera ni ingi kute ayaki,ka in kod rageng' del nyiso ni in jating kute, pim maonge kute nyiso ni e kindeni, onge rageng del mar kute manie sampul mar rembi, kaluore gi duoko mar pim mokuongo mar nonro mar ng'enyo kit tuo, kata pim mar adiera. Ka duoko mar, pim mokuongo gi marariyo opogore, rembi ibi or kar Josayans mar nonro oyud adiera ni pim mane maduokone nikare. Kiyie dhie, nonroni, ibi ninyi dwoko mari gi teri kanyokla e hocho mar pim mokadho e lando kata ka duoko mag pim nigi kute kata onge go.

In thuolo na wuok kata tamruok kawo pim maonge kum moro, kiyie kawo pim, kiyie ket seyi bwo nyinge, kinyiso ni isesomo kendo ng'eyo chal mar pim en tiji, kaka jakaw nonroni, kethoni maluore gi dhini kuom yieni e pim kendo ni penjoni duto gi dwachi kaluore gi pim osebedo makare chutho.

Ibiro yudo fwanu mari machal kode mar thuolo moketie seyi.

Seyi mar Jabetie nonro kod tarik alam mar lwedo mathuon marjabetie nonro kod tarik

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Seyi mar ng'ama chiwo thuolo kod karik

Seyi mar janeno gilkod tarik

Appendix IIIA: Guide for use by Research Assistants to contact participants at CCC/CWC

Good day, my name is …….. Please may I have a word with you? I am working with the research team at your hospital as Research Assistant. The title the study is ***FERTILITY DESIRES, INTENTIONS AND CONTRACEPTIVE BEHAVIOUR OF HIV-INFECTED AND UNINFECTED WOMEN IN TWO CONTRAST REGIONS OF KENYA.*** I have been contracted and trained to gather your opinions on the topic of the study. The purpose of the study is to understand factors influencing fertility desire and intentions among HIV positive women of reproductive age and how these factors may influence contraceptive use as compared to HIV negative women. The results of this study will inform development of effective reproductive health services that meet the needs of HIV-infected women and support elimination of mother to child transmission of HIV infection.

If you are interested in taking part in the study, I would like to schedule an appointment with you to ask you some questions that will take 45-60 minutes. If you have time today after you finish with your appointment, we can meet. When we meet I can give more details on the study.

Please understand that you are not being forced to take part in this study and the choice whether to participate or not, is yours alone. However, we would really appreciate it if you do share your thoughts with us. If you choose not to take part in this study, you will not be affected in any way. I would like us to schedule time and day that best suit you so we can meet. I am at the facility on (insert dates that the RA will be at the facility), which time slot suits you best?

When you come, I will be located (insert detail of where the research assistants will be located during the interview day)

Thank you very much

Appendix IIIB: Mwongozo kwa ajili ya kuwasiliana wateja CCC/CWC

Siku njema, jina langu ni ..... Mimi na fanya kazi na timu ya utafiti katika hospitali yako kama Msaidizi ya Utafiti. Utafiti ni Mtakwa ya uzazi, malengo, na tabia wa uzazi ya wanawake walioambukizwa na wasioambukizwa katika mikoa miwili tofauti ya Kenya.Nimepewa jukumu na mafunzo ya kukusanya maoni yako kuhusu mada ya utafiti. Madhumuni ya utafiti ni kuelewa mambo yanayoathiri rutuba hamu na nia kati ya wanawake walioambukiza na VVU katika umri wa kuzaa na jinsi mambo haya inaweza ushawishi matumizi ya upangaji wa uzazi kama ikilinganishwa na wanawake wasioambukizwa naVVU. Matokeo ya utafiti huu itajulisha huduma bora ya afya ya uzazi ili kukidhi mahitaji ya wanawake walioambukizwa VVU na kuondoa hatari ya mama kuamboukiza mtoto na virusi vya ukimwi.Kama una nia ya kushiriki katika utafiti, napenda ratiba miadi na wewe uulizwe baadhi ya maswali ambayo kutachukua dakika 45-60. Utapewa habari za kina ili kukusaidia kufanya uamuzi kama unataka kushiriki katika utafiti.Tafadhali elewa kwamba hulazimishwi kushiriki katika utafiti huu na uchaguzi kama utashiriki au la ni yako peke. Hata hivyo, tunge penda sana ushiriki na utoe ushauri yako katika hili jambo. Ningependa tokubaliane na siku mzuri tunaweze kukutana hapa hospitali kwa muda mchache. Mimi nitakwa katika hospital (Ingiza tarehe Msaidizi wa utafiti ata kuwa hospitali), ambayo wakati yanayopangwa suti wewe bora?Wakati umefika, mimi itakuwa iko (Ingiza tarehe Msaidizi wa utafiti ata kuwa hospitali) Asante sana

Appendix IIIC: Gir telo mitiyogo gi Jalup jamonro mar tudruok gi Jomachiwre paro e CCC/CWC

Ber nyinga en---------- Be dang` awuo kodi? A tiyo gi jononro mar kar thieth kaka jakony nonro. Nonro en rango weche mag mine kaluwore gi nyuol gi ritruok mago kuom mine man gi kute mag ayaki to gi mago maonge go e Nyanza to gi Masawa mar Kenya. An gi lony mathoth gi tiegruok mathoth kuom nonro ni. Nonro ni okelnwa mondo wan`ge godo gigo magayowa kuom nyuol e mine mapod nyuol ka iketogie rapim gi mine man gi kute mag hayaki to gi kaka wachni nyalo miyowa kony e yore mag nyuol ahinya kuom mine man ga hayaki mondo kik gi mi nyithindo ma gi nyuolo bed hayaki.

Ka iyie to a biro kwayi ni mondo imiyae thuolo mar dakika 45---60 e penjo matin Kathuolo oyudore to wanyalo room matin mondo a nyisie mathoth kuom wach gi

Ok ochuni bedo achiel kuom joma betie nonro ni kendo yiero en mari. Bende da waher kwayi mondo i bed kodwa mondo wayudie pachi. Ka iyiero ni ok ibed kodwa to onge gimoro marach madan`g bedie. A biro yieroe odiochien`g moro to gi thuolo manyalo betie kodi. A biro bet kae chien`g(koro yier o diechieng maber kodi?

E chien`g ma a biro, a biro bet e (nyiskama ja nonro biro betie chien`g no mar penjo)

Erokamano

Appendix IVA: English Questionnaire

2012 **FERTILITY INTENTIONS, DESIRES AND CONTRACEPTIVES USE SURVEY**			
IDENTIFICATION INFORMATION			
A.	Questionnaire identification number_____	**D**.	Date of Interview:_____
B.	Interviewer's Name	**E.**	Start time:_____
C.	Interviewer's code:_____		
BACKGROUND INFORMATION (PLEASE COMPLETE FULLY)			
1.	How old are you?	_____ years	
2.	What is your current region of residence?	CENTRAL……..1 NYANZA …….....2 WESTERN…..…..3 NAIROBI ……....4 EASTERN …….….5 RIFTVALLEY ……...6 COAST……7 NORTH EASTERN…….....8	
3.	Place of residence	RURAL …….1 URBAN…….....2	
4.	How long have you stayed in the current region?	<1 YEAR……1 1-2 YEARS…...…2 3-4 YEARS…….....3 5+ YEARS….4	
5.	What was your previous region of residence?	CENTRAL……...1 NYANZA ……..2 WESTERN…..…….3 NAIROBI ……...4 EASTERN …….5 RIFT VALLEY …….6 COAST……..……7 NORTH EASTERN…….....8 HAS NOT CHANGED RESIDENCE------9	
6.	Previous place of residence	RURAL ……..…1 URBAN…….....2	

7.	What is your ethnic group?	KIKUYU……..…1 LUHYA…..…..2 LUO……..3 KAMBA……..…4 MERU…..….5 SWAHILI……...6 MIJIKENDA……..7 TAITA……...8 KISII……..…...9 KALENJIN…….…10 OTHER SPECIFY …….11
8.	What is your religion?	CATHOLIC……..…1 PROTESTANT…….2 MUSLIM…….....3 TRADITIONAL RELIGION ….4 OTHER(SPECIFY)…… 5
9.	What is your highest level of education?	NON/PRE PRIMARY ……1 COMPLETED PRIMARY…..2 PRIMARY DROPOUT……3 VOCATIONAL ……..4 COMPLETED SECONDARY …..5 COMPLETED A LEVEL….6 A LEVEL DROPOUT……..7 MIDDLE LEVEL COLLEGE….8 UNIVERSITY……..9
10.	What is your employment status?	FORMALLY EMPLOYED…….1 SELF EMPLOYED….2
11.	What is your marital status?	MARRIED……..1 → **Q12** SINGLE…….....2 DIVORCED……3 SEPARATED…...4 WIDOWED…5 **SKIP TO Q17**
12.	How old is your partner?	_____ YEARS
13.	What is your partner's employment status?	FORMALLY EMPLOYED…….1 SELF EMPLOYED…….2 NOT EMPLOYED…….3

14.	Which region does your partner reside?	CENTRAL……...1 NYANZA ……...2 WESTERN…….3 NAIROBI ……...4 EASTERN …….5 RIFT VALLEY …….6 COAST……..……7 NORTH EASTERN…….....8
15.	What is the highest level of education of your partner?	NON/PRE PRIMARY ……1 COMPLETED PRIMARY…….2 PRIMARY DROPOUT……..…3 VOCATIONAL ……...4 COMPLETED SECONDARY …..5 COMPLETED A LEVEL….6 A LEVEL DROPOUT……..7 MIDDLE LEVEL COLLEGE….8 UNIVERSITY……..9
16.	How long have you been staying together/married with intimate partner in the current marital union?	<1 YEAR……1 1-2 YEARS……2 3-4 YEARS……....3 5+ YEARS……4
17.	What is your household income in Ksh.000?	<5,000……...1 5,000-9,000……..2 9,001-14,000…..……3 14,001-19,000……...4 19,001 & ABOVE……5
18.	What is your source of water?	PIPED…….....1 WELL…….2 LAKE…….……3 OTHERS……..…….. 4
19.	Where is that water source located?	IN OWN DWELLING …….....1 IN OWN YARD/PLOT..…..2 ELSEWHERE …….…3
20.	What type of toilet facility does your family use?	FLUSH……..….1 PIT/LATRINE .....2 BUSH/FIELD.....3 OTHER(SPECIFY) …….4

21.	Does your household own or rent the structure where you live or do you live here without pay?	OWN……..…….1 PAYS RENT……2 NO RENT WITH CONSENT FROM THE OWNER .....3 NO RENT SQUATTING…4	
REPRODUCTIVE HEALTH/FERTILITY HISTORY			
22.	Have you ever had a pregnancy to term?	YES ……..1 NO……2 ⟶	**SKIP TO Q28**
23.	How many children have you given birth to alive?	NO OF CHILDREN ALIVE.....	
24.	How many have died?	NO OF CHILDREN DEAD…….	
25.	What is the status of the preceding child?	ALIVE……1 DEAD……2	
26.	What is the sex of your previous birth?	MALE……1 FEMALE……2	
27.	What is the preceding birth interval?	<18 MONTHS……..1 18-24 MONTHS……2 25+ MONTHS……..3	
FERTILITY DESIRE AND INTENTION			
28.	Are you currently pregnant?	YES …… 1 NO……..…2 ⟶	**SKIP TO Q32**
29.	Did you plan for/intend to have your current pregnancy?	YES …….1 NO……2	
30.	After the child you are expecting now, do you intend to have another child?	YES ……..…..1 NO…….…… 2	

31.	IF Q29=NO, Why was your current pregnancy unplanned/unintended?	JUST FOUND THAT I WAS PREGNANT……..…1 I MISSED FAMILY PLANNING METHODS AT THE HOSPITAL…...2 I STOPPED USING FAMILY PLANNING METHODS BECAUSE I FEEL SICK WHEN I TAKE THEM….....3 I GOT PREGNANT WHILE USING CONDOM…..4 OTHER SPECIFY……5
32.	Do you intend to get pregnant/another pregnancy?	YES ……....1 NO……..….2
33.	Which of the following statements best describe your thinking about having a child?	I WANT TO HAVE A CHILD RIGHT NOW…..…1 I WANT TO HAVE A CHILD IN THE NEXT 2YEARS…….…2 I MAY WANT A CHILD IN THE NEAR FUTURE…….....3 I AM NOT SURE I WOULD WANT TO HAVE A CHILD IN FUTURE……..4 I DON'T WANT TO HAVE A CHILD IN FUTURE……....5
34.	How many children would you desire to have?	NO OF CHILDREN DESIRED……..
35.	How many children do you intend to have?	NO OF CHILDREN INTENDED……..
36.	How many children would your husband/partner desire to have?	NO OF CHILDREN PARTNER DESIRES…….
37.	How many children do you think your husband/partner intend to have?	NO OF CHILDREN PARTNER INTENDS…….. DON'T KNOW……..
38.	Which sex would you prefer to have?	MALE……..…1 FEMALE……2
39.	Which sex would your husband/partner prefer to have?	MALE……..……..…1 FEMALE……2
MEASURING TPB VARIABLES		
ATTITUDE		

Please tell me if you agree or disagree with the following statements. I think that I must have a /another child within the next 2 years for:		Strongly agree	Agree	Don't know	Disagree	Strongly disagree
40.	Fulfilling agreement between my husband and myself					
41.	Care and Security you may get in old age					
42.	Helper in future					
43.	Inherit my property					
44.	Sex preference					
45.	In case of accidental death of one child					
46.	Proof that HIV+ woman can give					
47.	As a bond between husband and wife					
48.	Closeness between you and your parents					
49.	Closeness between you and your mother					
50.	Joy and satisfaction you get from life					
51.	Feel complete as a woman					

Please tell me if you agree or disagree with the following statements I do not want to have a (another) child because:						
52.	Economic constraint					
53.	Affect my health					

54.	Worries of getting a HIV positive baby					
55.	CD4 drops exposing me to OI					
56.	Separation if HIV status not disclosed					
57.	I have enough children					
NORMATIVE REFERENTS						
Please tell me if you agree or disagree with the following statements. Your decision to have a /another child within the next 2 years depends on?		Strongly agree	Agree	Don't know	Disagree	Strongly disagree
58.	Husband/partner	4	3	0	2	1
59.	Mother in law	4	3	0	2	1
60.	Father in law	4	3	0	2	1
61.	Friends	4	3	0	2	1
Who would disapprove you having a/another child?						
62.	Employing organization					
63.	Church members					
64.	Sisters					
65.	Brothers					
66.	Mother					
67.	Father					
CONTROL FACTORS						
Please tell me if you agree or disagree with the following statements The following factors or circumstance would make it easy or enable you to have		Strongly agree	Agree	Don't know	Disagree	Strongly disagree
68.	Loneliness of one child					
69.	Replacing HIV+ baby					
70.	If husband is only child					
71.	Employment					
72.	Improved health status					

73.	Support from family members					
74.	CD4 > 350	4	3	0	2	1
Please tell me if you agree or disagree with the following statements: The following factors/circumstances would make it difficult or prevent you to have a/another child within the next 2 years		Strongly agree	Agree	Don't know	Disagree	Strongly disagree
75.	Poor health					
76.	Economic status					
77.	Complication from a previous birth e.g. C/S					
78.	Stress of Infant feeding option(EBF)					
79.	Partners poor health					

FAMILY PLANNING (Ask this question to those who are NOT currently pregnant)			
80.	Are you currently using any <u>modern</u> family planning method?	YES ……..1 NO……2	→ GO TO Q 83
81.	Do you intend to use <u>modern</u> family planning method?	YES ……..1 NO……2	→ GO TO Q 83
82.	If No, please state why?	RELIGIOUS BELIEFS…….1 NOT SEXUALLY ACTIVE…….2 AFRAID OF SIDE EFFECTS…… 3 FEAR OF PARTNER'S REACTION….4 LACK OF ACCESS/TOO FAR……..5 LACK OF KNOWLEDGE…….6 COST TOO MUCH-……7	

83.	Which family planning methods are you using/would you prefer to use?	Please specify type---------- PILLS …….1 INJECTION…..……2 CONDOM …….3 FEMALE CONDOM……..4 IMPLANTS .…….5 IUCD…….6 LACTATION AMENORRHEA…….…….7 FEMALE STERILIZATION……8 MALE STERILIZATION.…..……9 PERIODIC ABSTINENCE ...10 WITHDRAWAL……..…….11 OTHERS SPECIFY…….12
84.	What made you choose this particular method?	CONVENIENCE ……1 COST (CHEAP) ……2 CAN BE USED SECRETLY ……3 NO LONGER WANT MORE CHILDREN…...4 OTHERS SPECIFY _____5
85.	Does your husband know that you are using /intend to use a method of family planning?	YES ……..1 NO……..…….2
86.	Would you say that using /intention to use contraception is*:*	MAINLY YOUR DECISION.....1 MAINLY YOUR PARTNER'S DECISION …..2 A JOINT DECISION…..……3 OTHERS SPECIFY ……4
87.	Do you think that your husband/partner approves or disapproves of you using a modern method to avoid	APPROVES ……1 DISAPPROVES.….…….2
88.	Would you recommend contraceptives to others?	YES ……..1 NO……..…….2
89.	Have you used a condom in the last six months?	YES ……..1 NO ..…….2

90.	How often have you used a condom in the last six months?	ALWAYS USE(CONSISTENT USE)...1 OFTEN …..…….2 SOMETIMES USE.. …….3 RARELY USE ….…4
91.	When do you often use condoms?	WITH REGULAR SEXUAL PARTNER .1 WITH CASUAL SEX PARTNER ...2
92.	Have you ever heard of dual protection?	YES ……..1 NO...…….2
93.	What is dual protection?	USE OF CONDOM …..……1 USE OF AN EFFECTIVE FAMILY PLANNING METHOD AND CONDOM AT THE SAME TIME……....2 USE OF 2 EFFECTIVE FAMILY PLANNING METHODS ……...3 DON'T KNOW……4
94.	Do you think HIV positive couples should consistently use condoms?	YES ……..1 NO.…….2
95.	Why should HIV positive persons use condoms?	PREVENT RE-INFECTION…...1 PREVENT STI……..2 PREVENT INFECTING THEIR PARTNER…….3 PREVENT PREGNANCY …...4
96.	In the last few months have you heard about family planning on radio?	YES ……..1 NO…..…….2
97.	In the last few months have you seen about family planning on television?	YES ……..1 NO.…….2
98.	In the last few months have you read about family planning in a newspaper or magazine	YES ……..1 NO…….2

If not using any F/P method, please state if you agree or disagree with the following statements		**Agree**	**Disagree**
99.	I am not able to get family planning method at the health facility	1	2
100.	I have heard that family planning affects the body	1	2
101.	Women who use contraception may become promiscuous	1	2
102.	My husband does not want me to use contraceptives	1	2

103.	I want another baby soon	1	2

HIV/AIDS KNOWLEDGE, ATTITUDE AND PRACTICE

104.	Have you ever heard of an illness called HIV/AIDS?	YES …1 NO……..…2 →	GO TO Q119
105.	Have you taken an HIV test?	YES …1 NO...…2 →	GO TO Q119
106.	Where was the test done?	VCT ……1 ANTENATAL CLINIC……..2 IN THE LABARATORY… ……3	
107.	Please share with me your results, it is purposely for this research and will not be shared by anybody. Your name will also not be written in this paper	POSITIVE….1 NEGATIVE...2 →	GO TO Q115
108.	Have you disclosed the results to your husband/partner?	YES …1 NO……2 →	GO TO Q110
109.	What was your partner's reaction?	HE BECAME COLD ……..1 VIOLENT ……...…….2 MOVED OUT OF THE HOUSE……..3 CHASED ME FROM OUR HOUSE .4 TOOK HIV TEST ……5 OTHERS SPECIFY……..6	
110.	What has kept you from disclosing to husband/partner your HIV results?	FEAR OF BEING CHASED AWAY…1 FEAR OF BEING ACCUSED OF BRINGING THE DISEASE…2 FEAR OF BEING VIOLENT-….3 OTHERS SPECIFY……..4	
111.	If you have taken CD4 test, what is your current CD4 T cell count?	CD4 T CELL COUNT_____	
112.	Are you taking ARVs?	YES …1 NO……..…2 →	GO TO Q115
113.	How long have you taken ARVs?	_____MONTHS _____YEARS	

114.	What drugs are you currently taking?	SEPTRIN……..…1 MULTIVITAMIN……..2 OTHERS SPECIFY……3
115.	Do you think your chances of getting HIV are small, moderate, great or no risk at all?	NO RISK…… 1 SMALL……..2 MODERATE……3 GREAT……4 HAS HIV …….. .5
116.	Why do you think you have (no/small risk) of getting HIV?	IS NOT HAVING SEX ……1 USES CONDOM……2 HAS ONLY ONE PARTNER……..3 LIMITS THE NO OF PARTNERS……4 PARTNER HAS NO OTHER PARTNERS…..5 OTHERS SPECIFY……..6
117.	Why do you think you have (moderate/great) chance of getting HIV?	DOES NOT USE CONDOM ……...1 HAS MORE THAN ONE SEXUAL PARTNER …..2 HAS BLOOD TRANSFUSION …3 OTHERS SPECIFY……..4
118.	How many months is it since you took your HIV test?	_____MONTHS
119.	Would you like to take a HIV test	YES ……..1 → GO TO Q120 NO……2
120.	At this moment I would like to request you if you could have a HIV test/repeat test. The government encourages people to know their status by taking a test and if tested negative at first test to repeat again after within three months to one year depending on individual's perceived risk. If you are negative we will encourage you to remain negative by having one faith full partners and having safer sex. If you are positive we will refer you for further treatment. It is very important for this study that we only interview those whose HIV status is confirmed. Counsel participant and have her sign the HIV counseling and test consent form (**refer to HIV testing consent form**)	
121.	HIV test results	POSITIVE ……1 NEGATIVE…….....2

122.	**(Ask all participants)** Have you had any discussion with health care providerson fertility and family planning?	YES ……1 NO…2 →	END SURVEY
123.	If yes, who initiated the discussion?	RESPONDENT …….1 HEALTH WORKER …….2 OTHER (SPECIFY) ……3	
124.	Which statement best discribes what you discussed with the health	HOW BEST TO GET PREGNANT WITHOUT INFECTING MY BABY…..1 NEGATIVE ATTITUDE TOWARDS CHILD BEARING …….2 DISCUSS WITH ME CONDOM USE AS A FORM OF FAMILY PLANNING .3 DISCUSS WITH ME OTHER FORMS OF FAMILY PLANNING ……....4	
125.	Was the health worker useful in helping you understand fertility issues related to a) HIV positive status? b) HIV negative status?	a) HIV positive status? YES NO b) HIV negative status YES NO	
126.	If the discussion was useful what changes did you make following your discussion with the health worker?	NOT TO GET UNPLANNED PREGNANCY…1 START USING FAMILY PLANNING…..2 DISCUSS WITH MY HUSBAND/PARTNER BEFORE GETTING PREGNANT…….3	
Thank you for participating in the interview: END TIME:_____			

Appendix IVB: Kiswahili Questionnaire

2012 **FERTILITY INTENTIONS, DESIRES AND CONTRACEPTIVES USE SURVEY**			
IDENTIFICATION INFORMATION			
D.	Questionnaire	**D**.	Date of Interview:_____
E.	Interviewer's Name_____	**E.**	Start time:_____
F.	Interviewer's code:_____		
BACKGROUND INFORMATION (PLEASE COMPLETE FULLY)			
1	Una miaka mingapi?	_____	
2	Mkoaya makazi kwa sasa ni gani?	MKOA WA KATI……..1 NYANZA …….....2 MAGHARIBI……..3 NAIROBI …….....4 MASHARIKI …….5 BONDE LA UFA ……...6	
3	Unaishi wapi?	MASHAMBANI ……1 MJINI…….....2	

4	Umekaa kwa muda gani kwenye kanda hii?	CHINI YA MWAKA 1…….1 MIAKA 1-2……2
5	Ulikuwa unakaa kanda gani hapo awali?	MKOA WA KATI……..1 NYANZA …….....2 MAGHARIBI……..3 NAIROBI …….....4 MASHARIKI ……5 BONDE LA UFA ...6
6	Mahali ulikokuwa unaishi hapo awali	MASHAMBANI ….……1 MJINI……2
7	Kabila yako ni gani?	KIKUYU…….……1 LUHYA……...…..2 LUO……..3 KAMBA.……..…4 MERU……..….5 SWAHILI……...6 MIJIKENDA……..7 TAITA……...8

8	Dini yako ni gani?	MKATOLIKI.… ……1 MPROTESTANTI.……2 MWISLAMU….3 DINI YA JADI …….4	
9	Umesoma hadi kiwango gani cha **juu** cha elimu?	HAKUSOMA/SHULE YA WATOTO WADOGO… 1 AMEKAMILISHA SHULE YA MSINGI……..2 HAKUMALIZA SHULE YA MSINGI……..3 CHUO CHA UFUNDI .....4 AMEKAMILISHA SHULE YA UPILI……..5 AMEKAMILISHA A LEVEL...6 HAKUMALIZA A LEVEL ….7	
10	Aina yako ya ajira ni upi?	AJIRA RASMI…….1 KUJIARI……..2	
11	Uchumba wako ni upi ?	AMEOLEWA..1 HAJAOLEWA.....2 AMETALIKI…..3 AMETENGANA….4	ENDA **Q12** **ENDA Q17**

12	Je, mchumba wako ana miaka mingapi?	MIAKA_____
13	Aina ya ajira ya mchumba wako ni upi?	AJIRA RASMI……..1 KUJIARI……..2
14	Mchumba wako anaishi mkoa gani?	MKOA WA KATI……..1 NYANZA …….....2 MAGHARIBI……..3 NAIROBI …….....4 MASHARIKI …….5
15	Mchumba wako ana kiwango gani cha **juu** cha elimu?	HAKUSOMA/SHULE YA WATOTO WADOGO… 1 AMEKAMILISHA SHULE YA MSINGI….2 HAKUMALIZA SHULE YA MSINGI….3 CHUO CHA UFUNDI ……...4 AMEKAMILISHA SHULE YA UPILI….5 AMEKAMILISHA A LEVEL…..6 HAKUMALIZA A LEVEL ….7 CHUO CHA KATIKATI…….8 CHUO KIKUU..... …

16	Muda wa kukaakwenye ndoa/kukaa nampenziwa ndani	CHINI YA MWAKA 1……1 MIAKA 1-2……2 MIAKA 3-4…...3
17	Mapato yenu kwa boma ni ngapi?	<5,000……..1 5,000-9,000…….……2 9,001-14,000……..…3
18	Wewe hutoa wapi maji?	BOMBA…….…….....1 MSIMA……..2 ZIWA…….……3
19	Haya maji hupatikana wapi?	KWA MAKAZI YA BINAFSI ...1 KWA PLOTI YA BINAFSI …..2
20	Ni aina gani yachoofamilia yakohutumia?	YA FLUSH…….1 YA SHIMO/CHOO.....2 KICHAKA/UWANJA……3 INGINE(TAMBUA) _____4
21	Je,hiki chumba munakoishi ni chenu, mumekodi ama munaishi hapabila malipo?	YA BINAFSI……1 HULIPA KODI…..…2 BILA KODI ANA KIBALI KUTOKA MWENYE NYUMBA**.....**3
AFYA YA UZAZI /HISTORIA YA UZAZI		

22	Ushawahi kubeba mimba hadi mwisho?	NDIYO ……..1 LA……..2 ⟶	ENDA Q28
23	Ni watoto wangapi ambao umewazaa wakiwa hai?	IDADI YA WATOTO WALIOHAI_____	
24	Wangapi wamefariki?	IDADI YA WATOTO WALIOFARIKI_____	
25	Hali ya mototo wako wa mwisho?	HAI……1 KUFA……2	
26	Jinsia ya mtoto wako wa awali?	KIUME…….……1 KIKE……2	
27	Ulipata mtoto wako wa mwisho baada ya muda gani kutoka kwa yule wa awali?	CHINI YA MIEZI 18……..1 MIEZI 18-24…..……2 MIEZI 25 NA ZAIDI……..3	
HAJA NA NIA YA UZAZI			
28	Je wewe ni mja mzito?	NDIYO…….1 LA……..…2⟶	**ENDA Q32**
29	Je ulipanga kushika mimba yako ya sasa?	NDIYO ……..1 LA……2	
30	Baada ya kumpata huyu mtoto unayemtarajia, una nia ya kumpata mwingine?	NDIYO ……..1 LA……2	

31	IKIWA Q29=LA, Kwa nini mimbayako ya sasailikuwa bila mpango/isiyotarajiwa?	NILIJIPATA MJA MZITO……..1 SIKUPATA NJIA YA KUPANGA UZAZI HOSPITALINI …...2 NILIACHA KUTUMIA NJIA YA KUPANGA UZAZI KWA SABABU NIKIMEZA HUNIFANYA MGONJWA……3 NILISHIKA MIMBA NILIPOKUWA NATUMIA KONDOMU…….4 INGINE(TAMBUA) _____5
32	Unatarajiakupata mimba/ujauzitomwingine? Una nia ya kushika	NDIYO …..1 LA……2
33	Ni sentenzi ipi kwa zifuatazo yaelezea mawazo yako kuhusu kupata mtoto?	NATAKA KUPATA MTOTO SAA HII…..1 NATAKA KUPATA MTOTO MIAKA MIWILI IJAYO……2 NAEZA TAKA MTOTO HIVI KARIBUNI…...3 SINA UHAKIKAKAMA NINGETAKA KUWA NA MTOTO SIKU SIJAZO…….4 SITAKI KUWA NA MTOTO SIKU SIJAZO…5
34	Ungependa kuwa na watoto wangapi?	IDADI YA WATOTO ANGEPENDA ……..

35	Unakusudia ungekuwa na watoto wangapi?	IDADI YA WATOTO ANAKUSUDIA _____				
36	Mume/mpenzi wako anatamani mungekuwana watoto wangapi?	IDADI YA WATOTO MUME/MPENZI ANATAMANI _____				
37	Ni watoto wangapi unafikiria mume/mchumba wako anatarajia kuwa nao?	IDADI YA WATOTO MUME/MPENZI ANATARAJIA _____ SIJUI_____				
38	Ni mtoto wa jinsia gani ungependa kupata?	KIUME…..……1 KIKE……2				
39	Mume/Mchumba wako angependa kupata mtoto wa jinsia gani?	KIUME……1 KIKE……2				
MATAZAMO WA UPIMAJI TPB WA KUBADILIKA						
MTAZAMO						
Tafadhali uniambie kama wakubali au kutokubali na maelezo yafuatayo. Nafikiri kwamba lazima nipate mtoto /mtoto mwingine katika		Nakubali kabisa	Nakubali	Sijui	Sikubaliani	Sikubaliani Kabisa
40	Kutimiza maagano kati yangu na mume wangu					
41	Malezi na usalama unaoweza					
42	Msaidizi usoni					
43	Mrithi wa mali yangu					
44	Kupata jinsia ambayo napendelea					

45	Kukiwa na ajali, kifo cha mtoto mmoja					
46	Kudhibitisha kuwa mwanamke aliye na virusi anaweza kumzaa mto asiye					
47	Kama kiunganisho kati ya mme na mke					
48	Uhusiano wa karibu na wazazi					
49	Uhusiano wa karibu kati yangu na mamamkwe					
50	Furahia na kuridhika na maisha					
51	Kujihisi mimi ni mwanamke					
Tafadhali uniambie ikiwa unakubali au unakataa sentenzi zifuatazo. Sitaki kupata mtoto(mtoto mwingine) kwa sababu ya:						
52	Hali ngumu ya uchumi					
53	Itadhuru afya yangu					
54	Wasisi wa kupata mtoto mwenye virusi					
55	Kushuka kwa viwango vya CD4 na kusababisha magonjwa					
56	Kutengana ikiwa hali ya kutokuwa au kuwa na virusi haijafichuliwa					
57	Nina watoto wa kutosha					
UDHAMINIFU WA KUSANIFISHA						
Tafadhali uniambie ikiwa unakubali au unakataa sentenzi zifuatazo.: Uamuzi wako wa kupata mtoto(mwingine) katika miaka miwili ijayo unategemea:		Nakubali kabisa	Nakubali	Sijui	Sikubaliani	Sikubaliani Kabisa

58	Mume/mchumba					
59	Mama Mkwe					
60	Baba Mkwe					
61	Marafiki					
Nani atakupinga ikiwa uamuzi wako kupata mtoto (mwingine)?						
62	Shirika la kuajiri					
63	Wanachama wa kanisa					
64	Dada					
65	Kaka					
66	Mama					
67	Baba					
HALI ZA KUAMRISHA						
Tafadhali uniambie ikiwa unakubali au unakataa sentenzi zifuatazo.		Nakubali	Nakubali	Sijui	Sikubaliani	Sikubaliani
68	Upweke wa mtoto mmoja					
69	Kwa sababu mtoto aliyeko ana virusi					
70	Kama mume ni mtoto wa kipekee					
71	Ajira					
72	Kuboresha hali ya afya					
73	Usaidizi kutoka kwa familia					
74	CD4 iliyo chini ya 350	4	3	0	2	1

	Tafadhali uniambie ikiwa unakubali au unakataa sentenzi zifuatazo: Sababu zifuatazo zaweza kukutatanisha au zikuzuie kupata mtoto(mwingine) katika ya	Nakubali kabisa	Nakubali	Sijui	Sikubaliani	Sikubaliani Kabisa
75	Afya mbaya					
76	Hali ya uchumi					
77	Matatizo ya kuzaa yaliyotokea wakati wa kuzaa					
78	Matatizo za lishe ya mtoto					
79	Afya duni ya mume					

UPANGAJI WA UZAZI*(Sehemu hii inaulizwa wanawake ambao sio waja wazito)*			
80	Unatumia njia yoyote ya kisasa ya kupanga uzazi?	NDIYO…. .1 LA…..……2	→ ENDA Q 83
81	Una mpango wa kutumia njia za kupanga uzazi?	NDIYO …...1 LA…….....2	→ ENDA Q83
82	Kama ni hapana, tafadhali eleza kwa nini?	IMANI ZA DINI…... 1 HASHIRIKI KWA NGONO…..2 KUOGOPA MADHARA……3 KUOGOPA VILE MUME ATACHUKULIA…….4 KUTOWEZA KUPATA/UMBALI..5 KUTOKUWA NA MAARIFA……6	

83	Njia gani za mpango wa uzazi unazotumia saa hii/ ungependa kutumia?	TEMBE …..…...1 Tafadhali tambua aina---------- SINDANO…….....…2 KONDOMU ……..…..3 KONDOMU YA KIKE.…....4 IMPLANTS ….…..5 IUCD…….….6 LACTATION AMENORRHEA….7 KUFUNGWA KWA KIKE….……8
84	Kwa nini ulichagua njia hii?	HAINA SHIDA……..1 BEI (SI GHALI) …...2 INAWEZA TUMIWA KWA SIRI …..3 SITAKI WATOTO WENGINE… ...4
85	Mume wako anajua kuwa unatumia njia ya kupanga uzazi/ una nia ya kutumia	NDIYO ……..1 LA……2
86	Unaweza kusema kuwa nia yako ya kutumia upangaji wa uzazi ni?	UAMUZI WANGU SANA .....1 UAMUZI WA MUME/MPENZI WANGU SANA…..2 UAMUZI WA PAMOJA……..3 INGINE(TAMBUA)

87	Unafikiria mume wako anakubaliana na wewe kutumia njia yoyote ya	ANAKUBALI ……..…1 HAKUBALI…..……..2
88	Ungewahimiza wengine kutumia njia za mpango wa uzazi?	NDIYO ……..1 LA……2
89	Je,umewahi kutumia kondomukatika miezisita iliyopita?	NDIYO ……..1 LA……2
90	Mara ngapiwewekutumia kondomu/mpirakatika miezisita iliyopita?	HUTUMIA KILA WAKATI……..1 MARA NYINGI ….2 HUTUMIA WAKATI MWINGINE ……3 KUTUMIA MARA CHACHE…4
91	Ni wakati gani huwa unatumia mipira sana?	NA MPENZI WA NGONO WA KILA MARA… …1 NA MPENZI WA NGONO WA WAKATI CHACHE/WA STAREHE …….2
92	Umewahi kusikia kinga maradufu?	NDIYO ……..1 LA……2
93	Kinga maradufu ni nini?	UTUMIAJI WA KONDOMU….1 UTUMIAJI WA NJIA YA KUPANGA UZAZI INAYOFANYA KAZI PAMOJA NA KONDOMU ……..2 UTUMIAJI WA NJIA MBILI YA KUPANGA UZAZI INAYOFANYA KAZI……3 SIJUI……4

94	Je, unafikiria mume na mke ambao wana virusi vya ukimwi wanafaa kutumia mpira kila wakati?	NDIYO ……..1 LA……2	
95	Mbona walio na virusi vya ukimwi wanafaa kutumia mipira?	KUZUIA KUAMBUKIZWA TENA…....1 KUZUIA UGONJWA YA ZINAA…2 KUZUIA KUAMBUKIA MPENZI ……3	
96	Kwa miezi michache iliyopita ushawai sikia kuhusu upangaji uzazi kwa	NDIYO ……..1 LA……2	
97	Kwa miezi michache iliyopita ushawai tazama kuhusu upangaji uzazi kwa	NDIYO ……..1 LA……2	
98	Kwa miezi michache iliyopita ushawai kusoma kuhusu mpango wa uzazi	NDIYO ……..1 LA……2	
Kama siyokutumia njia yoyote wakupanga uzazi,tafadhali onyesa kamaumekubaliana au		**Nakubali**	**Sikubali**
99	Siwezi kupata huduma za upangaji wa uzazi kwika kituo cha afya	1	2
100	Nimesikia kuwa mpango wa uzazi unadhuru mwili	1	2
101	Wanawake wanaotumia njia za kupanga uzazi wanaweza kuwa malaya	1	2
102	Mume wangu hataki kutumia njia za kupanga uzazi	1	2
103	Nataka mtoto mwingine hivi karibuni	1	2
HABARI, MTAZAMO NA MAZOEZI KUHUSI VIRUSI/UKIMWI *Elimu, tabia na mazoea kuhusu Virusi vya Ukimwi*			
104	Umewahi kusikia ugonjwa wa virusi vya ukimwi?	NDIYO ..1 LA…..2 →	ENDA Q119

105	Umepimwa virusi vya ukimwi?	NDIYO ..1 LA…..…2 →	ENDA Q119
106	Ulipimiwa wapi? Ulipimwa wapi virusi?	VCT ……1 KLINIKI YA MAMA WAJAWAZITO……2 KATIKA LEBU… ……3	
107	Tafadhali niambie matokeo yako ulipopimwa virusi, nia yangu ni ya utafiti na sitamwambia mtu yeyote.	ANA VIRUSI…1 HANA VIRUSI ..2 →	ENDA Q115
108	Je umemwambia mume wako matokeo hayo?	NDIYO …..1 LA…2 →	ENDA Q110
109	Mume wako alichukuliaje?	HAKUTAKA KUONGELESHWA ….1 ALIKUWA MKATILI ……...2 ALIHAMA KUTOKA NYUMBANI….3 ALINITOROSHA NYUMBANI ….4 ALIENDA KUPIMWA VIRUSI .5	
110	Ni sababu gani inafanya haujamjulisha mpenzi wako kuhusu matokeo yako?	KUOGOPA KUTOROSHWA…1 KUOGOPA KULAUMIWA KWA KULETA UGONJWA..….2 KUOGOPA UKATILI……3 INGINE(TAMBUA)	
111	Kama umefanyiwa uchunguzi ya kiwango cha chembechembe za CD4,	CD4 T CELL COUNT_____	

112	Unameza dawa ya kupunguza makali na nguvu za virusi?	NDIYO …..1 LA…..…2 ⟶	ENDA Q115
113	Kama ndiyo, umemeza dawa kwa muda gani?	MIEZI _____ MIAKA	
114	Unatumia dawa gani kwa sasa?	SEPTRIN……1 MULTIVITAMIN……...2 INGINE(TAMBUA) _____3	
115	Je, unafikiriuwezekano wako ya kupatavirusi vya ukimwi ni; kidogo, wastani, kubwaauhakuna hatariwowote?	HANA HATARI…… 1 KIDOGO……..2 WASTANI……3 KUBWA……4	
116	Mbona unafikiri uko na nafasi ndogo au hauna nafasi ya kupata virusi vya ukimwi?	HASHIRIKI KATIKA NGONO…1 HUTUMIA KONDOMU…2 ANA MPENZI MMOJA TU....3 HAJISHIRIKISHI NA WAPENZI WENGI…4 MPENZI HANA WAPENZI WENGINE….5	
117	Mbona unafikiri una nafasi wastani/ kubwa ya kupata virusi vya ukimwi?	HATUMII KONDOMU…….1 ANA WAPENZI WA NGONO ZAIDI YA MMOJA …..2 AMEONGEZEWA DAMU…3 INGINE(TAMBUA)	

118	Ni miezi mingapihayo tanguulipopimwavirusi vya ukimwi?	MIEZI _____	
119	Je, ungependa kupimwa virusi vya ukimwi?	NDIYO ……...1 ⟶ LA……2	ENDA Q121
120	Wakati huu sasaningependakukuombakama unawezakupimwa mara nyingine.Serikali inahimiza watuambaohawakupatikana na virusi mara ya kwanzakurudiatena uchunguzi baada ya miezi3. Kama hautapatikana na virusi, tutakuhimiza ubaki bila virusi kwa kuwa mpenzi moja ambaye ni mwaminifu kwakona ufanyengono kwa usalama.Kama uko na virusi tutakuelekezakwa matibabu zaidi.Ni muhimu sanakwa ajili yautafiti huukuwahojiwale ambaowanajua hali yao.Mshaurimshirikina aweke sahihikwenye fomu. **(Tumia fomu ya kibali)**		
121	Matokeo ya kupimwa virusi vya ukimwi	ANA VIRUSI……1 HANA VIRUSI….....2	
122	**(Uliza washiriki wote**) Umewahi kuwa na majadiliano yeyote na wahudumu wa afya kuhusu	NDIYO …1 LA..…2 ⟶	MWISHO
123	Kama ndiyo, nani alianza mazungumzo haya?	ANAYEJIBU MASWALI ……1 MFANYIKAZI WA AFYA ……2 INGINE(TAMBUA)…….3	

124	Ni taarifa gani kati ya zifuatazoinaelezea bora zaidi uzoefu wako na muhudumu wako wa afyawakatiunahudhuriahudu makatika hospitali?	KUPATA MIMBA BILA KUAMBUKIZA MTOTO…..1 MTAZAMO DUNI KUHUSU KUZAA WATOTO…….2 KUJADILIANA NAMI KUHUSU KONDOMU KAMA NJIA YA KUPANGA UZAZI…. .3 KUJADILIANA NAMI NJIA ZINGINE YA
125	Je, mhudumu wa afya alikusaidia kuelewa mambo kuhusu uzazi hulingana na_____ a) Hali ya kuwa na	c) Kuwa na virusi? NDIO LA d) Kutokuwa na virusi
126	Kama mashauriano yalikuwa mazuri, ni mabadiliko gani ulifanya kufuatia majadiliano yenu?	KUTOSHIKA MIMBA ISIYOPANGWA……1 KUANZA KUTUMIA NJIA YA KUPANGA UZAZI ----------2 KUJADILIANA NA MUME KABLA YA KUSHIKA MIMBA……..3 KUPATA MASHAURI YA UZAZI KUTOKA KWA MHUDUMU WA AFYA KABLA YA KUSHIKA MIMBA ……4
Asante kwa kushiriki kwenye mahojiano: WAKATI UMEISHA:_____		

Appendix IVC: Dholuo Questionnaire

2012 **NONRO MAR GOMBO KATA DWARO NYUOL KOD TIYO KOD YEDHE MAG KOMO NYUOL**			
WECHE MAG YANGRUOK			
G.	Namba mar yangruok mar penjo_____	**D**.	Date of Interview:_____
H.	Nying Japenjo _____	**E.**	Start time:_____
I.	Alama mar ng'ama penjo_____		
WECHE MAIYE KUOM JOGO MOYIE BEDO ACHIEL KUOM NONRO			
1	In gi highi adi?	_____ years	
2	Gweng midakie sani en mane?	CENTRAL (Masawa) …..1 NYANZA (Nyanza)…...2 WESTERN (Podhochieng)..3 NAIROBI (Nairobi) .....4 EASTERN (Ugwe)……5 RIFT VALLEY (Hoho Maling Ling)…...6 COAST (Dho WadhChumbi)……7	
3	Kar dak	RURAL (Kadala).….1 URBAN (Boma).....2	

4	Isedak e gweng masani kuom kinde marom nadi?	< Piny Mar Higa Achiel……1 1-2 Kind Higa Achiel Gi Ariyo…...…2 3-4 Kuom Higmi Adek Nyaka Ang'wen ..3
5	Gweng'I machon ne en kanye?	Masawa ……..1 Nyanza……..…..…….2 Podhochieng……...…..3 Nairobi …….....4 Ugwe……..…….…….….5
6	Gweng mane idakie chon	Kadala…….……..…….1
7	In e Oganda mar dhok mane?	Dhokuyu…….…….…1 Dholuhya...……...…..2 Dholuo……..3 Dhokamba….……..……..…4 Dhomeru…….……..….5 Dhoswahili..……..……...6 Dhomijikenda……..…….…..7
8	In e din mane?	CATHOLIC…….……..…1 PROTESTANT……..…….2 MUSLIM…….……....3

9	Sombi ochopo e rang'iny mane?	OK NASOMO……..1 ATIEKO PRIMARI ----------2 OKNATIEKO PRIMARI ----------3 AN GI LONY MAKENDE--------4 ASETIEKO SECONDARI----5 ASETIEKO KLAS 13 – 14-------6	
10	Chalni mar tichni nadi?	ONDIKA TICH----------1	
11	Chalni mar keny chal nadi?	AKENDO----------1 POKAKENDO----2 NE WAWERE GI DHAKO ---3	DHIE**Q12** DHIE **Q17**
12	Nyawadu midakgo ni gi higni adi?	HIGNI ----------	
13	Chal mar tich ma nyawadu chal nadi?	ONDIKE TICH----------1 ONDIKRE KENDE----------2	
14	Nyawadu odak e gweng' mane?	MASAWA----------1 NYANZA……...2 PODHOCHIENG----------3 NAIROBI……...4 UGWE----------5 MAR HOHO MALING LING---------6	

15	Rang'iny mamalo mar somb nyawadu ogik kanye?	NOKOSOMO/SOMB NASARI-----1 NOTIEKO PRIMARI --------2 NOKOTIEKO PRIMARI-------3 INGI LONY MAKENDE-----4 NOTIEKO SEKONDARI----------5 NOTIEKO KLAS 13 – 14-------6
16	Usebet kanudak kanykla kuom kinde marom nad? Kata e kendruoku kuom kinde marom nadi?	NI PINY MAR HIGA 1 ……..1 KUOM HIGA NYAKA 2 …….2 KUOM HIGNI 3 NYAKA 4 …….3
17	Yutou mar ot en manyonge ma Kenya adi?	PINY MAR SILING 5,000/- …1 KOA SILING 5000/- NYAKA 9000/- ..2 KOA SILING 9000/- NYAKA 14000/--3 KOA SILING 14001/- NYAKA 19000/- ….4 KOA SILING 19001/- NYAKA MOMEDORE ….5
18	Kar chakruok pi maru en mane?	PI MFEREJI ……. 1 PI BUR …..2 PI ATARO … 3

19	Chakruokno mar pi nikanye?	KARWA ----------1 KAR DAKWA----------2 KUONDE MAMOKO----------3	
20	Jogi midakgo tiyo gicho machal nadi?	CHO PI ----------1 CHO MOGER OKO MAR ----------2 BUNGU/OK----------3	
21	Uchulo ot maudakie kose udak ka ma ok uchul?	EN ODWA WAWEGI----------1WACHUDO DWE KADWE----------2 OK WACHUD KALUORE GI RUSA WUON OT----------3 WADAK ADAKA MAONGE RUSA---4	
WECHE MAG MINE KUOM GIMA KOD NYUOL			
22	Isebedogae gi ich kuom kinde manok?	EE----------1 AA----------2 ⟶	**SKIP TO Q28**
23	Isenyuolo nyithindo adi mangima?	KWAN MANGIMA……	
24	Adi mosetho?	KWAN NYITHINDO MOSETHO----	

25	Chal nyathi mokuongo ni nadi?	NGIMA----------1 OSETHO----------2	
26	Nyathini mogik neen nyako kose wuoyi?	MAWUOYI----------1 MANYAKO----------2	
27	Nyuol mari bedoga bang kinde marom nadi?	PINY MAR DWECHE 18------1 DWECHE 18 NYAKA 24-------2 MOHINGO DWECHE 25-------3	
GOMBO MAR BEDO GI NYALO MAR NYUOL GI GIMA OPAR			
28	Ipek?	EE-------1 OOYO----------2 →	KALPENJO 32
29	Nichano bedo gi ich kose nibedo gi paro mar bedo gi ichi?	EE----------1 OOYO----------2	
30	Bang nyathi mitingoni iparo bedo gi nyathi moro?	EE ----------1 OOYO----------3	
31	Kapenjo namba 29 en ooyo, Ang'o miyo ibedo mapek gi sani ka ne ok ochan/Neok ogen?	NE AYUDRA NI APEK------1 NE OK AYUDO WACH GENG'O ICH E OSIPITAL-2 NAWEYO TIYO GI CHENRO MAR NYUOL NIKECH ABEDOGA MATUO KATIYOGO-----3 NAPEK KANEATIYO GI	

32	Igeno bedo gi ich kata ichmoro?	EE ----------1 OOYO----------2
33	Weche mage ma nyiso e yo makare pachi ewi yudo nyathi?	ADWA BEDO GINYATHI SANI SANI----------1 ADWABEDO GI NYATHI KUOM HIGNI ARIYO-2 DAHER BEDOGI NYATHI MACHIEGNI----------3 OK AN GI RATIRO MAR BEDOGI NYATHI KINDE MABIRO----4
34	Dine iher bedo gi nyithindo adi?	KAR KWAN NYITHINDO MIGOMBO----------
35	In gi geno mar yudo kata bedogi nyithindo adi?	KAR KWAN NYITHINDO MIGENO----------
36	Nyawadu kata chuori geno bedo gi nyitindo adi?	KAR KWAN NYITHINDO MANYAWADU DINE OGENO BEDOGO----------
37	Gin nyithindo adi? Miparo ni chuori kata nyawadu geno bedo go	KAR KWAN NYITHINDO MANYAWA DU GENO---------- OK ANG'EYO----------
38	Kit nyathi mane madine iher bedo go?	MAWUOYI----------1 MANYAKO----------2

39	Kit nyathi mane machuori kata nyawadu dine her bedo go?	MAWUOYI----------1 MANYAKO----------2				
KIT PARO MAR PIM TPB MALOKRE						
Kiyie wachna kata okiyie gi weche maluwogi **Aparo ni nyaka abed gi nyathi kata nyathi moro**		Ayiego chuth	Ayiego	Ok ang'eyo	Ok ayiego	Ok ayiego chuth
40	Chopo singo ekind chuora koda					
41	Rit gi arita minyaloyudo e higni mag tiyo					
42	Jakony Ndalo Mabiro					
43	Kawo ting mwandu na					
44	Kido moher					
45	Kadipo in owuok tho mar masira mopore mar nyathi achiel					
46	Ranyisi ni dhako mangi kute nyalo nyuolo nyathi maonge gi kute mag ayaki					
47	Ka en winjruok ekind dichuo gi dhako					
48	Bedoni machiegni e kindi gi jonyuol ni					
49	Bedoni machiegni e kindi gi wuon odu					
50	Mor gi ilo gi romo miyudo koa e ngima					
51	Iwinjo ka in kare kaka ng'ama dhako?					
Kiyie nyisa ka iyiego kata ok iyieg gi weche maluwegi?						
52	Pek mar mwandu gi pes piny					
53	Hinyo ngimana					

54	Paro mar yudo nyathi man gi kute mag Ayaki					
55	Dok chien mar CD4 magolo oko kata makelo hinyruok kuom tuoche					
56	Weruok kapok chal mar kute mag ayaki ok ofueny					
57	An gi nyithindo moromo					
GIK MATIMRE MAPILE MAG DWARO NG'EYO GIK MOKO KATA TIEND WECHE MOKO						
Kiyie wachna kiyiego kata kaokiyie gi weche maluwegi, yieruokwu mar bedo gi nyathi, nyathi moro machielo kuom higni ariyo mabiro luore		Ayiego chutho	Ayiego	Ok ang'eyo	Ok ayie	Ok ayiego chuth
58	Dichuo kata nyawadu					
59	Wuon odu					
60	Kwaru monyuoloni dichuo					
61	Osiepe					
En ng'ano manyalo dagi kata tami bedo gi nyathi/nyathi moro?						
62	Migawo maok mar sirkal					
63	Jokanyo mag kanisa					
64	Nyimine					
65	Owete					
66	Mama/minwa					
67	Baba/Wuonwa					
GIK MABEDO GITEKO MARIEYO NGIMANA						

Kiyie wachna kiyiego kata okiyiego weche maluwegi. Chal maluwegi kata chal mar gikmoko madine omiyo adwaro bedo gi nyathi/nyathi moro kuom higni ariyo mabiro		Ayiego chutho	Ayiego	Ok ang'eyo	Ok ayie	Ok ayiego chuth
68	Paro mar bedo gi nyath achiel					
69	Loko nyathi man gi kute					
70	Ka dichuo en nyathi achiel kende					
71	Tich					
72	Chal ngima mabedogi lokruok					
73	Kony mawuok kuom anyuola					
74	Ka CD4 ni piny mar 350					
Kiyie, wachna kiyiego kata okiyiego weche maluwegi. Chal maluwegi kata kal mar gikmoko madine obedo matek kata geng'oni bedo gi nyathi/nyathi moro kuom higni ariyo mabiro.		Ayiego chutho	Ayiego	Ok ang'eyo	Ok ayie	Ok ayiego chuth
75	Ngima marach					
76	Chal mar mwandu gi pes piny.					
77	Chandruok kawuok e yor konyruok/nyuol mokuongo kuom					
78	Parruok mar yiero mar chiemo mar nyathi mayom					
79	Chal ngima mar nyawadu					
CHENRO MAR KOMO NYUOL MAR MINE MA OK PEK E KINDEGI						
80	Bende itiyo gi chenno moro amora masani mar geng'o mako ich?	EE ---------1 OOYO-----2	→ DHIE EPENJO 83			

81	Bende igeno mar tiyo gi chenro ma sani mar geng'o mako ich?	EE---------- 1 → DHIE EPENJO 83
82	Kaen ooyo, kiyie to wach ni ang'o momiyo?	GEN KANISA----------1 OK OTEGNO ERIWRUOK DEL KATAENINDRUOK----------2 LUORO MANYATIMRE MOTELO---3 LUORO MANYAWADU NYALO TIMO---4 MAR/YUTO/KATA MABOR AHINYA----------5
83	En chenro mane mar geng'o mako ich mitiyogo diher mar tiyogi?	AMUONYA ----------1 KIYIE LER KIDO---------- CHUOPO SINDAN----------2 TIYO GI RABUOYUNGA--------3 TIYO GI RABUOYUNGA MAR MON-4 SINDAN MIWEYE IYI DEL-----5 IUCD…….6 GENGO' NYUOL GI DHODHO NYATHI------7
84	En aNg'o manomiyo iyie chenroni?	CHAL MABER MOLOYO -------1 CHUDO (MAYOT)----------2 NYALO APANDA----------3

85	Jaodi be ong'eyo ni itiyo kata igeno tiyo gi chenro ni mar geng'o mako ich kata nyuol?	EE ----------1 AA/OOYO----------2
86	Diwach ni tiyo/genomartiyogi yedhe mag geng'o makoich/nyuol en	EN PARONI MOGIK ----------1 EN PARO MAGIK KENDE MAR NYAWADU-2 EN PAROWA KANYAKLA MOGIK---3 MAMOKO NYIS----------4
87	Bende ipar ni chuori kata nyawadu oyiego kata okoyiego tij geng'o nyuol masani?	OYIEGO----------1 OKOYIEGO----------2
88	Bende dinyis ng'ato gima iparo ni owinjore otigi yedhe migeng'ogo nyuol?	EE----------…….1 OOYO----------2
89	Isetiyo gi rabuoyunga kuom dweche auchiel mokadho?	EE----------1 OOYO----------2
90	Isetiyo gi rabuoyunga nyadidi kuom dweche auchiel mokadho	ATIYOGO NDALO DUTO ---------1 ATIYOGO NDALO MANG'ENY----2 ATIYOGO SECHE MOKO------3 OKATIGO AHINYA----------4
91	Itiyo gi rabuyunga ahinya kinde mage?	GI NYAWADWA MWARIUREGO---1 GI NYAWADWA MWARIUREGO EYOR APOYA---2
92	Bende isewinjoga tiyo gi yedhe mag komo nyuol moloyo achiel?	EE ----------1 OOYO----------2

93	Gengruok mar yethe mag geng'o nyuol ariyo en ang'o?	TIJ RABUOYUNGA ----------1 TICH MOWINJORE MAR CHENRO MAR GENGO NYUOL KOD RAP OYUNGA E SECHEGO-----2TIJE MOTEGNO ARIYO MAG CHENRO MAG GENG'O NYUOL-----3 OK ANG'EYO----------4
94	Bende iparo ni jomao kendre man gi kute mag ayaki onegoti gi rabuoyung'a kinde duto?	EE----------1 OOYO----------2
95	Ang'o momiyo ji man gi kute magayaki onego oti gi rabuoyunga	GENG'O MIRE KUTE TUO---------1 GENGO TUOCHE MAG NYAYE ----2 GENGO MIYO NYAWADGI TONG TUO----3
96	E kinde manok mokadho kata mokalo bende isewinjoe ewi chenro mar geng;o nyuol enyakalondo	EE----------1 OOYO----------2
97	E kinde dweche manok mokalo bende isenena ewi chenro geng'o nyuol e tipo?	EE----------1 OOYO----------2
98	E kinde monok mokalo bende isesomee, ewi chnro margong'o nyuol e obolle kata gaset?	EE----------1 OOYO----------2

Ka ok iti gi chenro geng'o nyuol, kiyie wach ane kiyie kata ok iyie gi weche maluwegi		**Ayie**	**Ok ayie**
99	Ok anyal yudo chenro mag geng'o nyuol e kar chieth	1	2
100	Asewinjo ni chenro mag geng'o nyuol kelo chandruok ni del	1	2

101	Mon matiyo gi yedhe yiend geng'o nyuol nyalo bedo maonge gi chanruok	1	2
102	Chuora oko yiena tiyo gi yiend geng'o nyuol	1	2
103	Adwaro nyathi moro mayom machiegni	1	2
RIEKO MAG KUTEMAG AYAKI, KIT PARO MANG'ATO ONG'IYE			
104	bende isegawinjoe kit tuo miluongo ni KUTE/ Ayaki?	EE …1 OOYO……2 →	TO Q119
105	Bende isekawo pim mar kute maq Ayaki?	EE----1 OOYO-------2 →	DHIE E PENJO MAR 119
106	Pim notim kanye?	KAR PUONJ GI HOCHO MAR PIM (VCT) --1 KLINIK MAR JOMAPEK ---2 OT JOSAYANS MIPIME GIKMOKO-------3	
107	Kiiyie to wariwre kanyakla eduoko mari, en mar nonroni kendo ok bi riwruok gi ng'ata ang'ata nying bende ok bindik e otasni.	AN GI KUTE----------1 AONGE KUTE-------2 →	DHIE E PENJO 115

108	Bende isefulo ni nyawadu kata chuori duokoni?	EE----------1 OOYO-----2 →	DHIE E PENJO 110
109	Chuori kata nyawadune otimo ango bang fulo ne duoko mari kar kute ayaki?	NOMAKO DHOGE ---1 NODHAWRE KATA OBEDO JALWENY----2 NODAR EODWA--------3 NORIEMBA E. ODWA-------4 NOPIMRE KUTEMAGAYAKI --5 MAMOKO NYIS-----6	
110	Ang'o mosemoni fulo ni chuori/nyawadu dwoko mari mag kute ayaki?	LUORO MAR RIEMB-------1 LUORO MAR WACHONI AN EMANAKELO TUO-2 LUORO MAR BEDO JALWENY E OT-------3 MAMOKO NYIS----------4	
111	Ka osepimi CD4 rang'iny mari masani mar CD4 mokwan en mane?	CD4 T CELL COUNT_____	

112	Itiyo gi amuonya mag kute mag ayaki	EE-----1 OOYO—2 → DHI E PENJO 115
113	Isetiyo gi amuonya mag kute mag ayaki kuom kinde marom nadi?	----------DWECHE
114	Imuonyo yedhe mage kindegi	SEPTRIN……..…1 MULTIVITAMIN…...2 MAMOKO NYIS-------3
115	Iparo in thuoloni mar yudo kute ayaki tin, niediere, nimalo ahinya kata onge gimoro manya lo kelo hinyruok kata chandruok	ONGE GIMAKELO CHAND RUOK----------1 TIN---------2 NIEDIERE----------3 NIMALO----------4

116	Ang'o momiyo iparo ni in gi thuolo matin mar yudo kute mag ayaki?	OK ARIWRA----------1 ATIYO GI RABUOYUNGA-----2 AN GI NYAWADWA ACHIEL KENDE----------3 AGENG'O KAR KWAN JOWADWA----------4 NYAWADWA NIGI NYAWADGI------5 MAMOKO NYIS-------6
117	Ang'o momiyo iparo in in gi thuolo madiere kata mamalo mar yudo kute? Mag ayaki?	OK ATI GI RAP OYUNGA---1 AN GI JOMA ARIWRAGO----2 AGOLOGA REMO ----4
118	En dweche adi chakre nopimi ni kute magayaki?	----------DWECHE
119	Diher kawo pim mar kute mag ayaki?	EE----1 → 121 DHIE PENJO OYOO---2
120	E kindeni, Daher kwayi ka diyie kendo pim mar kute mag ayaki sirkal jiwo ji mondo ong'e chalgi kuom kawo pim to ka ionge kute mag ayaki e pim mokuongo ber kainuoyo kendo bang higa achiel.(Dhie fom mar Chip thuolo mar hocho gi Pim kute ayaki)	
121	Dwoko mar pim mar kute mag ayaki	NIGI KUTE AYAKI----------1 ONGE KUTE AYAKI----------2

122	(Penj jomabiro duto) usebedo gi twak gi jotij Ngima kuom bedo giteko magyodo gi chenro mar geng'o nyuol	EE------1 OOYOO------2 → GIKO NONRO
123	Ka en ee ng'ama nochako twak?	JADUOK PENJO----------1 JATIJ NGIMA----------2 MAMOKO NYIS----------3
124	En wach mane e kind maluwe manyiso maber mogik ngiyoni gi jatiji mar ngima e kinde midhi e ethieth e ospital?	YO MABER MOGIK MAR YUDOICH MAOK IKELO CHANDRUOK NI NYATHINI MAYOM……..1 KIT PARO MODOK CHIEN MARTINGO NYATHI……..-2 TWAK KODA TIJ RABUPOYUNGA KAKA YOR GENG'O NYUOL---------3 TWAK KODA EYORE MAMOKO MAG GENG'O NYUOL----------4
125	Jatij ngima nokonyi makare mar ngeyo chal mar bedo gi nyodo nyuol madhi gi a) Chal mar bedo gi kute ayaki? b) Chal mar bedo maonge kute ayaki?	e) Chal mar bedo gikute ayaki EE OOYO f) chal mar bedo maonge kute ayaki EE OOYO

126	Ka twak ne ber lokruok mage manibedogo kaluore gi twak mari kod jatij ngima?	NI KIK AYUD ICH MAONGE CHENRO-------1 CHAKO TIMO, CHENRO MAG GENGO NYUOL------2 TWAK GI CHUORA KATA NYAWADWA KAPOK AMAKO ICH -----3
Ero kamano kuom bedo e twak kinde penjo **SAA CIKO:**		

Appendix V: Key Informant Interview

Key Informant Interview (KII) guide *(Muongozo wa majadiliano ya wahusika muhimu)*

Themes	Questions
Fertility desire and intention *(Hamu na nia ya uzazi)*	In your opinion how fertility is desires and intentions among women of reproductive health influenced? *(Kwa maoni yakonijinsi gani uzazi,tamaananiamiongoni mwa wanawakewenye afya ya uzazi hujitokeza?)* How often do you discuss with women of reproductive age their fertility intention? *(Mara ngapi huwaunajadili nawanawakewenye umri wa kuzaa nia ya uzaowao?)*
Fertility and HIV status *(Uzazi na virusi vya ukimwi)*	What is your thought/perception about pregnancy among HIV positive women? (*Je, nimawazo au mtazamo gani unao juu ya mimbamiongoni mwa wanawakewenye virusi vya UKIMWI?)* How are health care providerssupporting HIV positive women realize their fertility goals *(Ni vipiwafanyakazi wa afyawanasaidiawanawake wenye virusi vya ukimwi kutambuamalengo yao yauzazi?)* How can this support be improved? (*Ni vipi usaidizi huu unaweza kuboreshwa?)*

Utilization of contraception among women of reproductive age *(Matumizi ya njia za mpango wa uzazi kwa wanawake wa umri wa kuzaa)*	According to KDHS 2008-2009 only 42% of women use modern family planning; why are many (58%) women not using modern family planning? *(HapaKenya, kulingana naKDHS2008-09ni asilimia42 yawanawake ndiowanaotumia mpango wa uzaziwa kisasa; unafikirini kwaniniwanawake wengi(asilimia52)hawatumii mpango wa uzazi wa kisasa?)* How in your judgement would you rate utilization of contraceptive among HIV positive compared to their HIV negative counterpart? *(Je, kwa maoni yako, ukilinganisha wanawake wenye virusi na wasio na virusi, unaweza kusema matumizi yako vipi?)*

Appendix VI: Focus Group Discussion guide

Focus Group Discussion (FGD)

(Mazungumzo Ya Kundi)

Themes	Questions
Fertility desire and Intention *(Hamu na nia ya uzazi)*	Why do women desire to have children?(Kwa niniwanawakewanatamani kuwa nawatoto?) How do they make decision as to when to have children and the number of children to have? (Jinsi gani waohufanya uamuzikuhusu wakatiwa kupata watoto naidadi yawatoto?) How does HIV status affect desire and intention of women to have children? (Ni jinsi gani virusi vya ukimwi vinaadhiri hamu na nia ya mwanamke anayetaka mtoto?)
Family planning (*Mpango wa uzazi)*	What contraceptive methods have you used? (Ni njiagani *za mpango wa uzazi ambazo umetumia?)* What did you like/dislike about them? (*Je, ni nini ulichukia kuhusu mpango huo?)* What are your partner's attitudes towards contraception? (*Je, mitazamoya bwana au mke wako iko vipi kuhusu mpango wa uzazi?)* In Kenya according to the 2008-09 KDHS only 42% of women use family planning; why do you think only a few women are using family planning? *(Hapa Kenya, kulingana naKDHS2008-09 ni asilimia42 yawanawakewanatumia mpango wa uzazi; Unafikirini kwaniniwanawake wachache tundio wanaotumia mpango wa uzazi?)*

	How does HIV status affect the utilization of family planning among women of reproductive age? *(Jinsi gani hali ya kuwa navirusi vya ukimwi inaathirimatumizi yampango wa uzazimiongoni mwa wanawakewenye umri wa kuzaa?)*
HIV knowledge, attitude and practice *(Maarifa, Mwelekeo na mazoea kuhusu virusi vya ukimwi)*	What information do you know about HIV? *(Una taarifa ganikuhusu UKIMWI?)* How does knowledge of HIV status influence fertility desire and intentions of *(Ni kwa jinsi ganihabari kuhusu virusi vya ukimwi inashawishi tamaana malengo ya uzazi?)*
Reproductive health needs of HIV status *(Mahitaji ya afya ya uzazi na hali ya kuwa na virusi vya HIV)*	In your opinion do you think women both HIV positive and HIV negative get adequate support from health care providersto manage their reproductive health needs? *(Kwa maoni yakounadhaniwanawakewalio na virusi nawasio na virusiwanapata msaada wa kutoshakutoka kwawafanyakazi wa afya ili waweze kusimamiamahitaji yaoya afya ya uzazi?)* In your opinion how can health care providersimprove their support for HIV positive women who have fertility intention to successfully have an HIV negative baby? *(Kwa maoni yako, je nijinsi ganiwafanyakazi wa afya wanwezakuboreshamsaada waokwa wanawake walio na virusi vya ukimwiambao wanania ya kuzaaili wazae watoto wasio na virusi?)*

Appendix VII: Request for approval to conduct study at the hospital

In charge Date:

(Name of hospital)

RE: APPROVAL TO CONDUCT STUDY AT THE HOSPITAL

I am writing to requesting for your approval to conduct a research study at the hospital. The study title is FERTILITY DESIRES, INTENTIONS AND CONTRACEPTIVE BEHAVIOUR OF HIV-INFECTED AND UNINFECTED WOMEN IN TWO CONTRAST REGIONS OF KENYA.

The purpose of the study is to investigate factors influencing fertility desire and intentions among HIV positive women of reproductive age and how these factors may influence contraceptive use compared to HIV negative women of reproductive age.

Criteria of selection of Participants: women between the age of 15-49 years from comprehensive care clinic and Child Welfare clinic. Fertility intention and unmet need of family planning among HIV infected women of reproductive age has implications for mother to child transmission of HIV (MTCT). The results of the study will inform development of effective reproductive health services that will meet the needs of HIV-infected women and support elimination of MTCT. The study will be conducted under the supervision of Prof L. Gitonga and Prof Zipora Nganga both of Jomo Kenyatta Unversity of Agriculture and Technology and Dr Patrick Orege of Kenya Medical Research Institute Kisumu.

The study is being conducted in six hospitals three in each region Nyanza and Central, covering two counties in each region. The study hospitals are distributed as shown on the table below:

Central region	County	Nyanza region	County

Nyeri PGH	Nyeri	Nyanza PGH	Kisumu
Kiambu DH	Kiambu	Ahero DH	
Nazareth Mission H		Kendu Adventist H	Hombay

The study is a mixture of quantitative and qualitative. Quantitative data will be collected by Research assistance through an interviewer-administered questionnaire taking between 45-60 minutes with HIV-infected and uninfected women of reproductive age. Completed questionnaire for each day will be locked in mothers2mothers room at the end of data collection the principal investigator transport all to Nairobi. Research Assistants have been trained in ethical conduct of research with human participants to ensure the rights, welfare and safety of participants. CCC clients will be selected through systematic random sampling from the CCC register and a guide has been developed to assist Research Assistants in calling clients to schedule appointment to participate in the research. CWC clients will be approached when they come for services and a s guide has been developed to guide Research Assistants. Qualitative data will be collected through FGD with HIV Infected and Uninfected at two hospitals in each region and KII will be conducted by health care providersat CCC and PMTCT clinics. FGD and KII will be conducted by the Principal investigator. Informed consent document containing information sheet and consent form is available and all participants will be given all information related to the study before signing consent to participate in the study. The study received approval from ERC-KEMRI.

Kindly contact me should you have any further questions.

Sincerely yours,

Milker Simba

Principal Investigator

PhD student Jomo Kenyatta University of Agriculture and technology: Tel No: 0722 528 736