

**CONTRACEPTIVE USE AND REPRODUCTIVE DESIRE AMONG HIV-1  
DISCORDANT COUPLES IN NAIROBI,**

**KENYA**

BY

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## DECLARATION

I declare that this dissertation is my original work and that it has not been presented for award of a degree in any other university:

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## DISSERTATION APPROVAL

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## **DEDICATION**

This dissertation is dedicated to my husband Stanley and my children Mark and Amy for their constant support during its compilation and for sacrificing a lot of family time for me to complete this work.

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## TABLE OF CONTENTS:

Declaration .....	ii
Dissertation approval .....	iii
Dedication .....	iv
Acknowledgements .....	v
Table of contents.....	vi
List of figures.....	viii
List of tables.....	ix
List of abbreviations/ acronyms.....	x
Definition of operational terms .....	xii
Abstract.....	xiii
CHAPTER1:	
INTRODUCTION/BACKGROUND.....	1
CHAPTER 2: LITERATURE REVIEW .....	3
2.1: HIV SERO-DISCORDANCE .....	3
2.2: CONTRACEPTION AND FERTILITY AMONG PEOPLE LIVING WITH HIV.....	4
2.3: FACTORS AFFECTING CONTRACEPTIVE USE AND FERTILITY INTENTION.....	6
2.4: HEALTH CARE PROVIDER INFLUENCE ON CONTRACEPTION AND FERTILITY INTENTION...9	
CHAPTER 3: STATEMENT OF THE RESEARCH PROBLEM.....	12
3.1: CONCEPTUAL FRAMEWORK .....	12
3.2: RESEARCH PROBLEM.....	13

3.3: JUSTIFICATION.....	14
3.4: OBJECTIVES.....	16
CHAPTER 4: METHODOLOGY.....	17
4.1: STUDY DESIGN.....	17
4.2: STUDY AREA.....	17
4.3: STUDY POPULATION .....	18
4.4: SAMPLING AND RECRUITMENT PROCEDURE.....	19
4.5: ELIGIBILITY CRITERIA.....	21
4.6: DATA COLLECTION.....	22
4.7: DATA HANDLING.....	26
4.8: MINIMIZATION OF ERRORS.....	30
4.9: ETHICAL CONSIDERATIONS.....	30
4.10: STUDY LIMITATIONS.....	31
CHAPTER 5: RESULTS.....	33
5.1: SOCIO-DEMOGRAPHIC CHARACTERISTICS.....	34
5.2: FAMILY SIZE, SONS AND DAUGHTERS.....	35
5.3: FERTILITY DESIRE.....	36
5.4: RELATIONSHIP BETWEEN DESIRE FOR MORE CHILDREN AND DIFFERENT VARIABLES.....	39
5.5: CONTRACEPTIVE KNOWLEDGE, ATTITUDE AND PRACTICES.....	42
5.6: RELATIONSHIP BETWEEN CONTRACEPTIVE USE AND DIFFERENT VARIABLES.....	49
5.7: HEALTH CARE PROVIDERS CHARACTERISTICS.....	54

CHAPTER 6: DISCUSSION .....	57
CHAPTER 7: CONCLUSION .....	62
CHAPTER 8: RECOMMENDATIONS .....	64
REFERENCES: .....	66
APPENDIX I: INFORMED CONSENT FOR FGD.....	71
APPENDIX II: INFORMED CONSENT FOR INTERVIEWER ADMINISTERED QUESTIONNAIRES.....	75
APPENDIX III: INFORMED CONSENT FORM FOR HEALTH CARE PROVIDERS.....	79
APPENDIX IV: FOCUS GROUP DISCUSSION GUIDE.....	82
APPENDIX V: INTERVIEWER ADMINISTERED QUESTIONNAIRE.....	85
APPENDIX VI: HEALTH CARE PROVIDER QUESTIONNAIRE.....	90
APPENDIX VII: ETHICAL REVIEW BOARD APPROVAL LETTER .....	93

**LIST OF FIGURES**

Figure 3.1: Conceptual Framework .....	12
Figure 4.1: Diagrammatic representation of sampling procedure.....	21
Figure 5.1: How HIV diagnosis changed desire for more children (N=137) .....	36
Figure 5.2: Contraceptive Knowledge (N=350 .....	42
Figure 5.3: Reasons given for not using dual contraception (N=254) .....	45
Figure 5.4: The most likely contraception health care provider would prescribe to HIV positive and negative woman .....	55



## LIST OF TABLES

Table 4.1: Outcome variables.....	26
Table 4.2: Predictor variables .....	27
Table 5.1: Socio-demographic characteristics of study participants (N=350) .....	33
Table 5.2: Number of children and fertility desire (N=350) .....	35
Table 5.3: Desire for more children and socio-demographic factors (N=313) .....	40
Table 5.4: Desire for more children by gender and sero-status (N=313) .....	41
Table 5.5: Reported use of various methods of contraception by participants(N=350).....	44
Table 5.6: Contraception characteristics.....	48
Table 5.7: Pregnancy rates (N=175).....	49
Table 5.8: Contraception used and socio-demographic and other factors (N=175).....	50
Table 5.9: Contraception use by female participants and their age(N=175).....	51
Table 5.10: Comparison of women who desired more children and those who did not and their contraceptive use .....	52
Table 5.11: Correlates of association for using dual contraceptives among women in HIV discordant relationship who do not want/not sure if they want more children .....	52
Table 5.12: Socio-demographic characteristics of health care providers (N=27).....	54

## **LIST OF ABBREVIATIONS/ACRONYMS**

<b>AIDS</b>	Acquired Immune Deficiency Syndrome
<b>ARV</b>	Antiretroviral
<b>CAT</b>	Couples Against Transmission Study
<b>CHCT</b>	Couple HIV Counseling and Testing
<b>DMPA</b>	Depot- medroxyprogesterone acetate
<b>FGD</b>	Focus Group Discussion
<b>GUD</b>	Genital Ulcer Disease
<b>HAART</b>	Highly active antiretroviral therapy
<b>HIV</b>	Human Immunodeficiency Virus
<b>IUD</b>	Intrauterine Device, a contraception method
<b>KAIS</b>	Kenya AIDS indicator Survey
<b>KDHS</b>	Kenya Demographic and Health Survey
<b>KNH</b>	Kenyatta National Hospital
<b>NET-EN</b>	Noresthisterone Enathate ( Norgynon in Kenyan market)
<b>NASCOP</b>	National AIDS and sexually transmitted disease control program
<b>NIH</b>	National Institute of Health

<b>PrEP</b>	Pre-exposure prophylaxis
<b>PMTCT</b>	Prevention of Mother to Child Transmission
<b>SPSS</b>	Statistical Package for the Social Sciences
<b>STI</b>	Sexually Transmitted Infection
<b>UNAIDS</b>	The Joint United Nations Programme on HIV and AIDS
<b>VCT</b>	Voluntary Counseling and Testing
<b>WHO</b>	World Health Organization

## DEFINITION OF OPERATIONAL TERMS

ARV/HAART	Antiretroviral medicines used in combination for treatment of HIV infection
COUPLE	Partners in a sexual relationship
CD4 Cells	T helper lymphocytes with CD4 receptors that play a critical role in the function of the immune system to fight off infection
DISCORDANT COUPLE	A couple whereby one partner is HIV positive and the other HIV negative
CONCORDANT NEGATIVE	A couple whereby both partners are HIV negative
CONCORDANT POSITIVE	A couple whereby both partners are HIV positive
INDEX PARTICIPANT	HIV positive partner in a HIV sero-discordant couple
PMTCT	Prevention of mother to child transmission; care given to pregnant HIV positive mother to prevent the child's infection during pregnancy and breastfeeding.
PARTNER PARTICIPANT	HIV negative partner in a HIV sero-discordant couple
REPRODUCTIVE AGE	WHO definition as a female of 18 - 46 years of age
VIRAL LOAD	Levels of virus found in the blood of a HIV infected person

## **ABSTRACT**

### Introduction

Most HIV transmission worldwide occur among HIV discordant couples (where one partner is HIV infected and the other is not), either sexually or in association with pregnancy, childbirth or breastfeeding. This makes discordant couples an important cohort for HIV transmission prevention strategies. Use of contraceptives reduces vertical transmission by preventing unwanted pregnancies while use of condoms reduces transmission from the positive to the negative partner. Contraception uptake in sub Saharan Africa is low.

Discordant couples face unique challenges relating to their reproductive health. They have difficult choices to make concerning sexuality, fertility, parenthood desires and family life. Counseling and health provider knowledge on how to balance the reproductive desire of the couples and yet reduce transmission is crucial.

### Objectives

The main objective of the study was to describe the contraceptive practice, experience and attitude and the determinants of reproductive desire among HIV sero-discordant couples enrolled in the Pre-exposure Prophylaxis Study (PrEP) and in addition describe the role of the healthcare providers in discordant couple reproductive health.

### Methodology

This was a cross-sectional study done at the PrEP Study Clinic in Kenyatta National Hospital, Nairobi between March and July 2011. Women of reproductive age (18-46 years) and their partners in a

heterosexual sero-discordant relationship and health care providers who work amongst discordant couple cohorts were enrolled in this study. Structured questionnaires were used to collect quantitative data and Focus group discussions (FGDs) were used to collect qualitative data.

## Results

The study surveyed 350 participants (175 couples) of who 84 couples had a female HIV negative and 91 couples had a female HIV positive partner. Three FGDs were held, stratified by gender and sero-status. Overall, 190(54.3%) of the participants wanted to have more children. Majority 159(90.9%) of the women used some method of contraception. Only 49(28%) of these women used dual contraception. Of the women who did not use dual contraception, fear of side effects 56(44.4%), planning on conceiving 39(31.0%), condoms are sufficient as contraception 33(26.2%) and partner objecting to their use of contraception 25(19.8%) were identified as the commonest reasons for not using dual contraception. The HIV status, age and the number of children were associated with wanting more children. In the FGDs, the availability of PMTCT, ARVs, sperm washing were promoters to increasing desire for children. Relationship dynamics, domestic violence and discussing contraception with the partners were promoters to contraception use. Overall, 12(6.9%) of the women were pregnant, with an equal number of HIV positive and negative women. All pregnancies were unplanned. Of these 9(75%) were on condoms only at the time the pregnancy happened. Majority 19(70.4%) of the health care providers were adequately trained. The contraception they prescribed to the HIV positive or negative woman did not differ.

## Conclusion

In this HIV discordant couple cohort with intensive risk reduction counseling to prevent HIV, less than one third of couples reported use of dual contraception. This may be partially due to reproductive

desire in the cohort, with over half desiring future children, particularly younger individuals with fewer children. However, a surprising number of individuals without reproductive desire did not use dual contraception. Improved counseling to address both fertility intention and need for dual contraception is necessary for discordant couples. In addition, empowering the health care providers with knowledge on the special reproductive needs of discordant couples will meet their reproductive health needs to achieve safe and planned parenthood.

## **CHAPTER 1: INTRODUCTION/ BACKGROUND**

The HIV/AIDS epidemic is one of the biggest challenges facing mankind today. It is a serious public health and economic concern affecting all nations.

According to the Joint United Nations Programme on HIV and AIDS (UNAIDS), there are 33 million HIV infected people worldwide; and two thirds of these are in sub-Saharan Africa where adult prevalence is 7.2 %. Of all new global infections, 64% occur in sub Saharan Africa where transmissions occur predominantly through heterosexual sex or from mother to child. Of all new heterosexually acquired infections, 60.3% to 94.2% are acquired from a spouse or a stable partner [1]. In Sub-Saharan Africa the highest HIV prevalence is among people in stable relationships, most of who are sero-discordant, meaning that one partner is HIV infected while the other is not. According to the Kenya AIDS Indicator Survey (KAIS) of 2007, 6% of Kenyan couples are HIV sero-discordant. In a HIV discordant relationship the negative partner stands up to a 100 fold chance of sero-conversion compared to a counterpart in a concordant negative relationship [2].

Discordant couples therefore are an important cohort for HIV transmission prevention strategies. Use of condoms reduces transmission from the positive partner to the negative while use of another contraception method prevents unwanted pregnancies and hence reduces vertical transmission. This is referred to as dual contraception. Many discordant couples will however want to have children. They have difficult choices to make concerning sexuality, fertility, parenthood desires and family life. Studies have shown that women in discordant relationships have pregnancy rates similar to women in general population.



Effective family planning strategies depends on how HIV/AIDS influences reproductive decision making [3].

Structural, social and cultural issues may prevent discordant couples from using contraceptives. Counseling is key in how discordant couples cope with their unique challenges due to their situation, therefore lack of programmatic support in terms of availability of contraceptives and health care providers with knowledge and skills to counsel discordant couples on reproductive health matters may hinder the fulfillment of the right to quality sexual and reproductive healthcare. This study looked at barriers and motivations to contraceptive use among these couples, the impact of HIV disease on contraceptive use and pregnancy intention and the role of the health care provider on the contraception use and their pregnancy intention.

Understanding factors that influence use of different methods of contraception and factors that influence their decision making as far as fertility and pregnancy is concerned is key to developing counseling services that meet the needs of discordant couples in matters of sexuality and reproductive health; provide a change in curriculum for healthcare providers to incorporate contraception use by people living with HIV and counseling on sexuality and reproductive health matters for them.

## CHAPTER 2: LITERATURE REVIEW

### 2.1: HIV sero-discordance

The 2003 Kenya Demographic and health survey (KDHS) found that 6.7% of the Kenyan respondents aged 15-49 years had tested positive [4]. In the 2007 result of the Kenya AIDS indicator survey (KAIS) [5], the prevalence had risen to 7.4% in the same age group and it was estimated that 2.2 million Kenyans are infected with HIV but 80% of these do not know their status. According to the KDHS of 2009 [6], about 400,000 married couples in Kenya were in a sero-discordant relationship. The prevalence of HIV discordance depends on the HIV prevalence in a population. A report by The National AIDS and Sexually transmitted infections Control Program (NASCO) stated that among couples who seek voluntary counseling and testing (VCT) services in Kenya, 13% of them are sero-discordant.

Immunologic research has suggested that cellular immunity and viral characteristics may be associated with HIV discordance. Many risk factors of HIV transmission have been identified; viral load is associated strongly with the risk of transmission [7]. Studies have shown no difference between female to male or male to female transmissions and that transmission within regular and established discordant relationships is higher than non-regular discordant relationships [7] [8]. Genital ulceration is another of the transmission risk factors; persons with genital ulcer disease (GUD) are twice as likely to transmit HIV [2] [9].

## **2.2: Contraception and fertility among people living with HIV.**

The WHO's *Medical Eligibility Criteria for Contraceptive use*, states that most of the contraceptive methods available are equally safe for HIV positive women as well as HIV negative women. Hormonal methods including combined oral contraceptives (COCs), the injectable depot medroxyprogesterone acetate (DMPA) and norethisterone enanthate (NET-EN), and implants such as Norplant are generally safe for HIV positive women. There have been studies that showed that contraceptives containing high progestin levels increased a woman's risk by promoting certain physiological changes like increased menstrual bleeding and cervical and endometrial mucus which could be a risk factor for sexually transmitted diseases (STDs) [10]. For the HIV positive women with a negative partner, a study done in Kenya found that oral contraceptive pills and injectable contraceptive may be associated with increased endocervical shedding of HIV hence easily transmit to the partner [11]. However the methodology of this study was questionable making it difficult to interpret the results [10]. However further research is needed on the infectiousness of women on these methods and on their disease progression and interaction with ARV drugs.

Intrauterine devices are a highly effective yet reversible non-hormonal contraceptive method which became more available to HIV infected women in 2004 when WHO removed most of the previous restrictions on their use. Those restrictions, based on concerns regarding increased risk of pelvic inflammatory disease and HIV infectiousness, were lifted after studies demonstrated that complications of IUD use are no more common among HIV-infected IUD users than they are among uninfected IUD users [12] and they do not increase

[13]. Intrauterine devices are however not initiated among women in stage 4 HIV disease (WHO classification) not yet on ARVs and those in stage 4 and not responding to ARV treatment.

Barrier methods offer little protection against pregnancy and are generally not recommended for women with HIV on their own (WHO). Use of spermicide could increase risk of HIV re-infection since the spermicide disrupts the vaginal lining making it more vulnerable to infection [10]. Diaphragms and cervical caps are therefore not recommended for women with HIV and those at high risk of HIV infection since they are usually used with spermicide.

People living with HIV face special challenges relating to their reproductive needs since their health condition makes them vulnerable in this regard [14] and their fertility related need differ substantially from those of HIV negative people[16][17] therefore health care systems should make support for their reproductive health a priority [14]. Available data suggests that HIV infected women are no less likely to become pregnant than uninfected women despite the risks associated with pregnancy among them [15].

People living with HIV should be empowered to take informed choices relating to their reproductive lives, free of coercion. Reproductive health counseling among discordant couples and people living with HIV raises important ethical issues since discordant couples should be informed of their reproductive options including natural pregnancy yet the fact that the risk of HIV transmission cannot be zero should not be ignored [18]. The Centre for Disease Control and Prevention (CDC) discourages any natural reproductive attempt in HIV

infected persons unless viral load is absolutely reduced by antiretroviral (ARV) therapy [19]. Obtaining a viral load test for majority of people in the sub Saharan world is however out of reach due to the cost of the test.

### **2.3: Factors affecting contraceptive use and fertility intention.**

The desire to have children has implications on the consistent use of contraceptives. This desire for motherhood has further been increased by access to prevention of mother to child transmission (PMTCT) and Antiretroviral (ARV) therapy [20]. Therefore more and more HIV positive women can safely get children with minimal risk of transmitting to their children and partners.

A partner's desire for more children may represent a more important factor in women's reproductive behavior than the wishes and needs of the women themselves [21]. There is evidence that there is a reduction in contraceptive uptake among women whose partners want more children while the women themselves do not desire more children [22]. In the African culture, the true meaning of marriage is only fulfilled if the couple conceives and bears children [23]. Africans consider their child to be a source of power and pride and children act as insurance for their parents in old age. Similarly, the most important aspect of having children is an assurance for family continuity [23].

Levels of contraceptive use by HIV positive and negative women in discordant relationships suggest that factors like local community norms about fertility control and acceptability of contraception play a greater role than HIV infection in determining contraceptive use [24]. Community norms about people living with HIV to bear children ranges widely; some feel

they should not bear children while others feel that there is a chance that the child will live to 'carry' forward the family name [25]. In these communities it would be worse to be childless than to have HIV infection [25].

A study done in Israel among discordant and concordant positive couples found dissociation between the actual reality of the couples' medical condition and their wish to have children [26]. At the end of the study a recommendation was made to have a better understanding of these motives, which this study hopes to shed more light on. Another study in Indonesia showed similar results, that couples put aside the transmission risk due to the desire for children [27]. These studies have explored the relationship between a diagnosis of HIV and subsequent fertility behavior among couples; much as they realize the risk of transmission to or from their partner and the unborn child the fertility levels are not affected [27] [28]

There are myths surrounding contraceptive use just as there is surrounding condom use. Some of these myths include that hormonal contraceptives cause cancer, infertility and birth defects. Others believe that intrauterine devices (IUD) may disappear in a woman's body causing many health complications later in life. A study showed that despite knowledge of contraceptives among women affected by HIV, few of them used them due to misconceptions about side effects [21]. According to a study in Baba Dogo, an urban slum in Nairobi and Chwele a rural village in Bungoma, Western Kenya, some important barriers to contraceptive use included lack of consensus on contraceptive use by couples and on reproductive intentions; husbands assuming the role of decision maker; perceived undesirable effects, infant mortality, traditional practices like naming relatives, preference of sons over daughters, gaps in knowledge of contraception and availability of contraception

in the two areas[29]. This study suggested that education would increase contraception knowledge hence uptake. Religious beliefs will influence how couples take up birth control; the Catholic church for instance advocates for natural family planning methods and those staunch believers will not use contraception [30] [31].

Relationship dynamics such as poor communication among couples, domestic violence and how emotionally close a couple is may influence the use of contraception [32]. Couples that discuss contraception and their reproductive health are more likely to agree on condom and contraception use and ideal family size. The partnership arrangements in Africa are largely patriarchal which denies women their sexual rights [33].

The gender of the positive partner in a sero-discordant relationship influences the sexual practices and the fertility intention. When the positive partner is female, the couple is unlikely to engage in risky sexual behavior [34]. This was found following a study done in Rakai, Uganda. In France, HIV positive women in a sero-discordant relationship were twice as likely to expect children as HIV negative women with a positive partner [35]. In Bangladesh there were high levels of unwanted pregnancies and induced abortions among HIV positive women in sero-discordant relationships [36].

It is thought that a pregnancy affirms a woman's health or at least her ability to have a healthy child and therefore women use pregnancy to show they do not have HIV and that their health is good [37]. Women cite fear of being rejected or abandoned by partners and community as the reason as to why they have to prove their good health status and avoid suspicion of having HIV infection [37] [38].

## **2.4: Health care provider influence on contraception and fertility intention**

For HIV infected men and women, health care workers play an important role in their decision making process about child bearing and child rearing [21]. In this regard, counselors and other health care providers' role is particularly crucial; they should counsel on how to balance safe sex practices and desire to reproduce. Supportive and knowledgeable providers are crucial for helping people living with HIV seek and adhere to treatment, prevent sexually transmitted infections, unintended pregnancies and transmission of HIV.

In a study done in Thika, Kenya on sero-discordant couples participating in a clinical trial found that with staff training on contraception, free provision of contraceptives at the study clinic and family planning sessions with the discordant couples the uptake of contraception was raised from 31.5% to 64.7% among women in sero-discordant relationships [39]. Generally, with this kind of intervention the contraception uptake increased while among sites with no intervention the contraception uptake did not show much difference among both sero-positive and sero-negative women in sero-discordant relationships[39].

Women infected with HIV may find difficulties discussing contraception and fertility desires with their health care provider for various reasons. One of these reasons could be the social acceptability of HIV infected people to have children and the stigma that surrounds it. A study done in South Africa showed that most HIV infected men and women would not discuss their fertility desire with the health care provider because they anticipated negative reaction [40]. Counseling messages on contraception and condom use may be biased by the healthcare provider's personal attitude towards them [40].



A study conducted in Nairobi on the knowledge of nurses and nursing students on emergency contraception and other contraception showed that their knowledge was generally poor and their negative attitude towards specific methods affected how they would recommend them to their patients [41].

Health care providers need to consider that women in discordant relationships not using contraception do not necessarily want to be parents. They often do not explain to the couples the reason why they need to use contraception. Many women believe that health care providers are not readily available to answer method related questions [42].

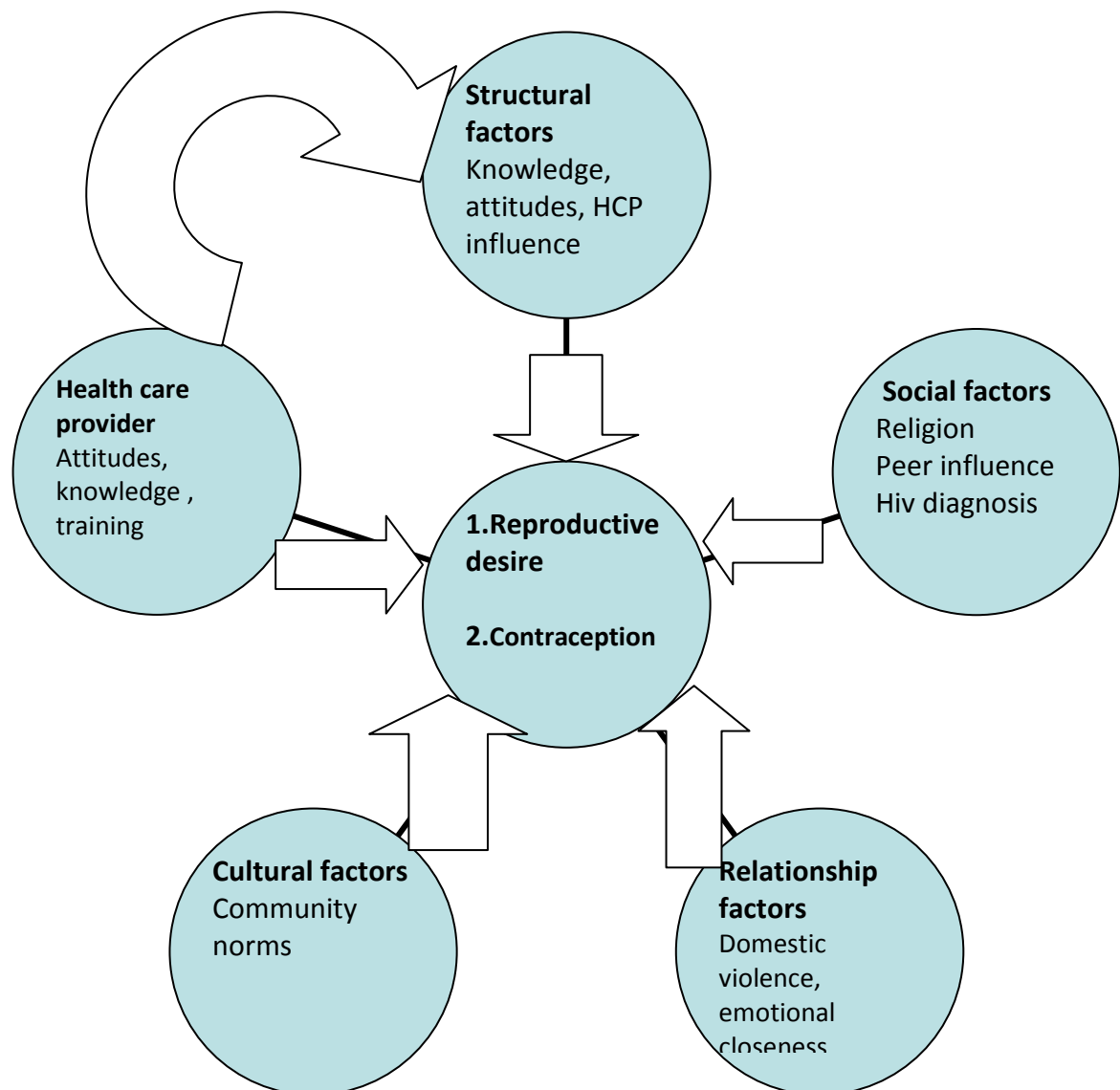
Generally the knowledge by the public is deficient regarding risks, benefits and side effects of contraceptives. Adequate counseling by the health care provider can help women and their partners recognize that contraceptives will help reduce unplanned pregnancies and condoms will reduce the risk of transmission. Studies show that contact with the health care provider is associated with consistent use of birth control methods and reason for initiating contraception use [43], and this is independent of knowledge of how effective the contraceptive method is [40] [43]. Health care providers play an important role of making contraception available to their clients but on the other hand can be blamed for unfavorable attitudes and lack of accurate information [44]. Health care providers may thus contribute to occurrence of unplanned pregnancies if they provide poor medical advice or miscommunicate regarding contraception to their clients [45]. However, it is assumed that health care providers will put a great effort in promoting condom and contraceptive use but the uptake is dependent on how couples reconcile safe sex practices and reproductive desires [40].

In the literature reviewed thus far it is clear that there is a dissociation of impact between risk of HIV transmission from one partner to another and reproductive desire of discordant couples; these couples have an option to fall back to conception to fulfill these reproductive desires and that the health care provider plays a crucial role in determining the reproductive choices for discordant couples. This study will attempt to explain why there is dissociation between reproductive desire and risk of infection and the health care providers' role on the couples' reproductive choices.

## CHAPTER 3: STATEMENT OF THE RESEARCH PROBLEM

### 3.1: Conceptual Framework

The conceptual framework of the determinants of contraceptive use and fertility desires among HIV discordant couples is shown in the figure below.



**Figure 3.1** Conceptual frame work of the determinants of contraceptive use and reproductive desire among discordant couples.

### **3.2: Research Problem**

A large proportion of new HIV infections occur in stable HIV discordant couples and therefore discordant couples are an important cohort to target for HIV prevention strategies. These couples are advised to use dual contraception methods whereby use of condoms prevents transmission to the uninfected partner while the use of the other methods of contraception prevents unwanted pregnancies and therefore reduces pediatric infections.

Women in HIV discordant relationships will want to have children just like women in the general population. Minimal attention has been paid to the contraceptive needs of sero-discordant couples. The challenge has been to provide these couples with family planning services that can allow them to effectively manage both their risks of HIV transmission and their fertility desire. There are no messages on contraception and reproductive health of discordant couples despite a growing need to understand their reproductive health needs. In order to provide information to help with the development of family planning services tailored to the unique needs of the discordant couples, this study examines the contraceptive knowledge, use and concerns among discordant couples and in addition their reproductive desires.

Counseling has been found to promote safe sex practices in different populations. A study done in Thika Kenya in 2009, showed that intervening by equipping health care providers with knowledge on different contraceptive methods increased contraceptive uptake among discordant couples [39]. This study went further and examined the attitude of health care providers towards contraceptives and how this influences the methods prescribed to couples.

This study sought to answer the following hypothesis:-

1. The desire for children influences the use of contraceptives by couples in a discordant relationship negatively.
2. Discordant couples with a HIV positive female partner are less likely to use dual contraception and engage in risky sexual behavior than the couples with a HIV positive male partner.
3. Contraceptive recommendations and options presented to couples by health care providers vary depending on whether the couple has a positive or negative female partner.

### **3.3: Justification**

Discordant couples constitute a crucial population on who HIV transmission prevention strategies can be applied to reduce HIV transmission. Discordant couples are the leading risk group in new HIV infection due to their constant exposure, with 44% of new infections in Kenya occurring among couples who are married or cohabiting, according to the modes of transmission analysis done after the KDHS of 2009. The risk of infection can be reduced by using condoms.

Since the availability of Prevention of Mother to Child transmission (PMTCT) and antiretroviral (ARVs), the fertility desires of people living with HIV is not fully understood. It is expected that the infected women are more likely to bear children, and as such contraception use can help plan the pregnancy at a time when transmission is less likely to the child and the partner.

The Kenyan and African culture is unique in that marriage and partnerships are considered incomplete without children and childlessness is abominable. The consequence of this expectation is a risk of HIV transmission to the negative partner and to the unborn child.

Most people will rely on advice provided by health care providers regarding their reproductive health and their fertility decisions will be influenced by the type of advice given. There is a lack of guidelines in Kenya for dealing with reproductive health among people living with HIV. There is insufficient training on contraception for health care providers with most training being obtained on the job. The health care providers may not be competent enough to give reproductive health advice to the various subgroups of people living with HIV.

This study aimed at showing the need of having guidelines on reproductive health of discordant couples. The outcome of this study would facilitate to integrate the training in the curriculum of various health care provider cadres. A clear and evidence based understanding of fertility intentions and demand for contraception is needed to promote and protect the rights of women and men living with HIV to make informed decisions about reproduction and to have access to appropriate and up to standard sexual and reproductive health services. This is a rationale for including family planning services in HIV/AIDS programs.

### **3.4: Objectives**

#### **3.4.1: General objective**

To describe the contraceptive attitude, practices and the experience obtained from using various contraceptive methods by HIV sero-discordant couples enrolled in a research study clinic in Kenyatta National Hospital, Nairobi and the experience of healthcare providers who work in the study clinic at its Nairobi and Thika sites on the couples' reproductive health and fertility needs.

#### **3.4.2: Specific objectives are to:-**

1. Determine the correlates associated with contraceptive use and reproductive desire among HIV discordant couples.
2. Determine the prevalence rate of contraceptive use among HIV discordant couples in Nairobi, Kenya.
3. Determine the attitudes of HIV discordant couples towards contraceptive use.
4. Describe the attitudes towards contraception among health care providers who work amongst HIV discordant couples.

## **CHAPTER 4: METHODOLOGY**

### **4.1: Study design**

This study was a cross sectional study in which data on the contraception practices and attitudes together with desire for more children was collected from participating discordant couples and health care providers that work amongst the discordant couple cohorts. Both qualitative and quantitative methods of data collection were used in this study. A total of 3 Focus group discussions were used to collect qualitative data while structured interviewer administered questionnaires were used to collect quantitative data. Data collection took place between March and June 2011 during which time 175 HIV-1 sero-discordant couples and 27 health care providers were interviewed and 3 focus group discussions were carried out.

### **4.2: Study area**

This study was being conducted at the Partners PrEP Study Nairobi Site clinic which is based at The Couple Counseling Centre in Kenyatta National Hospital (KNH). The PrEP Study is a multisite phase III Clinical Trial sponsored by The University of Washington and funded by The Bill and Melinda Gates Foundation and conducted in Nairobi in collaboration with The University of Nairobi and KNH. The couples enrolled in this study are drawn from Voluntary Counseling and Testing (VCT) centers and Comprehensive Care Clinics (CCC) in Nairobi and its environs including Machakos, Kiambu, Kajiado and Naivasha. This study also involved health care providers who work amongst discordant couple cohorts at the PrEP Nairobi site, PrEP



Study at The Thika Site and the Partners Behavioral Study which is based at the same location as the Nairobi PrEP site.

### **4.3: Study population**

Study participants included both partners in a heterosexual HIV-1 sero-discordant relationship enrolled in the PrEP study, a cohort of HIV sero-discordant couples.

The PrEP study is a randomized control clinical trial and has 485 couples enrolled. To be eligible at enrollment the participants should be between 18 and 65 years of age, have a CD4 cell count of the index participant above 250cells/mm<sup>3</sup>, or otherwise not qualify for antiretroviral therapy as per the national guidelines. The partner participant has to meet a set clinical, hematologic, renal and liver function requirement. The couples have to be willing to maintain a sexual relationship for the period of the study which is 24 to 48 months. This population was a suitable cohort to carry out this study since the couples are provided with condoms and get constant reminders on contraceptive use; all the contraceptive methods are available for the participants including easy referral for tubal ligation and vasectomy.

The health care provider population included the medical staff that works in the study clinic and in other HIV sero-discordant couple cohorts including PrEP Study Clinic based in Thika and the Couples Behavioral Study based in Nairobi, at the Couple Counseling Centre in KNH. This latter Study is a behavioral study that seeks to compare the distribution of Sexually Transmitted Infections and CD4 levels amongst HIV-1 sero-discordant couples drawn from

VCTs, CCCs and home based care within Nairobi. The health care providers included nurses, counselors, clinical officers and doctors.

The study population were divided into two distinct groups:

1. Female participants of reproductive age and their male partners in a discordant relationship from the PrEP study cohort.
2. Health Care providers. These consisted of doctors, clinical officers, nurses and counselors. Nurses were nurse counselors and other counselors who had various qualifications; some were voluntary counseling and testing (VCT) counselors, while others were clinical psychologists.

#### **4.4: Sampling and Recruitment Procedure**

The sampling method deferred according to the study population:

The sampling frame included HIV discordant couples with the female partner between 18 and 46 years of age (WHO reproductive age). This was further grouped into couples who the female partner was HIV positive and couples who the female partner was HIV negative. The sampling frame was obtained from the parent study database. Recruitment of couples was done daily whereby the receptionist identified the couples as they reported to the study clinic for their parent study visits against the sampling frame until the required sample size was obtained. Both partners were recruited to participate on the same day.

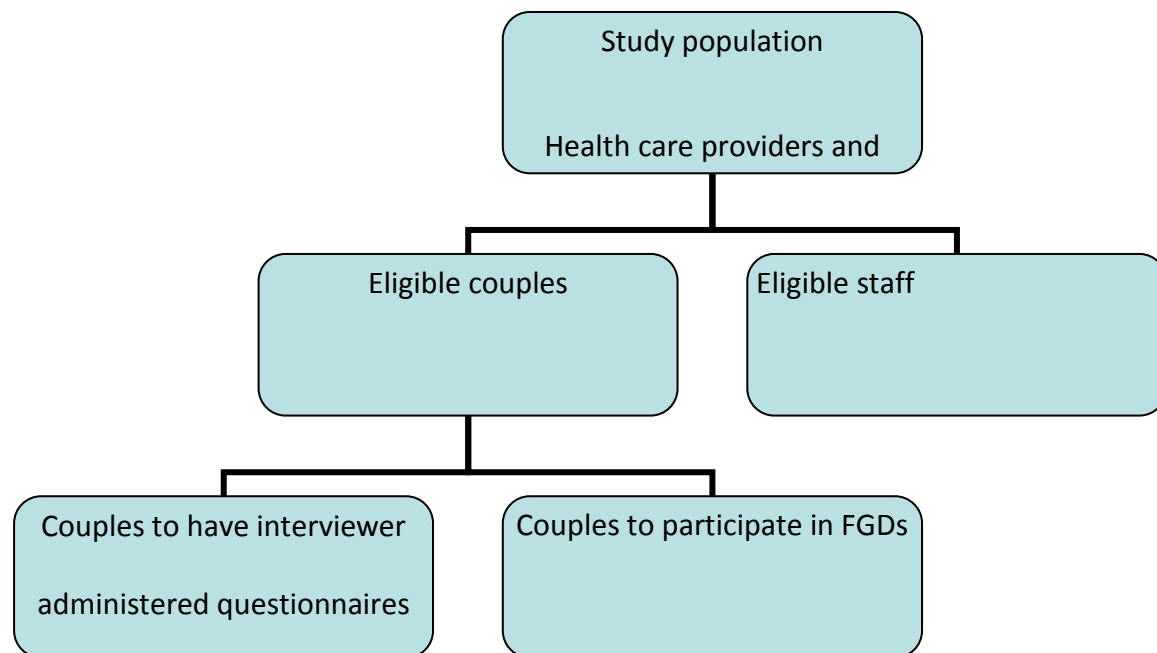
After the couples had completed their regular parent study visit they were referred to the research assistant who explained the study aims and procedures, assessed their eligibility

and invited them to participate as a couple. On accepting to participate as a couple they were then separated so that each of the partners signed the consent form independently. The questionnaire was administered independently for each member of the couple. To ensure that the subjects were not recruited twice, the subjects' clinic file number referred to as the PrEP Participant identification number (PTID) was documented on the questionnaire and these were then entered on an excel sheet every end of day against the sampling frame. The research assistant and the receptionist had these updated on a daily basis to avoid double enrolment of participants. Enrollment was done daily during clinic hours and the subjects who met the eligibility criteria were enrolled until the required sample size was obtained. The couple had to consent to participate in the interviewer administered questionnaire for each of them to be eligible.

The participants for the Focus Group Discussion were obtained from the same sampling frame and called on phone. A brief summary of study aims and procedures was given on phone and the scheduled date of the FGD was given for the participants' approval. The FGDs were conducted on Saturdays. Following their approval on phone, they were assigned to their FGD groups based on their gender and sero status. Each couple would participate in either the FGD or the interviewer administered questionnaire interviews but not both. Both partners would not have to consent to participate in the FGD to be eligible.

The entire population of the doctors, counselors, nurse counselors and clinical officers who work in the discordant couple cohorts were eligible for study participation and were recruited into the study.

**Figure 4.1: Diagrammatic representation of sampling procedure:**



#### **4.5: Eligibility criteria**

##### **1. HIV discordant couples:**

###### Inclusion criteria:-

- Consenting individuals from the PrEP study cohort which consists of HIV discordant couples from Nairobi and its environs.
- The couple pair has to consent to participate in the study.
- Women had to be of reproductive age.

### Exclusion criteria:-

- A couple that has been previously diagnosed with infertility during their participation in the PrEP Study.
- Not willing to consent freely to study participation.

## **2. Health Care Providers**

### Inclusion criteria:-

- Must work at either the PrEP study clinic or with a sero-discordant couple cohort.
- Must be a doctor, clinical officer, nurse or counselor.

### Exclusion criteria:-

- Not willing to participate in the study.

## **4.6: Data collection**

The study combined a variety of data collection methods and instruments. Both qualitative methods by FGDs and quantitative data collection methods by interviewer administered questionnaires were used.

### **4.6.1: Interviewer administered questionnaire Procedure:**

The research assistant was trained by the researcher on the aims of the study and use of the data collection instruments prior to the commencement of the study. The research assistant had to sit and pass an online human subjects course by the National Institute of Health (NIH),

on the Citi program, prior to beginning contact with the participants. The certificate was reviewed and filed by the researcher.

The participants were given a brief summary of the study and then allowed to read the consent form on their own in a private room. The details of the consent form were then discussed by the research assistant with the participants who then signed the consent form voluntarily. The interviewer administered questionnaire was then administered. The questionnaire consisted of the following parts:

Part 1 Socio-demographic characteristics

Part 2 Reproductive desire

Part 2 sought to find out the desire the couples have of having more children. This also sought to find out how many children the participants have and the distribution of daughters and sons in the families. This part further finds out how the HIV diagnosis in one of the partners in the couple pair changed their desire for having more children if at all.

Part 3 Family planning characteristics.

This part seeks to find out the following:

- i. The knowledge of contraception methods. The participants were asked to list the methods of contraception that they know.
- ii. What method of contraception the female partner was on and for the male partners what method of contraception their partners were on at that moment.

- iii. Whether they began or stopped using any contraception method once their discordant HIV status was diagnosed.
- iv. For those who were not on dual contraception they were asked the reasons as to why they did not use dual contraception.
- v. The participants were further assessed for domestic violence, attitude towards contraception assessed by whether they approved use or not, whether they discussed contraception as a couple and whether they knew the source of contraception methods besides the study clinic.
- vi. The pregnant participants were asked whether the pregnancies were planned or not and if they were on any method of contraception at the time the pregnancy happened.

For the Health care Providers the questionnaire included the following parts:

Part 1 Socio-demographic Characteristics

Part 2 Contraception knowledge and attitudes

#### **4.6.2: Focus Group Discussion Procedure:**

Focus Group discussions were carried out at the study site. To facilitate the FGDs, trained facilitators with past experience in conducting FGDs were hired and trained on the study aims and the data collecting tool. These were two facilitators with one acting as a moderator

and the other as the note taker. Purposive sampling was done for recruiting the FGD participants. These were called by the investigator on phone and given a short summary of the aims of the study and the date the FGD was scheduled. They gave a verbal consent of participation on phone. Only one member of the couple was eligible to participate in the FGD. Since the interviewer administered questionnaires were done first, the remainder of the couples were the only ones eligible to participate in the FGDs since a participant could not participate in both. The women were called first that meant their male partners were then not eligible to participate, then the men were called later.

The investigator and the two facilitators took the group through the consenting process and each participant signed an individual consent form. The sessions were held at the PrEP Study Clinic in a counseling room. The participants sat in a semi-circle facing one another. The facilitators and the investigator introduced themselves and discussed the purpose of the study. The participants agreed on ground rules before each of the sessions which included that all mobile phones should be either off or on silent mode, one person speaks at a time, respect each other's view, maintain confidentiality and that each participant should contribute to the discussion freely.

The facilitators reminded the participants that the study would maintain confidentiality and that at no time would their names be used in reporting the narratives. The FGD sessions began with facilitators emphasizing and ensuring that the group norms were observed. Topic guide questions were used for each of the FGDs and audio recorders were used to record all the responses with participants consent.



A total of three FGDs were held. The fourth FGD could not take place due to low turnout of participants assigned to that group. These were held on three consecutive Saturdays. Each FGD lasted about one and a half hours. The first FGD group had 8 participants, the second and the third groups had 6 participants each. The FGDs were stratified by gender and sero status. The age difference between the participants of each group was minimal for their comfort. The groups were constituted of the following:-

Group 1: HIV positive females.

Group 2: HIV negative males

Group 3: HIV negative females

## **4.7: Data handling**

### **4.7.1: Study Variables**

**Table 4.1: Outcome Variables**

<b>Variable</b>	<b>Operational definition</b>	<b>Measurement/indicator</b>
Contraceptive use	Use of a method of contraception other than the condom	Yes or No
Desire for children	Either wants (more) children or does not want(more) children	Yes or No

**Table 4.2: Predictor Variables**

<b>Variable</b>	<b>Operational definition</b>	<b>Measurement/indicator</b>
Sex	State of being male or female	Male/female
Age	Age at last birthday	Age in complete years
Religion	Religious affiliation as reported by participant.	Catholic, Muslim, Protestant, any other
Income	Personal income, average of last three months	Kenya Shillings
Attitude towards contraception	What participant or health provider feels about contraception	Approves or disapproves
Knowledge of contraceptives	Types of contraception known, side effects known(couples and providers),	List of different methods known
Availability of methods of contraception	Ease of getting methods of contraception	Name sites where he can get the methods.
Number of children	As reported by participant	Number of children ever born alive
Education	Last level of school attended	Years of school completed. Years repeated not counted.
Partner desire for children	Partner wants (more) children or does not want	Yes or no
Domestic violence	Presence or absence of domestic abuse	Verbal, physical or economic abuse present or absent
Training on contraception	Information on contraception in medical training school	Trained or not trained/adequate or not adequate.

#### **4.7.2: Data Processing and Analysis**

Quantitative data gathered by interviewer administered questionnaires was entered into a Windows 2007 Access database and cleaned for any inconsistencies. SPSS version 17.0 statistical software package was used for quantitative data analysis. The dependent variables which are desire for children and contraception use were taken directly from the questionnaire response for the women and their partners.

Socio-demographic characteristics were obtained to characterize the study participants and distribution of other variables was analyzed depending on their appropriate measurement scale. Mean was used for continuous variables like age and proportions for categorical variables such as gender and level of education. These statistics were then presented in tables and graphs.

Chi –square test was used to compare categorical variables and to test for relationship between the predictor and outcome variables.

A predetermined list of open ended questions was used in form of an FGD guide. Atlas.ti software was used to analyze the qualitative data. The transcripts were transcribed then coded according to a coding matrix that was developed. Various themes were developed and the various codes grouped into these themes. These themes included:-

1. Contraception attitudes and knowledge
2. Reproductive desires
3. Health care provider influence

#### 4. Reproductive knowledge

The participants' statements were grouped by HIV status and gender. These statements were coded according to similarity in patterns and characteristics before comparing between the various groups. The FGD responses in verbatim were given to support the quantitative data.

##### **4.7.3: Sample size**

The standard statistical approach to determining sample size for a cross-sectional survey requiring specification of an estimate of the proportion (prevalence) in the population (of couples on contraception in discordant relationships) to be estimated; the level of confidence desired for the survey prevalence estimates and a tolerance error margin (a measure of precision of the estimate) was used. The sample size was determined by the following epidemiological formula for cross-sectional descriptive studies:

$$n = \frac{z^2 \times p(1 - p)}{d^2}$$

Where

n = desired sample size

Z = Reliability coefficient at a (0.05) level of significance= 1.96

p = estimated proportion of sero-discordant couples who take up contraception .In this case 64.7% [37].

d = degree of precision (5%)

$$n=1.962 \times 0.647 \times 0.353 / 0.052$$

N= 350.9

=351 participants. (176 couples)

All staff members were included in the healthcare provider interviews.

#### **4.8: Minimization of errors and biases**

To minimize errors and biases, the following strategies were utilized:

- A standard structured questionnaire was used for each of the groups.
- The moderators were trained beforehand and the interpretation of each of the questions was clearly explained by the principal investigator. This measure was to reduce interviewer bias.
- The number of interviewers limited to the investigator and an assistant.
- The filled out questionnaires were cleaned up to ensure completeness as soon as possible after the interview.
- Selection of study participants was done for only those participants whose complete and accurate information is available. Selection bias will be minimized.

## **4.9: Ethical Considerations**

For the purpose of this study the following ethical considerations were put in place:

- HIV/AIDS is a sensitive matter with all nature of stigma associated with it. Confidentiality for all the participants is paramount. Therefore the sampling frame only had numbers and not names. The consent forms had a confidentiality statement among participants in the focus group discussions.
- Participation was purely voluntary and was subject to signing a consent form. There was no coercion to participate.
- The participants' rights, privacy and welfare were taken care of according to Human subjects' protection and Good Clinical practice (GCP).
- Approval to carry out the study was obtained from the Kenyatta National Hospital Ethical Review Committee (KNH ERC)
- Approval was obtained from the principal investigators of the PrEP Study where the study was carried out and the University of Washington, Seattle, which is the sponsor of the parent study. Approval was also obtained from the Principal investigators of the other studies that this study was carried out.
- The tape recorded material shall be archived for about one year after release of the results after which they shall be destroyed.

## **4.10: Study Limitations**

The limitations encountered in this study included:

- The study drew on a clinic – based population therefore could lack generalizability.
- Due to the short period of follow-up, the study only looked at contraception uptake but not continuation which is crucial.

- This study relied on self-reported behavior, in this case contraceptive use and reported fertility intentions; it lacks bio-markers to verify this self-reported behavior.
- Participants already enrolled in a research study may have more knowledge of contraception and safe sex practices than the general population.
- The health care providers were only limited to study clinics, being a small number error may occur. A study with a larger sample is required.

## CHAPTER 5: RESULTS

A total of 377 participants were interviewed, constituting of 350 participants in a discordant relationship (175 couples) and 27 health care providers. Three FGDs each lasting one and a half hours and comprising of 6-8 participants (a total of 20 participants) stratified by gender and sero status were conducted. The baseline characteristics of the study population are shown in table 5.1.

**Table 5.1: Socio-demographic characteristics of the study population (N=350)**

		<u>Sex</u>					
		Female		Male		Total	
		n	%	n	%	n	%
<u>Sero-status</u>	Negative	84	48	91	52	175	50
	Positive	91	52	84	48	175	50
<u>Education</u>							
	None	4	2.3	2	1.1	6	1.7
	Primary	102	58.3	68	39.1	170	48.7
	Secondary	59	33.7	77	44.3	136	39
	Post- secondary	10	5.7	27	15.5	37	10.6
<u>Age: Mean (range)</u>		29.6(19.0-46.0)		35.4 (22.0-61.0)			
SD		SD 5.8		SD7.9			
<u>Income</u>							
	<=5000	107	64.5	42	24.1	149	43.8
	5001-10000	46	27.7	78	44.8	124	36.5
	10001-15000	6	3.6	29	16.7	35	10.3
	>15000	7	4.2	25	14.4	32	9.4



## **5.1: Socio-demographic Characteristics.**

Of the total population of discordant couples interviewed, 52.0% of the couples had a HIV positive female partner and 48.0 % had a HIV positive male partner. In the FGDs there were 14 female participants and 6 male participants. Of the 14 females 8(57.1%) were HIV positive and 6 (42.9%) were HIV negative. All the male participants in the FGD were HIV negative.

The women were of reproductive age with their age ranging between 19 and 46 years a standard deviation of 5.8 and mean of 29.6. Their median age was 29 years. The men were generally older with their age ranging between 22 to 61 years, median of 34years. The mean age for the men was 35.4 years with a standard deviation Of 7.9.

Almost all the respondents 343(98.3%) had attained some level of education. Of these 170(48.7%) had attained primary school education, 136(39.0%) secondary school education and 37(10.6%) had post-secondary education. There was a distinction between the female and the male participant and the level of education attained. Women generally were less educated than their male partners. Of the participants reporting to have had no formal education 4(2.3%) were female and 2(1.1%) were male. The ones who had attained primary education only, 102(58.3%) were females while 68(39.1%) were males. Females having attained post-secondary education were 10(5.7%) while the males were 27(15.5%).

Regarding the participants' individual income earned as an average of the three months prior to interview, the male partners generally earned higher incomes than their female partners. This could be comparable with the level of education attained by males and females.

**Table 5.2: Number of children and fertility desire**

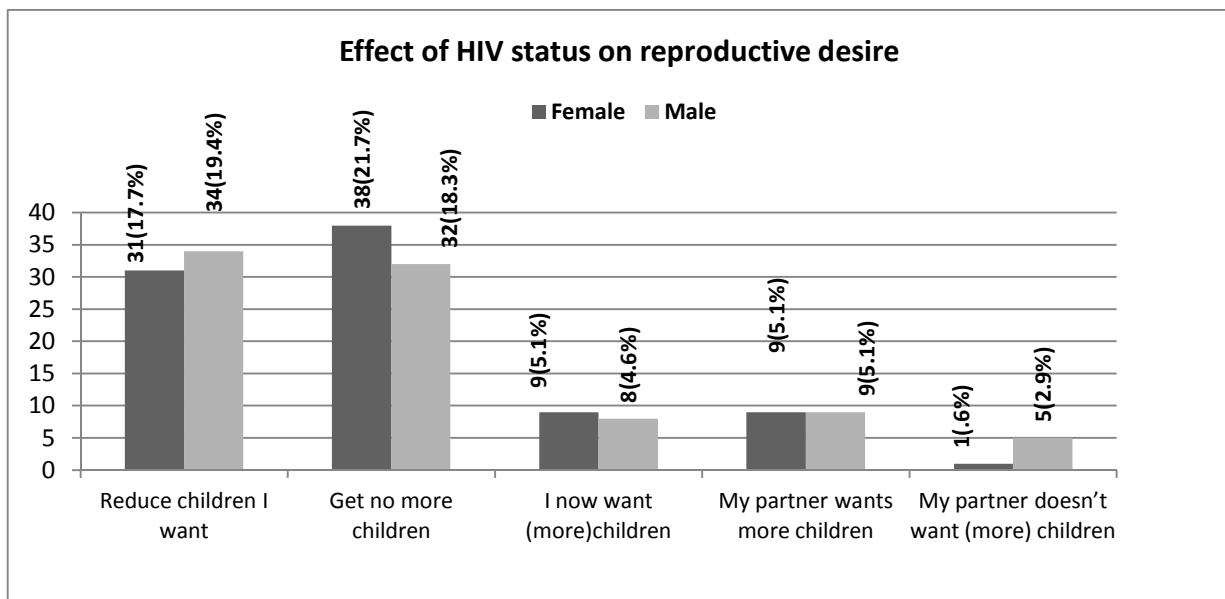
	Gender				Total	
	Female		Male			
<b>Number of children</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>		
0-3	<b>139</b>	<b>79.4</b>	<b>135</b>	<b>77.1</b>		
4 to 6	<b>33</b>	<b>18.9</b>	<b>37</b>	<b>21.1</b>		
Above 6	<b>3</b>	<b>1.7</b>	<b>3</b>	<b>1.7</b>		
<b><u>Sons</u></b>						
0	<b>63</b>	<b>36</b>	<b>53</b>	<b>30.3</b>		
1 to 2	<b>96</b>	<b>54.9</b>	<b>102</b>	<b>58.6</b>		
3 to 4	<b>15</b>	<b>8.6</b>	<b>19</b>	<b>10.9</b>		
>4	<b>1</b>	<b>0.6</b>	<b>1</b>	<b>0.6</b>		
<b><u>Daughters</u></b>						
0	<b>59</b>	<b>33.9</b>	<b>55</b>	<b>31.6</b>		
1 to 2	<b>97</b>	<b>55.7</b>	<b>102</b>	<b>58.6</b>		
3 to 4	<b>18</b>	<b>10.3</b>	<b>16</b>	<b>9.2</b>		
>4	<b>0</b>	<b>0</b>	<b>1</b>	<b>0.6</b>		
<b><u>Fertility Desire</u></b>						
<b>Wants more children</b>	<b>92</b>	<b>59</b>	<b>98</b>	<b>62.4</b>	<b>190</b>	<b>54.3</b>
<b>Partner wants more children</b>	<b>94</b>	<b>66.2</b>	<b>96</b>	<b>64</b>	<b>190</b>	<b>54.3</b>
<b>Changed fertility desire due to discordant status</b>	<b>70</b>	<b>40.9</b>	<b>67</b>	<b>39.6</b>	<b>137</b>	<b>39.1</b>

## 5.2: Family size, sons and daughters.

The majority (78.3%) of the families represented had 0-3 children with 139(79.4%) of women reporting this family size and 135(77.1%) of the men reporting the same. There is a

discrepancy in the reported family sizes, this could probably be explained by the fact that some of the men had multiple partners and some of the wives may have been in their second or third marriages having had children with partners other than their current partners. The distribution of sons and daughters was similar among the couples.

**Figure 5.1: How HIV diagnosis changed desire for more children (N=137)**



### 5.3: Fertility desire

Of the total number of women interviewed, 92 (59.0%) expressed that they would want to have more children. Of the men, 98(62.4%) reported to want more children. Asked if their partners would have wanted to have more children, 94(66.2%) women and 96(64%) of the men reported in the affirmative. The diagnosis of HIV in the couple, changed the fertility desire of 70(40.9%) of the women and 67(39.6%) of the men.

The following are comments from various participants in the FGD asked what they felt about getting more children now that one partner is HIV positive, *“...for me there are no changes because I had planned for 4 children. So even after we learnt of HIV status when we only had one child, we still hope to get 4 children because we believe the doctors will guide us towards achieving this goal...”* (22 year old male HIV negative)

Another participant went on to say *“...I think given our HIV status... at one time when our health is deteriorating...then the more children you have the more support you will get. And when these children get jobs, they will uplift the family’s economic status...”* (HIV positive 26 year old Female)

One partner of the couple had an increased desire for more children on diagnosis of HIV on themselves or their partner among 9(5.1%) of the women and 8(4.6%) of the men (table5.1). This is exemplified by the following comments when asked how they felt about having more children now that one of the partners was HIV positive.

*“....having more children is good. Because to me, my family lineage is long. When the children grow up, people will refer to the so and so’s family, which is what I desire. You see if I have only one child and by bad luck the child dies, that would be the end of the family. Infact I want to be told how I can get more children in this discussion.....* (HIV negative 31year old male)

The other participants responding to this question reported that neither they nor their partners would want to have more children now that they are aware of their HIV sero-

discordant status. They said they would either reduce the number of children they wanted (17.7% women and 19.4% men), have no more children (21.7% women and 18.3% men) or their partners do not wish to have children anymore (0.6% female and 2.9% male). In the FGDs various participants responded similarly to this question; *“...for us, we planned to get 2 children, but after establishing our sero-status, I have only one child and do not plan to get more children...”* (HIV negative female, 34 years)

There are various reasons that make reproductive desire unique among the HIV sero-discordant couples. The risk of HIV transmission cannot be ignored and that they have to use condoms to reduce transmission to the negative partner. However, availability of ARVs and PMTCT has made such hope of parenthood a reality among discordant couples. Availability of safe parenthood has also decreased chances of transmission as the couples seek to become parents. In the FGDs, some of the participants responded as follows regarding awareness of safe parenthood;

*“...nowadays there is treatment for HIV positive mothers and their babies to prevent infection, as long as the mother follows the instructions...”* (HIV positive female, 26years)

Other participants went on to say *“... if my CD4 count is high, and is maintained high, I will get more children...”* (HIV positive Female, 28years)

*“...I think sperm wash is preferable, actually that is the method I and my partner hopes to employ so that we can get children...”* (HIV negative female, 23 years)

## **5.4: Relationship between desire for more children and different variables**

Those who desired to have or not to have more children responded to a question in the interviewer administered questionnaire. A total of 313(89.4%) men and women responded yes or no to this question. The remaining 37(10.6%) participants were not sure whether they would want more children or not. Only the 313 participants were included in this analysis.

### **5.4.1: Desire for more children and socio-demographic factors**

An assessment of the relationship between socio-economic factors and desire for more children was done. This was done for age, individual's income, level of education, the number of living children and the number of sons and daughters.

There was no statistically significant relationship between level of education and desire for more children (**Fisher's Exact test Chi square = 1.075, p value=0.783**).

Similarly, there was no statistically significant relationship between amount of income earned and the desire for children (**Chi square= 3.996, p value= 0.262**) as shown in table 5.3.

There was a statistically significant relationship between the number of living children a participant had (**Chi square=74.739, p value=<0.0001**) and the number of sons (**Chi square =48.835, p value=<0.0001**) and the number of daughters (**Chi square =41.488 p value=<0.0001**) and the desire for children.

### 5.4.2: Age and desire for more children

Age was analyzed in this case as a continuous variable, and a two-tailed t test was done. As expected, there was found to be a statistically significant relationship between age and desire for more children with those wanting more children having a **Mean age= 30.69+/- 0.8284,SD=6.6334** and those that did not want children **Mean age = 35.09 +/- 0.8284 SD= 6.634; t=5.311 p value =<0.0001**

**Table 5.3: Desire for more children and socio-demographic factors. (N=313)**

		<u>Wants more children</u>		Chi Square	P value
		No	Yes		
<b>Education</b>	<b>None</b>	3	2	1.075	<b>0.783</b>
	<b>Primary</b>	57	93		
	<b>Secondary</b>	50	74		
	<b>Post-secondary</b>	13	21		
<b>Income</b>	<b>&lt;=5000</b>	60	74	3.996	<b>0.262</b>
	<b>5001-10000</b>	38	69		
	<b>10001-15000</b>	13	20		
	<b>&gt;15000</b>	8	21		
<b>Live Children</b>	<b>0 to 3</b>	65	179	74.739	<b>&lt;0.0001</b>
	<b>4 to 6</b>	56	10		
	<b>Above 6</b>	2	1		
<b>Number of sons</b>	<b>0</b>	14	89	48.835	<b>&lt;0.0001</b>
	<b>1 to 2</b>	86	92		
	<b>3 to 4</b>	23	9		
<b>Number of daughters</b>	<b>0</b>	23	83	41.488	<b>&lt;0.0001</b>
	<b>1 to 2</b>	73	101		
	<b>3 to 4</b>	27	5		

### 5.4.3: HIV diagnosis, gender and desire for more children.

There was a statistically significant relationship between the HIV status and gender of the participant and the desire for more children, the female participants had a **Chi square = 3.593, p value=0.0058** and the males had **Chi square =4.858, p value=0.028** as illustrated in table 5.4 .

**Table 5.4: Desire for more children by gender and sero-status (N=313)**

			wants more children		Chi Square	P value
			Yes	No		
<b>Female</b>	<b>HIV Infected</b>	<b>Yes</b>	53 (66.3%)	27 (33.8%)	3.593	<b>0.0058</b>
		<b>No</b>	39 (51.3%)	37 (48.7%)		
<b>Male</b>	<b>HIV Infected</b>	<b>Yes</b>	42 (53.8%)	36 (46.2%)	4.858	<b>0.028</b>
		<b>No</b>	56 (70.9%)	23 (29.1%)		

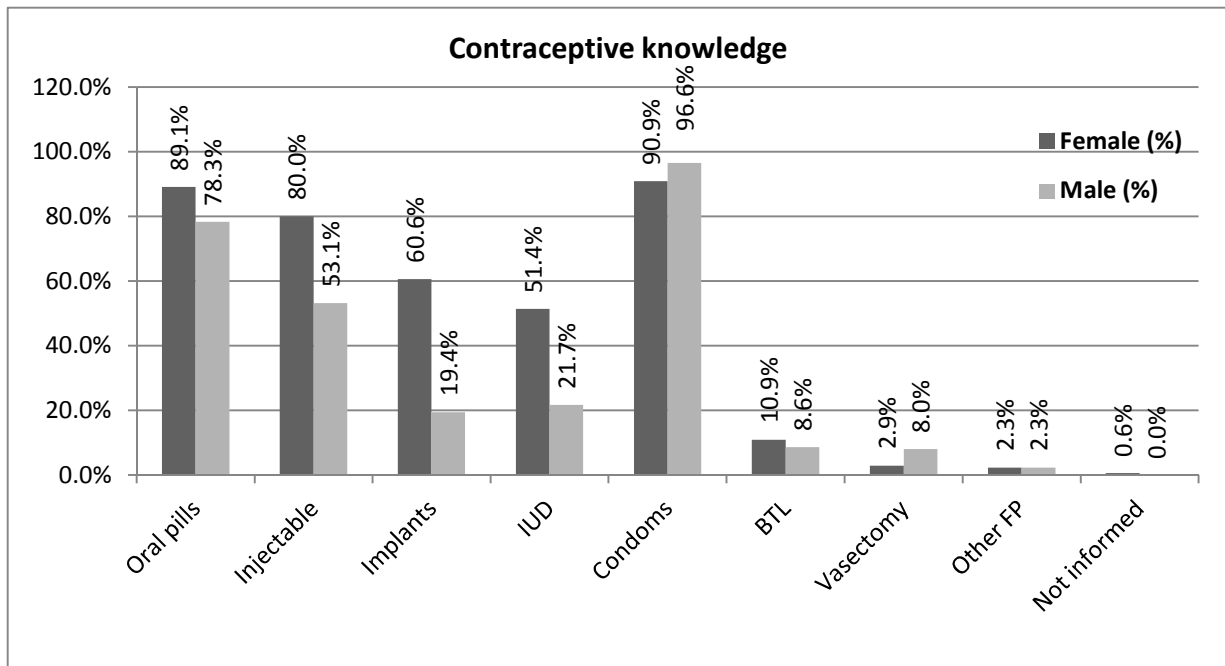
The diagnosis of HIV in one of the partners as being associated with desire for more children also came up during the FGDs as some of the participants said, “...before I knew my status, I had decided on one child, but after learning of my status, I hope to add another one more so that I will have two children...”(HIV positive Female,32years) Another one said, “... when such a couple gets a child, the chances of the child being HIV negative is 50 – 50. So such a couple wants many children so that by chance some of the children will be health... HIV negative and others HIV positive...” (HIV Negative Male, 26 years)



Another participant said, “...it is necessary for discordant couples to have children because the primary aim of getting married is to have children...” (HIV Negative Male, 31 Years)

## 5.5: Contraceptive knowledge, attitude and Practices

Figure 5.2: Contraceptive knowledge (N=350)



### 5.5.1: Contraceptive Knowledge.

Knowledge regarding contraception (Figure 5.2) was adequate with over 90% of respondents recognizing condoms as a contraceptive; more males 96.6% reported knowing condoms as contraceptives while 90.6% of females did. More women than men knew oral pills, injectable, implants, IUDs and BTL as compared to the men. However more men

reported knowing vasectomy, an equal number reported knowing other methods (natural, herbal methods). Only 1 female (0.6%) reported not knowing any contraception method.

### **5.5.2: Contraceptive Practices**

There was a discrepancy in the reported use of contraceptives by the males and the females (Table 5.5). The males over reported condom use with 163 (93.1%) of the men saying that they used condoms, either as a contraceptive method or as a mode of HIV transmission prevention, as compared to 152 (86.9%) females. Only 49(28%) women and 47(26.9%) men reported to using condoms in addition to another method of contraception (dual contraception). In addition, 16(9.1%) females and 9(5.1%) males reported not to use any contraception method whatsoever. The contraceptive reportedly used by majority of the participants was the injectable (Depo Provera) method, which was used by 27 (15.4%) of the women. During the FGDs it was generally felt that the decision on contraceptive use dwells on both partners but the woman in most situations made the final decision on what method to take up, some which might have been discretely using the methods without the partners knowledge. In some situations the women verbalised how they would have wished the decision making to have been as exemplified in the following comments from the FGDs.

*“...for me I feel it is the woman who should decide because she is the one who goes to the hospital to find out the best method for herself...” (HIV negative male, 22 years) “...even as much as husband and wife decides jointly, there is a likelihood that it is the woman who makes the final decision since she is the one who eventually goes to the doctor and chooses her most preferred method...”( HIV Negative male,28 years)*

*“...I decide... because I’m the one who knows which method is compatible with my body...”*

*(HIV negative Female, 34 years)*

*“... It is the wife because she is the one who will suffer with many children in case the man decides to desert her and marry another wife...” (HIV positive Female, 20years)*

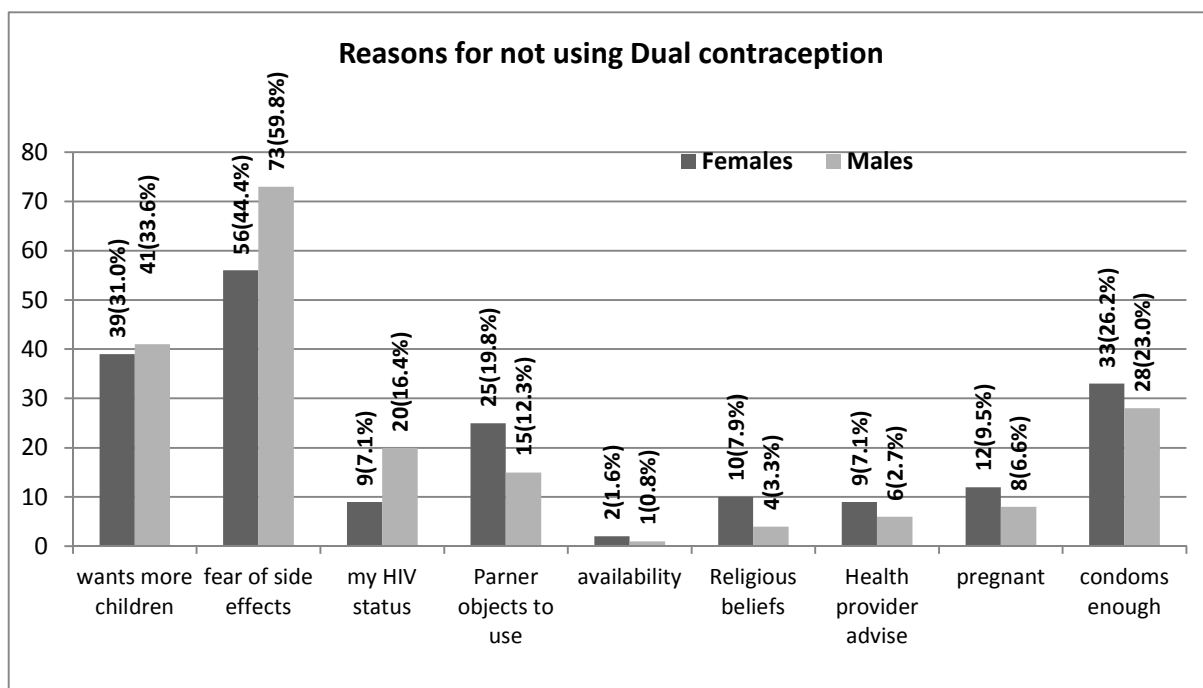
Regarding use of dual contraception, this is what one participant felt: *“... if I’m using a condom, why should I use other FP methods? This is analogous to telling a Matatu driver whose vehicle is fitted with a speed governor to look for other ways of moderating speed. In fact I don’t understand why you should use a condom and other contraceptives...”(HIV Negative Male,31 Years)*

**Table 5.5: Reported use of various methods of contraception by the participants (N=350)**

	Female		Male	
	n	%	n	%
<b>Oral pills</b>	<b>12</b>	<b>6.8</b>	<b>15</b>	<b>8.5</b>
<b>Injectable</b>	<b>27</b>	<b>15.4</b>	<b>20</b>	<b>11.4</b>
<b>Implants</b>	<b>5</b>	<b>2.9</b>	<b>6</b>	<b>3.4</b>
<b>IUD</b>	<b>10</b>	<b>5.7</b>	<b>5</b>	<b>2.9</b>
<b>Condoms</b>	<b>152</b>	<b>86.9</b>	<b>163</b>	<b>93.1</b>
<b>BTL</b>	<b>3</b>	<b>1.7</b>	<b>4</b>	<b>2.3</b>
<b>Vasectomy</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Others</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>No FP</b>	<b>14</b>	<b>8.0</b>	<b>9</b>	<b>5.1</b>
<b>Some FP</b>	<b>159</b>	<b>90.9</b>	<b>166</b>	<b>94.9</b>
<b>Dual contraception</b>	<b>49</b>	<b>28.0</b>	<b>47</b>	<b>26.9</b>

### 5.5.3: Attitude towards contraception

Figure 5. 3: Reasons given for not using dual contraception (N=254)



Of all the participants who did not use dual contraception, majority reported the reason of not using dual contraception as to being due to side effects. Of the females, 56(44.4%) of them feared side effects and 73(59.3%) males feared side effects in their partners. More women 25(19.8%) than men 15(12.3%) reported that the couple did not use dual contraception because the partner objected to use of dual contraception.

During the Focus Group discussions the following comments came up regarding reasons as to why they would choose not to use contraceptives:

*“... but some of the methods have side effects, some methods affect men, especially for women using pills , the men have some problems in their genitalia like swellings, I’ve witnessed such a problem with my friend. And for those who use injection, the women complain that injection causes men to complain of not enjoying sex. You see... like pills, they cause women to be hypertensive, and this also affects the spouse...” (HIV Negative female,34 years)*

#### **5.5.4: HIV diagnosis and contraceptive use**

Of those that were on some method of contraception, 109(68.6 %) of the females reported that they began using the method they were on after either themselves or their partners were diagnosed with HIV. 121(72.9%) of the men said that they found it fit for their partners to begin on some method of contraception or they themselves use condoms after the diagnosis of HIV in one of the partners. The partners either began using condoms alone or chose to use dual contraception (Table 5.6).

Of those that were not using any method of contraception, 12(75%) of the females reported that they stopped using the contraception after the diagnosis of HIV was made. Of the 9 male participants who reported not using any method of contraception in their relationships, 4 of them reported having found it fit to stop contraception after the diagnosis of HIV was made (Table 5.6).

Regarding how HIV diagnosis in one of the partners had impacted the contraception use, they went on to say; *“...that HIV positive people may not use contraceptives because they*

*are supposed to relax their BP and avoid side effects of the contraceptives...”(HIV Negative Female 24 years)*

Other participants felt HIV diagnosis should not determine the method of contraception used as exemplified in this comment “... they can be used by all people as long as there is body compatibility...” (HIV Negative Female, 34 years)

### **5.5.5: Contraception Availability, talking about contraception, approval of contraception and domestic violence.**

Of those interviewed 148(84.6%) of the women and 129(72.9%) of the men knew where to get methods of contraception besides the PrEP study clinic. Nearly all the participants approved contraception use. A majority of the participants reported that they discussed contraception with their partners. Domestic violence which included physical abuse, verbal abuse and financial abuse was reported by a small minority of the participants, women reporting this more than the men. (Table 5.6)

**Table 5.6: Contraception Characteristics**

	Gender			
	women		men	
	n	%	n	%
Started method after HIV diagnosis of self/partner(N= 159 female, 166 male)	109	68.6	121	72.9
Stopped method after HIV diagnosis in self/ partner(N= 16 female,9 male)	12	75.0	4	44.4
Talks about contraception with spouse (N=175 Female,175 Male)	131	74.9	138	78.9
Approves contraception(N=175 Female,175 male)	168	96.0	168	96.0
Domestic violence in household (N=175 male, 175 female)	11	6.3	6	3.4
Knows where to get contraception besides study clinic (N=175 Female,175 Male)	148	84.6	129	73.7

**5.5.6: Pregnancy.**

Of all the female participants interviewed in this study 12 (6.9%) were pregnant. Of these, 9(75.0%) were using condoms at the time of pregnancy, 1 (8.3%) was on dual contraception, this particular participant was on condoms and herbal method (described as a herbal concoction administered orally from traditional doctors) and 2(16.7%) were on no contraception method. All the pregnant women reported that the pregnancies were not planned for. The HIV positive and HIV negative pregnant women were equal in number. This

is in keeping with pregnancy studies that have shown that HIV negative women are not any less likely than the positive ones to fall pregnant.

**Table 5.7: Pregnancy Rates**

	Pregnant female Participants	
	N	%
<b>Pregnant Females</b>	<b>12</b>	<b>6.9</b>
<b>HIV Positive</b>	<b>6</b>	<b>50.0</b>
<b>HIV Negative</b>	<b>6</b>	<b>50.0</b>
<b>Pregnancy not planned(N=12)</b>	<b>12</b>	<b>100</b>
<b>Contraception at time of Pregnancy</b>		
<b>Condoms</b>	<b>9</b>	<b>75</b>
<b>Dual (condoms + Herbal)</b>	<b>1</b>	<b>8.3</b>
<b>None</b>	<b>2</b>	<b>16.7</b>

## **5.6: Relationship between contraceptive use and different variables.**

### **5.6.1: Contraceptive use and socio-economic factors**

Only the female data was analysed regarding contraception use in relation to the different variables. Those females that reported having used a method or did not use any method of contraception were included in this analysis.



**Table 5.8 : Contraception use and socio-economic and other factors**

		<u>Use some contraception</u>		Chi Square	P Value
		No	Yes		
<b>Sero status</b>	<b>Negative</b>	6	76	0.126	<b>0.723</b>
	<b>Positive</b>	8	83		
<b>Education</b>	<b>None</b>	2	2	10.145	<b>0.017</b>
	<b>Primary</b>	6	95		
	<b>Secondary</b>	5	53		
	<b>Post-secondary</b>	1	9		
<b>Income</b>	<b>&lt;=5000</b>	7	100	1.506	<b>0.681</b>
	<b>5001-10000</b>	4	41		
	<b>10001-15000</b>	0	6		
	<b>&gt;15000</b>	1	5		
<b>Knows where to get contraception</b>	<b>No</b>	2	23	0.001	<b>0.978</b>
	<b>Yes</b>	12	135		
<b>Talk about contraception</b>	<b>No</b>	7	33	0.024	<b>0.014</b>
	<b>Yes</b>	7	124		
<b>Feeling about contraception</b>	<b>Disapproves</b>	1	3	1.54	<b>0.215</b>
	<b>Approves</b>	13	154		
<b>Domestic Violence</b>	<b>No</b>	11	149	5.697	<b>0.017</b>
	<b>Yes</b>	3	8		

There was no statistically significant relationship between use of contraception and sero-status of the females, income earned, knowing source of contraception methods besides the PrEP Study clinic and on whether they approve contraception use or not. There was

however a statistically significant relationship between contraception use and talking about contraception with the spouse, domestic violence in the home and level of education ( Table 5.8).

### 5.6.2: Contraception use and age

**Table 5.9 : Contraceptive use by female participants and their age.**

	Uses some contraception	N	Mean	Std. Deviation	T	SE of Mean	of P value
<b>Age</b>	No	14	28.214	4.4407	-0.937	1.6045	<b>0.351</b>
	Yes	159	29.717	5.8506			

There was no significant relationship between age and contraception use as illustrated in table 5.9.

### 5.6.3: Comparison of association for use and non-use of dual contraceptives among women in discordant relationship who do not want more children or are not sure if they want more children

From the analysis thus far, and following the FGD responses, we would expect that the women who do not want to have more children or are not sure if they want to have more children would be using a method of contraception. However there is a group of 52 women who do not desire to have more children and yet do not use contraceptives as shown in table 5.10

**Table 5.10 : Comparison of women who desired more children and those who did not and their desire contraceptive use**

Dual Contraception	Desire for More Children		
	Yes	No/Not Sure	
Yes	19	30	49
No	73	52	125
	92	82	

In order to tease out the differences in use and non-use of dual contraceptives various variables and their relationship with contraceptive use among these women was considered as shown in table 5.11

**Table 5.11: Correlates of association for using dual contraceptives among women in HIV discordant relationship who do not want/not sure if they want more children**

	<u>OR</u>	<u>95% CI</u>	<u>p-value</u>
Under 33 years of age	1.58	0.63-3.97	0.334
Fewer than 3 current children	0.40	0.16-1.03	<b>0.057</b>
HIV+	0.91	0.37-2.26	0.839
Less than Secondary Education	0.63	0.24-1.65	0.351
Personal Income under 5,000 KSh/month	1.25	0.44-3.56	0.676

Women with less than three children were less likely to use dual contraceptives whether they desired more children or not.

Of these 52 women, 16 (30.8%) further gave reasons as to why they would not use dual contraceptives; 11 (68.8%) of them said that condoms were enough both as a method of contraceptive and to prevent HIV transmission.

## 5.7: Health Care Provider characteristics

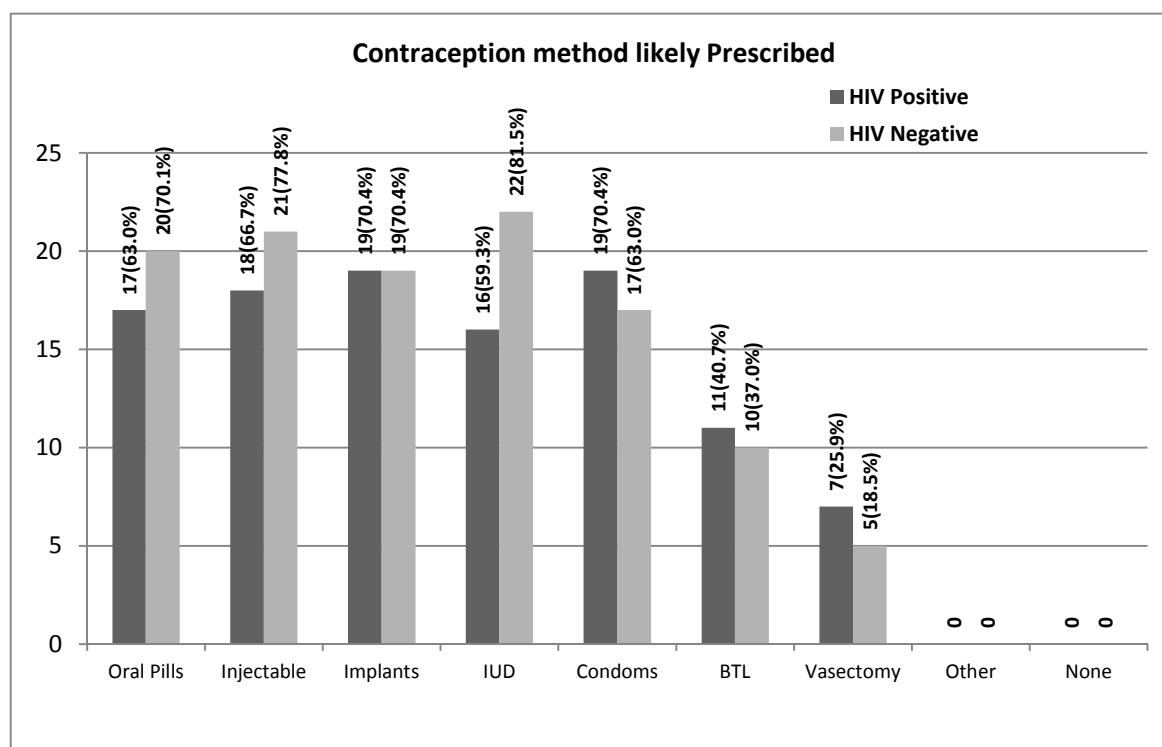
Table 5.12: Socio-demographic characteristics of the health care providers (N=27)

		N /Mean	%
<b>Age</b>			
Mean	[Range]	34.6	[25-48]
<b>MeanTimeWorked</b>			
Years	[Range]	10.7	[3-26]
<b>Gender</b>			
Female		14	51.9
Male		13	48.1
<b>JobTitle</b>			
Doctor		4	14.8
NurseCounselor		10	37.0
Counselor		11	40.7
Clinical Officer		2	7.4
<b>Approves use of Dual Contraception</b>		27	100
<b>Training on contraceptives</b>			
Not Informed before nursing / medical school		22	82.5
Informed during nursing / medical school		10	37.0
Informed after nursing / medical school		20	74.1
Nursing/medical school syllabus inadequate on this topic		23	85.2
Attended course on the job		14	51.9
<b>Training adequacy</b>			
Adequate		19	70.4
Inadequate		8	29.6
<b>Approval of Contraception (Not condom) in HIV Positive women</b>			
Approves.		27	100
Disapproves		0	0
<b>Approval of Contraception (Not condom) in HIV Negative women</b>			
Approves		26	96.3
Disapproves		1	3.7

### 5.7.1: HealthCare Provider Socio-demographic characteristics

In total 27 health care providers working in three discordant couple cohorts were interviewed. Their mean age was 34.6 years with a range of 25-48 years. They had worked for a mean period of 10.7 years since having graduated from college, with a range working period of 3-26. There were 14 females and 13 male health care providers participating. Professionally, there were 4(14.8%) doctors, 10(37.0%) Nurse counselors who are trained as nurses but in addition have counseling training either as VCT counselors or CHCT Counselors. In addition there were 2(7.4%) clinical officers and 11 (40.7%) counselors. These are trained either as VCT counselors, clinical psychologists or CHCT Counseling. (Table 5.10)

**Figure 5.4: The most likely contraception HCP would prescribe to HIV Positive and Negative woman. (N=27)**



## **5.7.2: Health care provider training on contraceptives among people living with HIV**

Nineteen (70.4%) of the health care providers thought that the training they received regarding contraception was adequate. The remaining thought that this training was not adequate. All the participants approved contraception use among the HIV positive women but 1(3.7%) disapproved use of contraception on HIV negative women. (Table5.10) all the respondents approved use of dual contraception.

From the FGDs it was evident that the couples look up to the health care providers to prescribe and advise on the method to use and exemplified in the following comments. *“...I was told that I need to use other contraceptives even if I was just using a condom to avoid getting unplanned for pregnancy...” (HIV Positive Female, 28years)*

Other participants said that the health care providers assist them in making an informed decision on the method to use. This is what they said *“... It is what you want that the health worker gives you after counseling and examining you. They do not dictate to you what you should use; there are some clinics in the village where the health workers impose a method on women...” (HIV Negative Male, 26Years)*

*“...the health workers do not decide for you the method to use, but let's you know of the available options for you yourself to choose the most suitable....” (HIV Negative Male 27 Years)*

## CHAPTER 6: DISCUSSION

This study examined contraceptive use and fertility desire among HIV sero-discordant couples enrolled in the PrEP Study in Nairobi and the contraceptive knowledge, attitudes and practices amongst health care providers working amongst discordant couple cohorts. It identified determinants of wanting more children and use of contraceptives. It is probable that this was the first study to explore these issues in the context of a discordant couple cohort.

A relatively high number (54.3%) of participants desired to have more children in this study. Majority (92.3%) of the participants reported using some method of contraception, while only 25.7% of the participants used dual contraception. Socio-demographic factors like income, education were not found to be significantly associated with desire for more children. However, the number of children one had was significant in determining the desire for more children. In addition the gender of these children was an important determinant of desire for more children. This was observed in various other studies that the number of children in different communities marked family tree continuity and that children was the sole purpose that marriage happened [21][22][23].

Other factors like age and HIV status were found to be associated significantly with desire for more children. The younger participants were found to desire more children as compared to the older participants. The HIV positive women and their HIV negative partners were more likely to want more children than their HIV negative female couple counterparts. This was also found in previously reported studies, that bearing children was much more



important than the HIV infection [46,47]. This was also reinforced in the FGD findings as said by a 32 year old HIV positive woman thus, “... *before I knew my status, I had decided on one child, but after learning of my status, I hope to add another one more so that I will have two children...*”

In the FGDs other reasons came up that have contributed to discordant couples desire for more children as one participant said, “...*when a mother who is HIV positive wants to have a child, she will go to see a doctor and have a counseling session on how and when to have sex, preferably when her CD4 count is very high. And even after she has conceived, she will still need to take ARV's so as to prevent high viral load and so as not to infect her unborn child...*”(HIV Positive Female, 32 Years) . Another 24 year old HIV positive woman went on to say, “...*if the couple could have the means, they should go to see a doctor, and if it is the man who is HIV positive, then his sperms will be extracted and washed before being put in the woman...*” . This further shows that with availability of PMTCT, ARVs and services like Sperm washing, adoption and artificial insemination hence safe parenthood is possible for discordant couples.

The knowledge of contraceptives was high with majority of the women listing at least five different types of contraceptive methods they knew. The men were generally found to be less knowledgeable about contraceptive methods. More men than women reported knowing vasectomy as a method of contraception. The participants also listed emergency contraception, herbal methods and natural methods as additional methods of contraception. The contraception knowledge may be high in this cohort because they

routinely receive contraceptive counseling as part of their parent study procedures. In addition all methods of contraception are available at the PrEP Study clinic. This may not apply to the general public. These numbers are lower but similar to the findings of the Kenya Demographic Health Survey of 2009 where more men than women knew contraception methods with 95% of women knowing at least one method of contraception [48]

The use of contraceptives, both condoms alone or dual contraception was higher than that found in the general public. This could be explained by the fact that couples have been tested together for HIV and are aware of their HIV status and thus counselled on using condoms to prevent transmission to their negative partners. The use of dual contraception is lower (28%) but almost comparable to that found in a discordant couple cohort in Thika, [37] which was at 31.5% dual contraception uptake.

The HIV status of the female partner was not significant in determining whether a female participant uses contraceptives or not. This is in contrast to a study done in France and Bangladesh [33][34] that found HIV positive women less likely to use condoms and other methods of contraceptives. The women's age, whether they approved contraception use or not and the income they earned were all not significantly related to use of contraception. Domestic violence in the home, the women's level of education and discussing contraception with the partner were determinants of use of contraceptives. This was found in a study done in Thailand, Uganda and India [30] that relationship dynamics, domestic violence and emotional closeness among couples may influence couples use of

contraceptives. A local study also suggested that more educated women were more likely to use contraceptives [27].

An equal number of HIV positive and negative women who participated in this study were pregnant. This agrees with studies that show that HIV positive women are no less likely than their negative counterparts to fall pregnant. However, this finding differs with other studies that showed that HIV positive women are more likely to have unplanned pregnancies than the HIV negative ones [34] and twice as likely to fall pregnant [33].

Reasons given for failing to use other contraceptive methods by the couples were varied. What came out more strongly was the fear of side effects, and the fact that the couples did not want to use dual contraception because they wanted to have more children. Many also thought that condoms were sufficient methods of contraception hence no need to use dual methods. These reasons compare with the reasons cited in a study locally [27]. However, religious beliefs do not feature strongly in this study as it did in the other study [27].

Majority (82.5%) of the health care providers had not been informed of contraception before enrolling into college. This represents what the lay man awareness of contraception is without any form of formal training on it. A good number (70.4%) of them said that their training on contraception was adequate. This might not be the true reflection of health care providers in many Kenyan health facilities since the health care providers interviewed are trained on the job regarding contraception among sero-discordant couples. The methods that would be prescribed to the HIV positive and negative women did not vary widely. In the FGDs the participants emphasised the role of the health care provider in the couples'

decision on getting more children and use of contraception thus, *“...the health worker does not decide for me, but counsels me on the method of my choice...”* ( HIV Negative female, 24 years)

*“... The health worker can decide, they examine you and counsel you on which method is compatible with your body hormones....”* (HIV negative woman, 34 years old)

*“...for us who are HIV positive, we are in this program whereby the doctors have all our information in the files. So whenever we meet them they always discuss with us based on our CD4 count, as to whether it is indeed safe or not safe to use a condom in addition to other contraceptives...”* (HIV Positive Female, 28 years)

The findings of this study which is in a research setting, therefore shows there is good attitude among the health care providers regarding contraception as reported by the discordant couples unlike earlier studies [39]. It further shows that the healthcare providers are available to discuss contraceptive needs of the couples unlike earlier studies [40]. This study agrees with an earlier study that showed that health care providers is crucial on how to balance safer sex practices and the desire to reproduce. This study shows that there is no difference in the methods of contraceptives the health care providers advised the discordant couples with a HIV positive female partner to use and the couples with a HIV negative female partner.

## CHAPTER 7: CONCLUSION

HIV discordant couples in the PrEP Study receive intensive risk reduction counseling to prevent HIV transmission and are provided with all methods of contraception for free. Overall in this study there was a high contraception use among the discordant couples with 90.9% of the women reporting using at least one method of contraception. These women were likely to be more educated, talk about contraception with their partners and are less likely to have domestic violence in their homes.

The use of dual contraception was however low with 28% of the women reporting use of dual contraceptives. The commonest reason given for not using dual contraceptives was fear of side effects, wanting to have more children and the thought that condoms alone were enough as a method of contraception. A surprising number of women who did not want or were not sure if they wanted more children however, did not use dual contraceptives. These were more likely to be women with fewer than three children and have the misconception that condoms alone were enough both as contraceptives and for transmission prevention.

More than half the couples desired to have more children. These were more likely to be younger couples have fewer children, and have a HIV positive female partner. The sex of the living children a couple had was also found to be significantly associated with desire for more children. Availability of ARVs, PMTCT, CD4 Counts, sperm washing and artificial insemination were found to contribute to desire for more children.

The pregnancy rate was low being 6.9%, all being unplanned for and 75% of these having been on condoms alone at the time the pregnancy happened. The pregnancy rate among the HIV positive and negative females was equal. Of all the participants, 46.7% did not express a desire for more children yet only 28% used dual contraceptives.

The health care provider opinion was found to be crucial in the couples' reproductive health, in decisions of desire for more children and contraceptive use. However, the contraceptive methods prescribed to the couples with a HIV positive female partner and those with a HIV negative female partner were almost similar. In addition it was found that most of the health care providers received their training on discordant couple reproductive health after college training, most of it being on the job training.

## CHAPTER 8: RECOMMENDATIONS

To enhance the level of dual contraceptive use for HIV transmission prevention and for planned pregnancies among HIV discordant couples, the following recommendations were made:-

1. The health care providers come into contact with those seeking contraception. They should therefore not make an assumption that those not on contraception desire to be parents. The health care providers should be trained on the reproductive needs of discordant couples and women living with HIV both in their training institutions and on the job training. That way they can impart this knowledge to their clients.
2. To address the low uptake of dual contraception, it is recommended that counseling be intensified among people living with HIV. At the moment all the participants at the PrEP study receive contraceptives and contraception counseling at each of their clinic visits. If this practice can be duplicated in other HIV care centers and Comprehensive Care Clinics then a higher contraceptive uptake can be achieved.
3. Discordant couples have to strike a balance between HIV transmission and family planning. Therefore improved counseling to address both fertility intention and need for dual contraception is necessary for discordant couples.
4. In this study the majority of the participants desired to have more children despite their HIV status, therefore there is need to provide safe and affordable alternative methods of conception for discordant couples to enable them to fulfill this desire.

5. it is recommended that studies be carried out on discordant couples in non-research settings and in the rural areas to get a better understanding of contraceptive use, knowledge and attitudes to the various contraceptive methods.

6. it is further recommended that studies to be carried out among health care providers in non-research settings to get an understanding of the gap there is in training on contraceptive needs of people living with HIV and in addition to understand the knowledge and attitudes of the health workers on the various methods of contraception.



## REFERENCES

1. Dunkle K, Stephenson R, Karita E. **New heterosexually transmitted HIV infections in married or cohabiting couples in urban Zambia and Rwanda: an analysis of Survey and Clinical data.** *Lancet* 2008; **371**:2183-2191.
2. Gray, R.H., Wawer, M.J., Brookmeyer, R., Sewankambo, N.K., Serwadda, D., Wabwire-Mangen, F. **Probability of HIV-1 transmission per coital act in monogamous, heterosexual, HIV-1-discordant couples in Rakai, Uganda.** *Lancet* 2001; **357**: 1149-1153.
3. Allen, S., Meinzen-Derr, J., Kautzman, M., Zulu, I., Trask, S., Fideli, U. **Sexual behavior of HIV discordant couples after HIV counseling and testing.** *AIDS* 2003; **17**: 733-740.
4. James Muttunga, Robert Buluma, Boaz cheluget. **HIV/AIDS related knowledge attitudes and behavior.** *Kenya demographic and Health survey* 2003; (**12**) 183-216.
5. Kenya AIDS Indicator Survey (KAIS), 2009
6. Kenya Demographic Health Survey (KDHS) 2008 -2009
7. Quinn, T.C., Wawer, M.J., Sewankambo, N., Serwadds, D., Li, C., Wabwire-Mangen, F. **Viral load and heterosexual transmission of human immunodeficiency virus type 1.** *The New England Journal of Medicine* 2000; **342**:921-929.
8. Kalichman, S.C., Rompa, D., Luke, W., & Austin, J. **HIV transmission risk behaviours among HIVpositive persons in serodiscordant relationships.** *International Journal of STD & AIDS* 2002; **13**:677- 682.
9. Kilewo, C., Massawe, A., Lyamuya, E.F., Semali, I., Kalokola, F., Urassa, E. **HIV counseling and testing of pregnant women in sub-Saharan Africa: experiences from a study on prevention of mother-to-child HIV-1 transmission in Dar es Salaam, Tanzania.** *Journal of Acquired Immune Deficiency Syndrome and Human Retrovirology* 2001; **28**: 458\_ 462
10. PATH. **Hormonal contraception , IUDs and HIV risk.** *Outlook* 1999; **17**:(1)1-2,7

11. Plummer F.A. **Cofactors in male –female transmission of HIV-1.** *Journal of infectious diseases* 1991; **163**: 233-239.
12. Morrison C, Sekadde Kigundu C, Sinei S. **Is the Intrauterine device appropriate contraception for HIV infected women?** *British Journal of Obstetrics and Gynaecology* 2001; **108**:784-790.
13. Mati JKG .**Contraceptive use and the risk of HIV infection in Nairobi Kenya.** *International journal of Gynaecology and Obstetrics* 1995; **48**:61-67.
14. T Delvaux, C No"stlinger. **Reproductive choice for women and men living with HIV: Contraception, Abortion and Fertility.***Reproductive Health Matters* 2007;**15**:(29) (Supplement 1):46–66
15. Siegel K, Schrimshaw EW. **Reasons and justifications for considering pregnancy among women living with HIV/AIDS.** *Psychology of Women Quarterly* 2001;**25**(2):112–23
16. Hutchison J, Estcourtr C, Imrie J, Fenton KA. **The sexual needs of HIV positive people.** *International Journal of STD and AIDS* 2003 Jul; **14**(7):500-501
17. Gottlieb GS, Nickle DC, Jensen MA. **Dual HIV-1 infection associated with rapid disease progression.** *Lancet* 2004; **363** (9409):619–22
18. Barreiro P, Castilla J, Labarga, V Soriano. **Is natural conception a valid option for HIV serodiscordant couples?** *Human Reproduction* 2007; **22**:2353-2358
19. Centre for Disease Control and prevention. (2007). **Revised guidelines for HIV counseling, testing and referral.** *Morbidity and Mortality weekly report* 50:1-57
20. Kanniappan, S, M.J. Jeyapaul, Shveta Kalyanwala. **“Desire for motherhood: Exploring HIV positive women’s desires, intentions and decision making I attaining motherhood.”** *AIDS Care*2008; **20**:625-630.
21. Roy TK, Sinha RK, Koenig M, Mohanty SK, Patel SK. **Consistency and Predictive ability of fertility preference indicators: Longitudinal evidence from rural India.** *International Family Plannng Perspective* 2008; **34**(3): 138-145.
22. Freedman R, J Y Takeshira. **“Family planning in Taiwan, An experiment in social change”**, 1999; Princeton University Press.
23. Robert Leke, Jenina Oduma, Kenneth Grigor. **Regional and geographical variations in infertility: effects of environmental, cultural and socio-economic factors.** *Environmntal health perspectives supplements* 1998; 101(suppl 2):73-80.

24. Wilson T E, Massa LS, Riester K, Barkan S, Richardson J. **Sexual, contraceptive use behavior of women with HIV and those at high risk for infection: Results from the Women's interagency HIV study.** *AIDS* 1999; **13**:501-598.
25. Maman S. **High rates and positive outcomes of HIV serostatus disclosure to sexual partners: reasons for cautious optimism from VCT clinic in Dar es Salam.** *AIDS and behavior* 2003 ;**7**: 373-382.
26. Avramov R, Maayan S, Moses A, Rahav G, Engelhard D, Knishkov B, Raveh D. **Attitudes towards childbearing in HIV concordant and discordant couples.** *International AIDS conference* 2002; 8:155.
27. Irwan Hidayama. **Sexuality and reproduction among people living with HIV AIDS in Java , Indonesia.** *Soc Sci Med* 2009. Sep; **69**(6):838-845
28. Kamenga M. **Evidence of marked sexual behavior change associated with low HIV-1 seroconversion in 149 married couples with discordant HIV-1 serostatus: experience at an HIV counseling center in Zaire** *AIDS* 1991, **5**(1):61-67;
29. Kamau RK, Karanja J, Sekadde-Kigundu c, Ruminjo JK, Nichols d, Liku J. **Barriers to contraceptive use in Kenya.** *East Africa medical Journal* 1996; **73**(100)651-659.
30. Morley D. **Papal policy , poverty and AIDS** *BMJ* 1990 **300**:(6741):1705
31. Dominga Trapaso R. **Towards an evolution of sexual ethics .** *Consencio latinamerica* 1991; **3**:(2);4-7
32. McGrath JW, Celentano DD, Chard SE, Fullem A, Kanya M, Gangakhedar RR. **A group-based intervention to increase condom use among HV serodiscordant couples in India, Thailand and Uganda.** *AIDS Care* 2007 ;**19**(3):418-24.
33. Watkins S. (2003). **Navigating AIDS in rural Malawi.** In paper presented at annual meeting of population Association of America, Minneapolis, MN May1-3
34. Serwadda D , Gray RH, Wawer MJ, Lainjo B, Kelly R. **The social dynamics of HIV transmission as reflected through discordant couples in rural Uganda.** *AIDS* 1995. **9**(7); 745-750.
35. Heard, Isabelle, Potard, Valerie, Costagliola, Dominique. **Contraceptive use in HIV positive women.** *JAIDS Journal of Acquired immune deficiency syndromes* 2004; **36**(2)

36. Jessica D Gipson, Michele Hindin. **Actions speak louder than words: matching couples' fertility preferences with their reproductive behaviors in rural Bangladesh.** *American Journal of Public Health* 2008. **98**(10); 1827-1832.
37. Arlington, VA: FHI, Maman. Family Health International (FHI), AIDS Control and Prevention Project, **AIDS in Kenya: Socioeconomic Impact and Policy Implications, Intersections of HIV and violence: implications for HIV counseling and testing in Dar es Salaam** 1996
38. Aka-Dago-Akribi H . **Issues surrounding reproductive choice for women living with HIV in Abidjan, Côte d'Ivoire.** *Reproductive Health Matters* 1999; **7**(13):20-29.
39. Ngure K, Heffron R, Mugo N, Irungu E, Celum C, Baeten JM. **Successful increase in contraceptive uptake among Kenyan HIV-1 serodiscordant couples enrolled in an HIV-1 prevention Trial.** *AIDS* 2009 Nov;**23** (Suppl1):S89-95
40. Cooper D; Bracken H; Myer L; Zweigenthal V; Harris J. **Policy maker and health care provider perspectives on reproductive decision making amongst HIV infected individuals in South Africa.***BMC Public Health* 2007;**282**:328-332
41. Peter Gichangi, Joseph Karanja, Marleen Temmerman. **Knowledge attitudes and practices regarding emergency contraception among nurses and nursing students in two hospitals in Nairobi Kenya.** *Contraception* 1999. **59**(4); 253-256.
42. Frost JL, Singh S, Finer LB. **Factors associated with contraception use and non-use in the USA.** *Perspectives sex and reproductive health* 2007; **39**: 90-99.
43. Lamvu G, Steiner MJ . **Consistency between most important reasons for using contraception and current method used: the influence of health care providers.** *Contraception.* 2006 April;**73**(4)399-403
44. Byamugisha JK, Mirembe FM, Fazelid E, Gemzell Danielsson K. **Knowledge , attitude and prescribing pattern of emergency contraception by health care workers in Kampala Uganda.** *Acta Obstetrica et Gynecologica Scandinavia* 2007; **86**(9)1111-1116.
45. Isaacs JN, Geinin MD. **Miscommunication between health care providers and patients may result in unwanted pregnancies.** *Contraception* 2003 Nov; **68**(5)573-576.
46. Guthrie B.L, Choi R.Y, Bosire R, Kiarie J.N, Mackelprang R.R, Gatuguta A, John-Stewart G. **Predicting pregnancy in HIV discordant couples.** *AIDS Behav.* 2010;**14**(5): 1066-1071

47. Beyeza-Kashesya, Ekstrom A.M, Kaharuza F, Mirembe F, Neema S, Kulane A. **My partner wants a child: A cross sectional study of the determinants of the desire for children among mutually disclosed sero-discordant couples receiving care in Uganda.** *BMC Public health* 2010; 10: 277
  
48. Kenya National Bureau of Statistics (KNBS) and ICF Macro. 2010. *Kenya Demographic and Health Survey 2008-09*. Calverton, Maryland: KNBS and ICF Macro.

## APPENDICES

### APPENDIX I: Informed consent forms for Focus Group Discussions.

#### UNIVERSITY OF NAIROBI, MASTERS OF PUBLIC HEALTH DEGREE; RESEARCH STUDY.

Investigator	Title	Institution	Telephone contact
Freda Kinoti	M.B.Ch.B	University of Nairobi, Department of public Health	0734 333 894 / 0727 333 894

#### **Researcher's statement**

You are being asked to be in a research study. This study is for participants who are already enrolled into the Partners PrEP study. The purpose of this consent form is to give you the information that you need to help you decide whether or not you would like to participate in this study. Before you decide, we would like to explain to you the purpose of the study, the risks and benefits, and what would be expected of you if you join this study. If you decide to participate in this study you will be asked to sign this consent form. This is referred to as 'informed consent'. You will be given a copy of this form to keep. Please ask to be explained to anything you may not understand.

#### **Purpose of the study.**

This is a research study on contraception, fertility and pregnancy decision making among discordant couples that are enrolled in the PrEP Study. The purpose of the study is to find

out the barriers to the use of contraceptive devices other than condoms among discordant couples and the factors that influence their decisions to get pregnant and make other fertility decisions.

We hope at the end of this study to gather enough information to help with formatting counseling messages that focus the needs of discordant couples as far as reproductive health is concerned.

**Your participation is voluntary.**

You need to understand that you do not have to be in the study if you do not want to. Participation in this study will not interfere with your participation in the core research study, PrEP.

**Study procedures**

For the Focus group discussions, we will have four groups comprising of 6 to 12 persons each who are of the same age bracket. You are being asked to volunteer in a focus group discussion. The purpose of the discussion is to share your experiences regarding your desire to have children, use of condoms and other contraceptives before and after joining PrEP. A counselor will facilitate the discussions and another staff member and the principal investigator of this study will be present during the session. Your voices will be audio-recorded. The discussion will last up to one and a half hours.

The audio-recorded information will be used to make a written transcript after which the audio recording will be erased. Note that nobody's name will be used in the transcripts.

Questions such as your age and number of children will be written on a questionnaire. It is possible that you may find some of the questions embarrassing.

What you shall be asked of today:

- sign or make your mark on this consent form
- We shall only ask you to attend one single visit, unless we find missing information, with your permission, we would then contact you again to collect complete information.
- The discussion will last for approximately one and half hours.

**You do not have to answer any of the questions if you do not want.**

### **Risks and benefits**

You may feel embarrassed on discussing some of the topics that we have scheduled for you.

We will make an effort to protect your confidentiality while you participate in this study.

Sharing and talking to other participants and study staff will give you new information regarding reproductive health.

### **Confidentiality**

Those who take part in this group discussion shall be asked not to discuss what they hear from each other outside this group. However, we cannot guarantee that everyone will keep to this promise. Confidentiality will be maintained by the study staff and documents used will only be accessible to study staff. Besides we will use only numbers and not names on the study documents.



We will use an audio recorder to make sure we have all information in the correct form. These recordings will be destroyed after one year of archiving and after they have been written in transcripts.

The results of this study will be given to the participant first before release to media or publishing.

**Other information**

It will not cost you any money to participate in this study.

Problems and questions can be directed to the principal investigator, whose contacts appear on the cover page or the Secretary of the Kenyatta National Hospital/University of Nairobi Ethics and Research Committee at 2726300 ext 43524 for further information on your rights as a study participant.

**Participant’s statement of consent and signatures**

I have read this form or had it read to me. I have discussed the information with study staff. My questions have been answered. I understand participation is voluntary.

_____	_____	_____
Participant Name	participant signature	date

_____	_____	_____
Study staff name	staff signature	date

**APPENDIX II: Consent form for interviewer administered questionnaire interviews.**

**UNIVERSITY OF NAIROBI, MASTERS OF PUBLIC HEALTH DEGREE; RESEARCH STUDY.**

<b>Investigator</b>	<b>Title</b>	<b>Institution</b>	<b>Telephone contact</b>
Freda Kinoti	M.B.Ch.B	University of Nairobi, Department of public Health	0734 333 894 / 0727 333 894

**Researcher's statement**

You are being asked to be in a research study. This study is for participants who are already enrolled into the Partners PrEP study. The purpose of this consent form is to give you the information that you need to help you decide whether or not you would like to participate in this study. Before you decide, we would like to explain to you the purpose of the study, the risks and benefits, and what would be expected of you if you join this study. If you decide to participate in this study you will be asked to sign this consent form. This is referred to as 'informed consent'. You will be given you a copy of this form to keep. Please ask to be explained to anything you may not understand.

**Purpose of the study.**

This is a research study on contraception, fertility and pregnancy decision making among discordant couples that are enrolled in these two studies mentioned above. The purpose of the study is to find out the barriers to the use of contraceptive devices other than condoms among discordant couples and the factors that influence their decisions to get pregnant and make other fertility decisions.

We hope at the end of this study to gather enough information to help with formatting counseling messages that focus the needs of discordant couples as far as reproductive health is concerned.

**Your participation is voluntary.**

You need to understand that you do not have to be in the study if you do not want to be. Participation in this study will not interfere with your participation in the core research study, PrEP.

**Study procedures**

You are being asked to share your experience on condom and contraceptive use before and after joining the PrEP study. You will be interviewed alone. Interviews will be carried out among individuals in private where the interviewer will get to ask all the questions. There will only be one session for each person lasting about half an hour.

What you shall be asked of today:

- sign or make your mark on this consent form
- We shall only ask you to attend one single visit, unless we find missing information, with your permission, we would then contact you again to collect complete information.
- The discussion will last for approximately half an hour.

**Risks and benefits**

You may feel embarrassed on discussing some of the topics that we have scheduled for you. We will make an effort to protect your confidentiality while you participate in this study.

Sharing and talking with study staff will give you new information regarding reproductive health.

### **Confidentiality**

Confidentiality will be maintained. Documents used will only be accessible to study staff. Besides we will use only numbers and not names on the study documents.

We will use an audio recorder to make sure we have all information in the correct form. These recordings will be destroyed after one year of archiving and after writing the information in transcripts.

### **Other information**

The results of this study will be given to the participant first before release to media or publishing.

It will not cost you any money to participate in this study.

Problems and questions can be directed to the principal investigator, whose contacts appear on the cover page and the Secretary of the Kenyatta National Hospital/University of Nairobi Ethics and Research Committee at 2726300 ext 43524 for further information on your rights as a study participant.

### **Participant's statement of consent and signature**

I have read this form or had it read to me. I have discussed the information with study staff. My questions have been answered. I understand participation is voluntary.

---

Participant Name

participant signature

date

---

Study staff name

staff signature

date

**APPENDIX III: Informed consent form for Health Care Provider Interviews.**

**MASTERS OF PUBLIC HEALTH RESEARCH STUDY**

<b>Investigator</b>	<b>Title</b>	<b>Institution</b>	<b>Telephone contact</b>
Freda Kinoti	M.B.Ch.B	University of Nairobi	0737 333 894 0727 333 894

**Researchers' statement**

You are being asked to be in a research study. This study is for participants who are already enrolled into the Partners PrEP study and the health care providers in the study clinics and those who work amongst discordant couple cohorts. The purpose of this consent form is to give you the information that you need to help you decide whether or not you would like to participate in this study. Before you decide, we would like to explain to you the purpose of the study, the risks and benefits, and what would be expected of you if you join this study. If you decide to participate in this study you will be asked to sign this consent form. We will give you a copy of this form to keep. Please ask us to explain anything you may not understand.

**Purpose of the study.**

This is a research study on contraception, fertility and pregnancy decision making among discordant couples that are enrolled in the study mentioned above. The purpose of the study is to find out the barriers to the use of contraceptive devices other than condoms among discordant couples and the factors that influence their decisions to get pregnant and make other fertility decisions. We will interview the health care providers who work

amongst discordant couple cohorts to find out their knowledge and attitudes towards contraception and whether this would influence the couples' use of contraception.

We hope at the end of this study to gather enough information to help with formatting counseling messages that focus the needs of discordant couples as far as reproductive health is concerned. With this information we will also focus on areas that need training for the health care providers.

**Your participation is voluntary.**

You need to understand that you do not have to be in the study if you do not want to. Participation in this study will not interfere with your work.

**Study procedures**

Interviews will be carried out among individuals in private where the interviewer will get to ask all the questions and write down the answers that you give. There will only be one session for each person. This information will be confidential. These interviews will be conducted by a research assistant.

Note that your names will not be linked to any of the written or audio-taped information and only the principal investigator will have access to these documents.

**Risks and benefits**

You may feel embarrassed on discussing some of the topics that we have scheduled for you. Some of the questions may seek to know some of your personal information. We will make an effort to protect you confidentiality while you participate in this study.

Sharing and talking about this topic will open up new ideas that may be useful in your practice.

**Confidentiality**

Confidentiality will be maintained. Documents used will only be accessible to the principal investigator conducting the study. Besides, only numbers will be used and not names on the study documents.

The results of this study will be given to the participants first before release to media or publishing.

It will not cost you any money to participate in this study.

Problems and questions can be directed to the principal investigator, whose contacts appear on the cover page or the Secretary of the Kenyatta National Hospital/University of Nairobi Ethics and Research Committee at 2726300 ext 43524 for further information on your rights as a study participant.

**Participant’s statement of consent and signatures**

I have read this form or had it read to me. I have discussed the information with study staff.

My questions have been answered. I understand participation is voluntary.

\_\_\_\_\_ participant signature \_\_\_\_\_ date  
Participant Name

\_\_\_\_\_ study staff signature \_\_\_\_\_ date  
Study staff name



## **APPENDIX IV**

### **FGD Guide : Focus group discussions**

*Participants have to be thanked for agreeing to talk to us. Procedure to be explained. Confidentiality to be assured. Assure that recorded material is for study purpose only and will be disposed of as soon as study is done and after transcription.*

Participants M\_\_\_\_\_F\_\_\_\_\_ HIV status : +ve\_\_\_\_\_ -ve\_\_\_\_\_

Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Faciliators \_\_\_\_\_; \_\_\_\_\_; \_\_\_\_\_

Language \_\_\_\_\_ Length of time \_\_\_\_\_

#### **1. Reproductive desires**

1.1 What are some of the things that determine the number of children a couple should have?

1.2 Who makes the decision about having children? (*Man, woman, family community*)

1.3 What is the ideal number of children a couple should have?

1.4 What do you think about having more children, now that you know your HIV status and that of your partner?

- a) Is it any different than before you knew your status?
- b) If yes, how?
- c) If not, why not?

1.5 What are some reasons that individuals in an HIV-serodiscordant relationship might want to have more children?

1.6 What options are available for HIV-discordant couples who desire to have more children?

1.7 What are some ways that HIV discordant couples might try to become pregnant while preventing HIV transmission? (*find out if they know about adoption, sperm washing, artificial insemination.....probe*)

1.8 Do you think discordant couples should have children when the woman is HIV infected or when the man is HIV infected? Why? *probe*

## **2. Contraceptive knowledge and practices.**

2.1 What method of contraception apart from condoms can discordant couples use?

(*list*)

a) Why these methods?

b) If no methods why?

2.2 Who should decide on what family planning method to use?

a) Man or woman or health provider

b) why?

2.3 Should the contraception method used by a discordant couple change when they know their status? How and why?

2.4 Does knowing one's HIV status determine what contraception method they can use? Are there some methods that HIV positive people cannot use yet HIV negative ones can use? Why is this so?

2.5 Where else besides study clinic would one get contraception from? What would you say about the ease of getting the method from there and other factors compared to the study clinic?

2.6 Does the health worker you meet determine what method you choose? How? (*for example you meet a doctor, a nurse or a counselor*)

2.7 What are your views about contraception generally? (*Should it be used or should it not be used?*)

2.8 Is it easy to talk about contraception between discordant partners? Why or why not? How would a typical conversation go?

2.9 How do the health providers influence the method of contraception you use?

2.10 Heard of vasectomy? BTL? Emergency contraception? What is your view on them?

### **1.0 sexual knowledge and practices**

**2.0** What do you think of having sex now that your status is different from your partner's?

- a) Has it changed? How and why
- b) Has it not changed? Why is that so?

3.1 What do you know about protected sex and unprotected sex?

3.2 How should discordant couples fulfill their sexual desires? (*Probe about concurrent relationships, masturbation, abstinence...*)

3.3 Are condoms generally used to prevent HIV or to prevent pregnancy in your opinion?

3.4 Who decides on the use of condoms in a discordant relationship?

3.5 Is the use of condom any different when the man is HIV positive or when the woman is HIV positive in a discordant relationship? Explain. (*Probe*)

## **APPENDIX V**

### **MASTERS OF PUBLIC HEALTH RESEARCH STUDY**

#### **Interviewer administered questionnaire:**

CPF Number \_\_\_\_\_ PrEP PTID 51- \_\_\_\_\_ - \_\_\_\_\_

Date \_\_\_\_/\_\_\_\_/2010

Sero- status POS  NEG

#### **PART 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS.**

1. Gender of the respondent: Male [.....] Female [.....]
2. Age (*in completed years as at last birthday*) [.....]
3. Highest level of school attended
  - i) None [.....]
  - ii) Primary [.....]
  - iii) Secondary [.....]
  - iv) Post-secondary [.....]
4. Income earned (*an average of the last 3 months*) Ksh:-
  - i) <5000 [.....]
  - ii) 5001-10000 [.....]
  - iii) 10001-15000 [.....]
  - iv) >15001 [.....]

#### **PART 2: REPRODUCTIVE DESIRE**

5. How many living children do you have?

i) 0-3 [.....]

ii) 4-6 [.....]

iii) Above 6 [.....]

6. Of these children how many are sons?

i) 0 [.....]

ii) 1-2 [.....]

iii) 3-4 [.....]

iv) >5 [.....]

7. Of the children in Question 5 how many are daughters?

i) 0 [.....]

ii) 1-2 [.....]

iii) 3-4 [.....]

iv) >4 [.....]

8. Do you want to have more children?

i) Yes [.....]

ii) No [.....]

iii) Not sure [.....]

9. Does your partner want to have more children?

i) Yes [.....]

ii) No [.....]

iii) Not sure [.....]

10. Did your desire for children change on learning the HIV status of yourself and your partner

i) Yes [.....] ii) No [.....]

11. How did it change?

- i) Reduce the number of children I want [.....]
- ii) Get no more children [.....]
- iii) I now want to have children [.....]
- iv) My partner wants more children [.....]
- v) My partner does not want more children any more. [.....]

**PART 3: FAMILY PLANNING CHARACTERISTICS.**

12. Do you know any family planning methods? Mention the ones that you know.

- i) Oral pills [.....]
- ii) Injectable [.....]
- iii) Implants [.....]
- iv) IUD [.....]
- v) Condoms [.....]
- vi) BTL [.....]
- vii) Vasectomy [.....]
- viii) Others [.....]
- ix) Don't know [.....]

13. Are you currently using any of the contraception method you have mentioned? OR  
*Is your partner using any of the methods you have mentioned?*

- i) Yes [.....] which method ..... *(From the choice in question 8.) Go to question 12.*
- ii) No [.....] *Go to question 13.*
- iii) Don't know [.....]

14. Did you start using contraception before you knew your HIV status and that of your partner?

- i) Yes [.....]

ii) No [.....]

15. Did you stop using contraception when you knew your status and that of your partner?

i) Yes [.....]

ii) No [.....]

16. Why are you (or your partner) not using contraception (*for those who answered NO to question 11 only*) mark all that apply.

i) Wants more children [.....]

ii) For fear of side effects [.....]

iii) Due to my HIV status [.....]

iv) Partner objects to use of contraception. [.....]

v) Availability [.....]

vi) Religious beliefs [.....]

vii) Health provider advice against use [.....]

viii) Other reasons [.....]

17. Have you ever used contraception other than condoms?

i) Yes [.....]

ii) No [.....]

18. Other than the study clinic, do you know where else one can get contraception?

i) Yes [.....]

ii) No [.....]

19. Do you talk about contraception with your partner?

i) Yes [.....]

ii) No [.....]

20. What do you feel about contraception, is it acceptable or not?

- i) Approves [.....]
- ii) Disapproves [.....]

21. Is there any sort of violence in your home from your partner, economic, physical, verbal abuse?

- i) Yes [.....]
- ii) No [.....]



**APPENDIX VI**

**MASTERS OF PUBLIC HEALTH RESEARCH STUDY**

**Health care provider questionnaire.**

CPF number \_\_\_\_\_

Date \_\_\_\_/\_\_\_\_/2010

Study clinic PrEP [.....] other [.....]

**PART 1: SOCIODEMOGRAPHIC CHARACTERISTICS**

1. How old are you (age at the last birthday) [.....years]
2. Gender? Male [.....] female [.....]
3. How long have you worked since graduating from college (*years after initial graduation, further education not considered*) .....Years
4. What is your job title?
  - i) Doctor [.....]
  - ii) Nurse (counselor) [.....]
  - iii) Counselor [.....]  
*(VCT counselor/ psychologist not a nurse)*
  - iv) Clinical officer [.....]

**PART 2: CONTRACEPTION KNOWLEDGE AND ATTITUDES**

5. Do you approve or disapprove use of contraception?
  - i) Approves [.....]

ii) Disapproves [.....]

6. Training in contraceptives(*mark all that apply*)

i) Not informed before nursing/ medical school [.....]

ii) Informed during nursing / medical school [.....]

iii) Informed after nursing/ medical school [.....]

iv) Nursing/ medical school syllabus inadequate on this topic [.....]

v) Nursing medical school syllabus adequate on this topic [.....]

vi) Attended course on the job [.....]

7. What do you rate your training on contraception as?

i) Adequate [.....]

ii) Inadequate [.....]

8. Do you approve or disapprove use of contraception on HIV positive women in discordant relationships?

i) Approve [.....] ii) Disapprove [.....]

9. Do you approve or disapprove of use of contraception by a HV negative woman in a discordant relationship?

i) Approve [.....] ii) Disapprove [.....]

10. What method of contraception are you most likely to prescribe to a willing HIV positive woman who walks into your office seeking contraception?

i) Oral pills. [.....]

ii) Injectable [.....]

iii) Implants [.....]

iv) IUD [.....]

- v) Condoms [.....]
- vi) BTL [.....]
- vii) Vasectomy [.....]
- viii) Others [.....]
- ix) None [.....]

11. What method of contraception are you likely to prescribe to a HIV negative woman who walks into your office seeking contraception?*(Mark all that apply)*

- i) Oral pills. [.....]
- ii) Injectable [.....]
- iii) Implants [.....]
- iv) IUD [.....]
- v) Condoms [.....]
- vi) BTL [.....]
- vii) Vasectomy [.....]
- viii) Others [.....]
- ix) None [.....]



Ref: KNH-ERC/ A/661

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8<sup>th</sup> December 2010

Dr. Freda Kinoti  
Dept. of Community Health  
School of Medicine  
University of Nairobi

Dear Dr. Kinoti

**Research proposal: "CONTRACEPTION, FERTILITY AND PREGNANCY DECISION MAKING AMONGST  
HIV DISCORDANT COUPLES IN NAIROBI, KENYA" (P334/10/2010)**

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This is to inform you that the KNH/UON-Ethics & Research Committee has reviewed and **approved** your above revised research proposal for the period 8<sup>th</sup> December 2010 – 7<sup>th</sup> December 2011.

You will be required to request for a renewal of the approval if you intend to continue with the study beyond the deadline given. Clearance for export of biological specimens must also be obtained from KNH/UON-Ethics & Research Committee for each batch.

On behalf of the Committee, I wish you a fruitful research and look forward to receiving a summary of the research findings upon completion of the study.

This information will form part of the data base that will be consulted in future when processing related research study so as to minimize chances of study duplication.

Yours sincerely

  
**PROF A N GUANTAI**  
**SECRETARY, KNH/UON-ERC**

c.c. The Deputy Director CS, KNH  
The HOD, Records, KNH  
The Dean, School of Medicine, UON  
The Chairman, Dept. of Community Health, UON  
Supervisors: Prof. E. Ngugi, Dept. of Community Health, UON  
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