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**DETERMINANTS OF FERTILITY PREFERENCES AMONG  
HIV INFECTED MOTHERS IN UASIN GISHU DISTRICT  
KENYA**

**BY**

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**A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE  
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fertility preferences*



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**DECLARATION**

This thesis is my original work and has not been presented for an award of degree in any other university.

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## DEDICATION

This work is dedicated with gratitude to my mother Rosalina Jesang Serem, the source of my inspiration. To her I say "Asante sana mama".

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**LIST OF ABBREVIATIONS AND ACRONYMS**

- AIDS-** Acquired Immunodeficiency syndrome
- AMPATH-**Academic Model for Prevention and Treatment of HIV
- ANC-** Antennal Clinic
- ART-** Antiretroviral Therapy
- DDP-**District Development Plan
- FP-**Family Planning
- HIV-** Human Immune Deficiency Virus
- HCP-**Health Care Providers
- MOH-** Ministry of Health
- MTCT-**Mother To Child Transmission
- MTRH-**Moi Teaching and Referral Hospital
- NASCOP –**National AIDS and STD Control Programme.
- NGO-** Non Governmental Organization
- PMCT-**Prevention of Mother to Child Transmission of HIV
- RHDC-**Rural Heath Demonstration Center
- STI -**Sexually Transmitted Infections
- UNAIDS-**Joint United Nations Program on AIDS
- VCT-**Voluntary Counseling and Testing
- WHO-**World Health Organization

**ABSTRACT**

Occurrence of the HIV and AIDS pandemic among childbearing women has necessitated these women to reconsider their future fertility preferences. Generally women who learn that they are HIV infected may have a strong desire to avoid bearing additional children who may be born HIV infected and/or will become orphaned at an early age. Availability of safe and effective contraception and high quality reproductive health counseling can help a woman practice safer sex and determine her future childbearing on a more responsible and informed basis. A descriptive cross-sectional study was undertaken in Uasin Gishu District of Rift Valley Province. A total of 400 consenting HIV infected mothers were interviewed using a pre-tested interview schedule. To validate the respondents' feedback and ascertain the perception of the Health Care Providers towards fertility among HIV infected mothers a questionnaire was administered on them. Data were analyzed using SPSS statistical package version 11.5. The highest proportion of desire to get additional children (53.5%) was seen amongst those respondents aged 15-19 years while the lowest desire for additional children was recorded amongst age group 40-44 years with none (0.0%) desiring to get additional children. There was a significant statistical relationship between age and fertility preferences ( $\chi^2=21.699$ ;  $df=5$ ;  $P=0.001$ ). Majority (77.5%) of respondents had two or more children. Majority (85.1%) of the respondents who knew about all the three stages of MTCT; pregnancy, delivery and breastfeeding did not intend to get additional children while one-third (33.3%) of those who did not know any stage of MTCT still intended to get additional children. There was a significant relationship between knowledge on MTCT and fertility preference among the respondents ( $\chi^2=20.213$ ;  $df=7$ ;  $P=0.005$ ). The study reveals that none of the respondents who had knowledge on at least six contraceptive methods wished to get additional children whereas all of those who knew only one method did desire to get additional children. A significant relationship was found between the number of methods familiar to the respondents and their fertility preference ( $\chi^2=12.307$ ;  $df=5$ ;  $P=0.031$ ). The findings of this study will be used addressing gaps in reproductive health services and counseling among HIV infected women. Though most of the HCP (health care providers) had an additional job-relevant training, they were inadequate in basic training and hence its implementation. It is recommended that more health care providers be trained specifically on family planning and PMTCT of HIV.

## CHAPTER 1

### 1 INTRODUCTION

#### 1.1 Background Information

The first recognised cases of acquired immunodeficiency syndrome (AIDS), an immunosuppressing condition caused by human immunodeficiency virus (HIV), occurred in the summer of 1981 in America (Richard, 2002). Even though the condition became known early as AIDS, its aetiological agents and modes of transmission were not immediately known (William and William, 2004). The virus now known to cause AIDS in a proportion of those infected was discovered in 1983 in United States of America (NASCO, 2002). The predominant HIV subtype in African region is HIV-1, which accounts for >98% of all infections. HIV -2 is found primarily in western Africa (WHO, 2003). The most common mode of transmission of the virus throughout the world is by sexual intercourse. Other modes of transmission are through receipt of infected blood or blood products by transfusion, sharing of contaminated needles, and from mother to child (Adler, 2001). Children may acquire HIV during pregnancy, labour and delivery and/or after birth; through breastfeeding (NASCO, 2003).

Several mothers who are HIV infected may have a strong desire to avoid bearing additional children because they are aware of the consequences. In some cases, the threat of infecting the partner or husband had led to a decision not to have more children (Baylies, 2000). Men need to be involved in strategies for mutual protection (Baylies, 2000).

A study conducted in United States of America showed that overall, 29% of HIV infected women receiving medical care desire children in future. Among those desiring children, 69% of them actually expect to have one or more children in future (Chen *et al.*, 2001). In

another study done in Uganda, which was carried out between February and April 2005 among 40 HIV positive women it showed that one third of the respondents had had additional pregnancies, after they found out that they were HIV positive. However the same study showed that among the respondents who knew their HIV status at the time they became pregnant with their most recent pregnancy, over half of them reacted negatively to the discovery that they were pregnant (Ann *et al.*, 2005). This study is useful in determining fertility related shortcoming among HIV infected mothers hence may form a basis for its mitigation.

### **1.2 Statement of the Problem**

HIV-positive mothers may want to continue with childbearing. The extent of the fertility desires and intentions and how they may vary by individual socio-demographic characteristics is not well understood (Chen *et al.*, 2001). HIV transmission among individual couples is likely to increase as more and more infected individuals choose to have children with their HIV-negative partners (Chen *et al.*, 2001). Similarly, the number of HIV infected children is likely to increase due to mother to child transmission. An accurate description of fertility choices among infected individuals is necessary to enable reproductive health care counselors to educate and assist those women who want to have more children to do so without sacrificing the health and well being of their new borns, their partners and themselves (Chen *et al.*, 2001).

Health care providers and agencies have varying opinions towards fertility among HIV infected women. While some recommend that women who are HIV infected not bear children other health care providers feel that an infected woman should be allowed to have autonomy over her fertility choices (NAS COP, 2003). The attitude of health care providers should be assessed with a view to improving their counseling skills. Policy

formulation should be evidence based. It was therefore imperative that this study be carried out to measure level of either intention for more births or no more births in future among HIV infected mothers and more so the factors determining this preference.

### **1.3. Justification of the study**

HIV /AIDS is a serious public health and socio-economic problem in many countries around the world (ROK, 2005). The most affected countries are found in sub-Saharan Africa, especially those located in the Eastern, Central and Southern parts of the continent (NASCO, 2003). HIV/AIDS remains a major concern in Kenya because of relatively high prevalence rates reported among adult population and significantly higher rates among younger ages (ROK, 2005). The deaths of these individuals constitute a serious economic and social tragedy in the lives of surviving family, friends and employers (NASCO, 2003). Perinatal transmission is of significant importance in Kenya where approximately 30 to 40% of babies born to HIV positive mothers will themselves be infected with the virus (NASCO, 2003). The remainder may not be infected but are at risk of becoming orphaned when one or both of their parents' dies from AIDS related diseases.

Improved reproductive health counseling will empower women to make informed fertility decisions. Given the dramatic recent advances in treatment and prevention of mother to child transmission, fertility desires and intentions are likely to rise (Chen *et al.*, 2001). Those who advocate voluntary avoidance of pregnancy may not adequately understand the values that shape the reproductive and sexual lives of HIV infected women. Public policy should take account of the moral universe and a social reality that include far more than the possible transmission of AIDS to infants (Chen *et al.*, 2001).

The Women inhabit a world whereby procreation provides a sense of love and meaning, is a major source of self-esteem and social respect, and expresses a hope for the survival of culture (KDHS, 2003).

There is need to establish if mothers who decide to have more children do this with full knowledge of the possible consequence of mother to child transmission of HIV. At the same time, it is important to know the measures that have been put in place by the mothers who don't intend to get any more children (Chen *et al.*, 2001). This research will provide information for future planning regarding couple involvement in contraceptive use. An accurate description of fertility desires and intentions among infected individuals is necessary to aid infected individuals who desire and expect children to do so without sacrificing the health and well being of their partners and themselves (ROK, 2005). The goal of HIV and AIDS control is to reduce the rate of spread and prevent the occurrence of more HIV and AIDS cases. Studying determinants of desires and intentions directly will put into focus the subset of HIV infected women who are most likely to get pregnant by choice. This information will assist in establishment of policies and strategies that will take into account the specific needs of this group of women.

#### **1.4. Research Questions**

- i. Does the knowledge by HIV infected mothers on mother to child transmission of HIV have an effect on fertility preference?
- ii. Is there relation between age, occupation, residence, religion, marital status, and educational level of the HIV infected mothers and their fertility choices.
- iii. Does knowledge on contraceptives and its use influence future fertility choices?

- iv. Does partner or husband communication and participation regarding HIV issues and contraceptive uses have an influence on fertility preference?
- v. What is the attitude of Health care providers towards fertility among HIV infected mothers?

### **1.5. Hypotheses**

- i That knowledge on mother to child transmission of HIV does not have an influence on fertility preferences.
- ii. There is no relation between age, occupation, residence, religion, marital status, and educational level of HIV infected mothers and their fertility choices.
- iii. That knowledge on contraceptives and their use do not influence fertility choices.
- iv. That partner or husband communication and participation regarding HIV issues and contraceptives has no influence on fertility preference.
- v. That there is no difference in the attitude of the Health care providers towards fertility choices among HIV infected mothers.

### **1.6. Objectives of the Study**

#### **1.6.1 General Objective**

To establish the factors determining fertility preferences among HIV infected mothers.

#### **1.6.2 Specific Objectives**

- i. To establish the influence of knowledge on mother to child transmission with respect to fertility choices among HIV infected mothers.
- ii. To determine the relationship between selected socio-demographic characteristics and fertility preferences.

- iii. To establish the influence of knowledge on contraceptives and their use on fertility preference among HIV infected mothers.
- iv. To determine how partner or husband communication and participation on HIV issues and contraceptive use influences future fertility choices.
- v. To establish the attitude of health care providers towards fertility preferences among HIV infected mothers.

## **1.7 Significance and anticipated output of the study**

### **1.7.1 Significance**

This study on factors associated with fertility among HIV infected mothers was the first to be undertaken at AMPATH centers of Uasin Gishu District. It aimed at addressing the factors that influence fertility among HIV infected mothers hence reverse the consequences of mistimed and unwanted pregnancies and mitigate their plight. The study will also provide an understanding of the attitudes of health care providers towards reproduction among infected mothers.

### **1.7.2 Anticipated output**

This study will be expected to determine the factors that influence fertility among HIV infected mothers in the study area.

## **1.8 Assumptions**

There are some assumptions that had to be made owing to the short period of the study and also due to the fact that the study was done under limited resources. The study was not able to directly get views from partners/spouses of the HIV infected mothers. Therefore the opinion of a second party (female partners) was presumed to reflect the truth about them. The serostatus of their partners/spouses was also not determined hence no comparison on attitude of concordant versus discordant couples was done. It was also

not possible to make a follow up to determine what transpired after the initial study hence only the opinion about their future plans was accepted to be a valid reflection of their future intentions.

### 1.9 Operational definition of terms

- i. **Discordant-** It is when one person is HIV infected and the other is not although the two are sexual contacts.
- ii. **Unmet need for family planning-**This is a situation when a woman wishes to stop any more childbearing but is found not to be undertaking any measures to attain the same though sexually active.
- iii. **Fertility preference-**It is the choice to either get more children or not to get any additional children.
- iv. **Reproductive health-**Is defined by World health organization as complete physical, mental and social well being pertaining all matters related to reproductive system.
- v. **Reproductive health technologies-**Is defined as the drugs, medical and surgical procedures and devices that facilitate conception, prevent or terminate pregnancy and prevent the acquisition or/and transmission of sexually related infections. It is important to note that these techniques separate sex from reproduction.

## CHAPTER 2

### 2 LITERATURE REVIEW

#### 2.1 Global HIV and AIDS Pandemic

The scale of the AIDS crisis today, outstrips even the worst-case scenario of a decade ago. In 2004, an estimated 4.9 million people became newly infected with HIV (UNAIDS, 2004). This number is higher than ever witnessed in any other year in the past. Today some 39.4 million people are living with HIV, which was responsible for 3.1 million deaths in 2004, and over 23 million since the first cases of AIDS were identified in 1981 (UNAIDS, 2004). The percentage of HIV infected women globally also appear to be rising; For instance, in Latin America there were 36% infections in 2004 compared to 35% in 2002 and in Eastern Europe and Central Asia there were 34% infections in 2004 compared to 33% infections in 2002 (UNAIDS, 2004).

In sub-Saharan Africa, the epidemic is more severe than in all other continents. Although the region has just over 10% of the world's population it is home to more than 60% of all people living with HIV; some 25.4 million people (UNAIDS, 2004). In 2004 alone an estimated 3.1 million people in the region became newly infected, while 2.3 million died of AIDS (UNAIDS, 2004). In sub-Saharan Africa the woman gender is more infected since 57% of adults infected are women and 75% of young people infected are women and girls (UNAIDS, 2004). Fortunately, in some countries of Eastern and Central Africa, there are signs of real decline in infections. This is notable in Uganda, whereby between 1990 and 2000, HIV prevalence among pregnant teenagers (15-19 years) in Kampala fell from 22% to 7% (Cohen; UNICEF/UNAIDS/WHO, 2002)

## **2.2 Kenyan HIV and AIDS Situation**

Sentinel surveillance in Kenya has been conducted annually in specific sites since 1990 (NASCO, 2002). The survey covers pregnant women making their first visit to clinics for the current pregnancy and men and women seeking STD treatment from sentinel sites during survey period (NASCO, 2002). In 1990-sentinel surveillance, data showed a prevalence of 6.1%. By the end of 1999, the infection rate had swelled to 13%. The national infection rates showed some decline during the period 2000 to 2002 from 13.2% to 13.0% and 10.2% respectively (KDHS, 2003). According national sentinel HIV surveillance 2003 results by ministry of health, prevalence of HIV among women of reproductive age was 9.4 % (NASCO, 2003). Reconciliation of the data from the Kenya Demographic and Health Survey and sentinel surveillance data gives an adjusted national prevalence of 7.0 % (ROK, 2005). This study will provide information on fertility related risks; mother to child transmission and partner infection. The findings will be useful in setting strategies for future HIV control programmes.

## **2.3 Knowledge on prevention of mother to child transmission of HIV.**

HIV infection has the greatest impact of health condition on the long-term outcome of the pregnancy and child survival (NASCO, 2002). All pregnant women should be encouraged to learn their HIV infection status, as well as that of their sexual partners. It is by knowing HIV status that the health worker can make appropriate health care management recommendation. The pregnant woman also makes appropriate decisions about maintaining her health (NASCO, 2002). Lifestyle and behavior change for those HIV infected should be encouraged to reduce risk of transmission to the child. Smoking, alcohol and drug use should be discouraged. Unprotected sex during pregnancy and

breastfeeding may be associated with an increased risk of HIV transmission to the baby (NASCO, 2002).

Although the risk of transmission of HIV from mother to infant can be decreased with prophylactic treatment, maternal transmission accounts for almost all new HIV infection in children (Lindgren, 1999). Mother to child transmission occurs at the rate of 25-35% of HIV-positive women, depending on a number of factors, such as viral load, breastfeeding and use of antiretroviral therapy. Most of children infected by their mothers' die before the age five years (WHO, 2003). In general, pregnancy does not adversely affect the natural history of HIV infection nor accelerate the progression to AIDS (Michelle *et al.*, 2004). This study will attempt to assess the level of awareness concerning prevention of mother to child transmission of HIV among HIV infected mothers. It will also help determine whether or not future fertility decisions are made with full knowledge of possible consequences that is transmission of the virus to the child. Health care providers ought to reign on the strengths and correct the weakness on knowledge among the HIV infected mothers to improve fertility concerns hence attaining better reproductive health and HIV control.

#### **2.4. Partner communication and participation**

Partner notification has been accepted as the cornerstone for STI control in many countries (Brown *et al.*, 1970). Mainly, this will assist in revealing discordance; hence allow measures to be put in place to prevent partner infection (KDHS, 2003). The risk of transmission among individual couples is likely to increase as more infected individuals choose to have children with their negative partners (Shustner *et al.*, 2000). Therefore the HIV infected woman who wishes to have children in future should be aware of the

significant implication of the transmission of HIV to sexual partners (Lindegren *et al.*, 1999). Women known to have HIV infection should be counseled on contraceptive methods, of which only the condom can reliably reduce HIV risk to uninfected partner (De Vincenzi, 1994).

Marriages and other long-term monogamous relationships do not seem to protect women from HIV (Human Rights Watch, 2003). A study done in Dar-esalaam the capital city of Tanzania on VCT services found after disclosure only 57% of women who tested HIV positive reported receiving support and understanding from their partners (Maman *et al.*, 2003). Sometimes women patients express interest and even personal commitment to HIV prevention steps, but have little hope of enlisting the co-operation of their partners. Perhaps the most direct way for women is when health care providers urge them to bring in their partners. Prevention skill building should then be done for these men, either together with a female partner or alone (Hatcher *et al.*, 1994). This study sought to investigate the extend to which male partners are involved by their spouses in future fertility decisions. It will also seek to determine whether partner involvement or lack of it influences the future choices as in whether or not to get additional children among HIV infected mothers.

## **2.5 Knowledge on and use of contraceptives.**

Contraception is the prevention of conception by methods other than abstinence (Tidal, 1987). Availability of safe and effective sex practices will assist a woman determine her future childbearing patterns on a more responsible and informed basis. HIV positive women may want to avoid pregnancy for the same reasons as other women but do not want to infect their partners through unprotected sex. They worry about effects of

pregnancy and childbirth on their own health and about infecting the child and the child's future childcare (Guonjiah *et al.*, 1991). Although sexual activity among adolescents is high, and contraceptive knowledge is almost universal in Kenya, 95% of 15-49years olds and 97% of males aged 15-54years knowing at least one method of family planning, contraceptive use among adolescents remains low (KDHS, 2003).

HIV infected women should initiate a reliable contraceptive method by 2-4 weeks postpartum (KDHS, 2003). Many contraceptive methods reduce the risk of HIV and other STIs. However, a few may actually increase the risk of this infection, such as Intra Uterine Copper Device (IUCD) (CDC, 1999). Surprisingly, infected women often choose a method of birth control without regard to disease transmission factors, just as uninfected women often do (CDC, 1999). The goal of contraceptive use should be high contraceptive efficacy and low risk of partner to woman STI transmission. The goal is met by options such as oral contraceptive plus male latex synthetic condoms (Hartcher *et al.*, 1994). This study is meant to help bridge the gap in knowledge by attempting to establish the level of awareness and use of contraceptives among HIV infected mothers. A clear knowledge will aid program administrators to reinforce appropriately where necessary hence allowing fertility-related issues to be handled more professionally and from an informed position.

## CHAPTER 3

### 3 MATERIALS AND METHODS

#### 3.1 Introduction

This chapter describes the study location, population and states how it was selected. It highlights the scientific techniques used in the study that will give utmost reliability and validity. In addition it takes consideration of ethical issues related to research studies.

#### 3.2 Research Design

A descriptive cross sectional study design was employed. It involved interview schedules, where personal interviews were done systematically on sampled HIV infected mothers to determine the factors that determine fertility preferences. The design has provided quantitative data, whose details established relationship and has enabled the researcher to meaningfully describe distribution of variables using standard statistical methods.

#### 3.3 Variables

This study was able to test fertility preference (dependent variable) among the HIV infected mothers in the study area against several independent variables. First, the social demographic characteristics tested included age, educational level, place of residence, occupation, religion, marital status and number of children. Second, was the knowledge on mother to child transmission, awareness on and use of contraceptive and also spouses' involvement in issues related to HIV among the HIV infected mothers.

#### 3.4 Location of Study

Uasin Gishu District was conveniently chosen as the study area. It is a district is in Rift Valley Province (Appendix 3). The district has a population of 682,342 people, with males and females being almost of the same ratio (ROK, 2002). The district is divided into six administrative divisions, namely; Soy, Moiben, Ainabkoi, Turbo, Kapsaret and

Kesses (Appendix 4). Turbo and Kapsaret are densely populated, whereas Moiben is sparsely populated. (ROK, 2002). Data collection was done at three sites, which are the only centers that are beneficiaries of AMPATH program (Academic Model for Prevention and Treatment of HIV) in the district. Moi Teaching and Referral Hospital, Eldoret, was the main data collection center. The other two sites were Turbo Rural Health Demonstration Center (Turbo Division) and Burnt Forest Rural Health Demonstration Center (Anaibkoi Division) that are located to the west and east of the district respectively (ROK, 1999). All the three facilities are along the road to Uganda which is a regional highway running from Mombassa City (Kenya) to Kinshasa City (Democratic Republic of Congo). The highway is an important HIV transmission point because of the long distance truck drivers who stop over at these centers. This study covered both the urban and rural clusters.

### **3.5 Target population**

This study was done to determine the factors influencing fertility preferences among HIV infected mothers in Uasin Gishu District in Kenya. Those involved in the study were mainly HIV infected mothers between 15- 49 years of age. They also had to have a child of less than two years of age and be residents of Uasin Gishu district. In a period of eighty days an average of five mothers were interviewed at the health facility where the researcher was stationed. Data collection was done for five days in a week; Monday to Friday. Eventually the total number of those interviewed was 400 HIV infected mothers. To establish the attitude of health care providers towards fertility preferences among HIV infected mothers a total of thirty-one health care workers were asked to fill questionnaires.

### 3.5.1 Inclusion criteria

- i. HIV infected mothers' aged 15-49 years with a child-aged 2years and below and residents of Uasin Gishu District for at least 6 months before the interview.
- ii. HIV infected mothers' visiting the PMCTC clinic to collect infant formula milk for their children at Moi Teaching and Referral Hospital, Eldoret.
- iii. HIV infected mothers attending the Highly Active Antiretroviral Therapy clinic for ART and to get medical checkup at Moi Teaching and Referral Hospital, Eldoret.
- iv. HIV infected mothers taking their children to the HIV pediatric clinic for whatever reason at Moi Teaching and Referral Hospital, Eldoret.
- v. HIV infected mothers' on follow-up, booked for special clinic days at Burnt Forest Rural Health Demonstration Center and Turbo Rural Health Demonstration Center.
- vi. All health care providers who participate in care of the HIV infected mothers at these sites.

### 3.5.2 Exclusion criteria

- i. HIV infected mothers who had not been residents of Uasin Gishu District for at least 6 months before the interview.
- ii. Mothers at the three sites that were either HIV negative or above 50years.
- iii. All HIV infected mothers with children older than 2 years.

## 3.6. Sampling techniques and sample size

### 3.6.1 Sampling Techniques

Systematic sampling was used in the choice of participants at the exit point; after receiving the service. The second patient of the day to attend for services at the respective health facility was recruited as the first participant; consequently others followed

systematically with one patient being skipped while the next was selected, hence resulting in the following order: the second client, fourth client, sixth client, and so on up to four hundred.

### 3.6.2 Sample size determination

The sample size for all the sampled population was arrived at using the formula as previously used by Fisher and others herein shown below (Fisher *et al.*, 1998)

$$N = \frac{Z^2 p q D}{d^2}$$

Where; N= sample size

Z= standard normal deviate (1.96), corresponding to 95% confidence interval.

p= the proportion of the target population with a particular characteristic.

q= 1-p

d= the degree of accuracy =0.05

D= design effect=3

Thus,  $N = \frac{1.96 \times 1.96 \times 0.094 \times 0.96 \times 3}{0.05 \times 0.05} = 392$  approximated at 400.

Eventually all the expected numbers of respondents were interviewed. To apportion the sample in the respective sites the researcher applied the population probability proportional to sample size formula (Fisher *et al.*, 2003) to come up with the number of HIV infected mothers that were selected as the respondents in each of the three facilities. Herein shown in the table 3.3.1

**Table 3.6.2: Distribution of sample size by proportional allocation.**

Health facility	HIV infected mothers attending the facility.	Ratio	Probability Proportional to sample Size (PPS)
MTRH	830	7	277
Turbo RHDC	250	2	83
Burnt forest RHDC	120	1	40
Totals	1200	10	400

### **3.7 Construction of the research instruments**

A pre-test was conducted before the main data collection to establish the suitability of the questions in the interview schedule and the questionnaire. Data was collected using interview schedules, which were administered to HIV infected mothers'. A questionnaire was administered on the health care provision staff that deal with HIV infected mothers. English language was used to interview and where difficulties were experienced Kiswahili and Kalenjin languages was employed.

### **3.8 Pilot Study**

A pre-test was conducted at Mosoriot Health Centre which is in Nandi district to establish the suitability of the questions in the interview schedule and questionnaire.

#### **3.8.1 Validity**

The interview schedule and questionnaire were tested and found to be valid in content, criterion and construct validity.

#### **3.8.2 Reliability**

Equivalent form method was used when testing the reliability of the interview schedules and questionnaire. This was administered at Mosoriot Health Centre which is an AMPATH centre but located in Nandi district. It was found that the data collection instruments were reliable.

### **3.9 Data Collection technique**

Data was collected by interviewing the HIV infected mothers who visited AMPATH centers for services. At the Moi Teaching and Referral Hospital follow-up was at the prevention of mother to child clinic whereby mothers were collecting infant formula. Interviewed also were those HIV infected mothers visiting the Highly Active Antiretroviral Therapy (HAART) clinic and pediatric HIV clinic. At Turbo Rural health Demonstration Centre (RHDC) interviews were conducted during specific visit days

either for antiretroviral drugs or for infant formula. Health care provision staff played a key role in recruiting the study subjects by looking at the information contained on the clinic attendance card. The participating health care providers attending to the clients were requested to assist in recruiting the mothers who met the eligibility criteria. The mothers were met at the exit point of care. The interviewer counter checked their eligibility before proceeding with the interview. The interview was conducted with utmost privacy

### **3.10 Logical and ethical consideration**

Permission to carry out the research was sought from the ethical review committees at Kenyatta University, The Ministry of Education, The ministry of Health and Moi Teaching and Referral Hospital, Eldoret. Participation was voluntary, through informed consent and participants were not forced to give information. The information obtained was kept in confidence. The members were free to withdraw at any time; those who withdrew were not penalized and did not suffer any loss of benefits/privileges

## CHAPTER 4

### 4 RESULTS

#### 4.1 Introduction

This chapter presents the findings of the study considering quantitative data analysis.

#### 4.2 Socio-demographic characteristics of the respondents

##### 4.2.1 Distribution of respondents by age

Majority of the respondents belonged to age group 25-29 years (40%) followed by those between 30-34 years (23.5%). Respondents below 19 years as well as those above 40 years were few; 6.5% and 0.5% respectively (Table 4.2.1). Age influenced fertility desires among the respondents with more (53.5%) of those aged below 19 years desiring to get additional children while none (0.0%) of those above 40 years desired to get an additional child (Table 4.2.2). There was a significant influence ( $\chi^2=21.699$ ;  $df=5$ ;  $P=0.001$ ) of age on fertility choices among the respondents.

**Table 4.2.1: Distribution of respondents by age**

Age of respondent	Frequency	Percent
15-19	26	6.5
20-24	68	17.0
25-29	160	40.0
30-34	94	23.5
35-39	50	12.5
40-44	2	.5
Total	400	100

**Table 4.2.2: Distribution of age of the respondents by Intention to get additional children**

Age of respondent	Intention to get additional children		Total
	Yes	No	
15-19	14(53.8%)	12(46.2%)	26(100.0%)
20-24	22(32.4%)	46(67.6%)	68(100.0%)
25-29	28(17.5%)	132(82.5%)	160(100.0%)
30-34	18(19.1%)	76(80.0%)	94(100.0%)
35-39	10(20.0%)	40(80.0%)	94(100.0%)
40-44	0(0.00%)	2(100.0%)	2(100.0%)
Total	92(23.0%)	308(77.0%)	400(100.0%)

#### 4.2.2 Distribution of respondents by ages of their youngest children

The distribution of ages of the respondents' youngest children is shown in table 4.2.3. It was established that there was a significant difference ( $\chi^2=28.000$ ;  $df=4$ ;  $P=0.000$ ) in the ages of the respondents' youngest children. One quarter (25.5%) of the respondents youngest children were aged between 1 – 4 months whereas the least number of respondents' youngest children (11.0%) were aged 15-19 months.

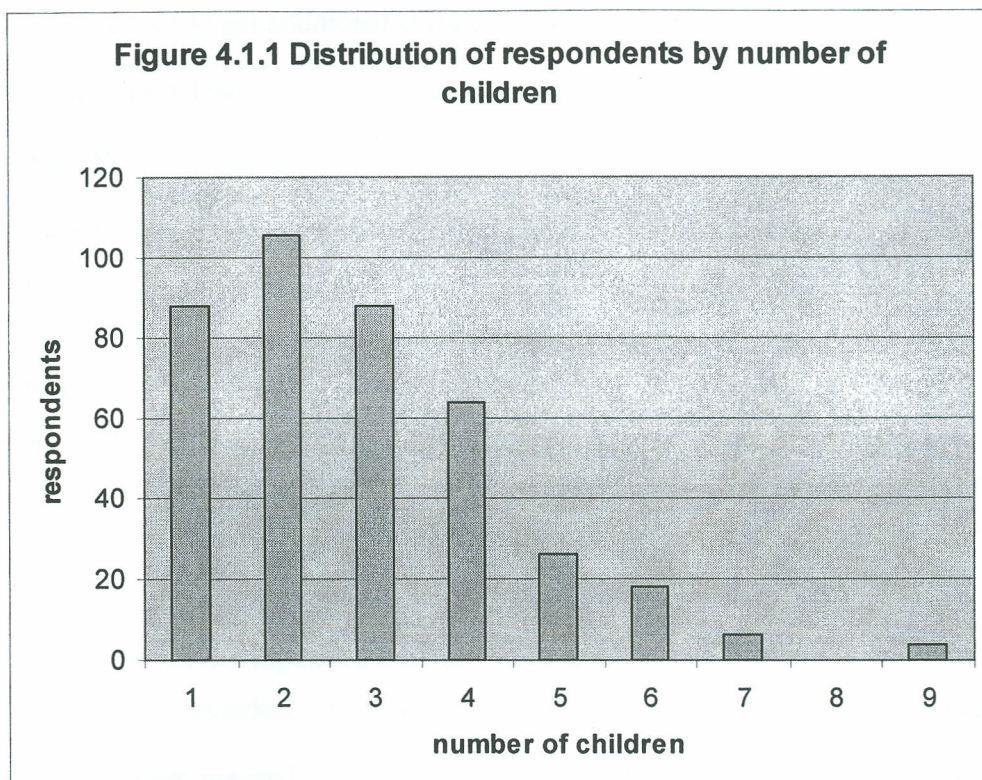
In respect to gender, more of the children (55.0%) were females with the remaining 45.0% being males. However, the sex of the respondents' youngest children had no significant influence ( $\chi^2 =1.663$ ;  $df=1$ ;  $P=0.197$ ) on the fertility preference of the respondents.

**Table 4.2.3 Distribution of respondents by ages of their youngest children**

Age of youngest child	Number of infected mothers	Percent
1-4 months	102	25.5
5-9months	86	21.5
10-14months	98	24.5
15-19months	44	11.0
20-24months	70	17.5
Total	400	100.0

#### 4.2.3 Distribution of respondents by number of children

Majority of the respondents (77.5%) in the study area had between 2-8 children while the remaining 22.5% had only one child (Figure 4.1.1). The number of respondents' children had a significant influence ( $\chi^2=62.606$ ;  $df=7$ ;  $P=0.000$ ) on their fertility desires. It was established that few(0.0% desire among those with 7 or more children) of the respondents with many children desired to get additional children as compared to a higher(45.4% desire among those with only one child) desire among those who had few children (Table 4.2.4)



**Table 4.2.4: Distribution of respondents' number of children by Intention to get additional children**

Number of children	Intention to get additional children		Total
	Yes	No	
1.00	40(45.4%)	48(54.5%)	88(100.0%)
2.00	16(15.1%)	90(84.9%)	106(100.0%)
3.00	24(27.3%)	64(72.7%)	88(100.0%)
4.00	2(3.1%)	62(96.9%)	64(100.0%)
5.00	2(7.7%)	24(92.3%)	26(100.0%)
6.00	4(22.2%)	14(77.8%)	18(100.0%)
7.00	0(0.00%)	6(100.0%)	6(100.0%)
9.00	0(0.00%)	4(100.0%)	4(100.0%)
Total	92(23.0%)	308(77.0%)	400(100.0%)

#### 4.2.4 Distribution of respondents by place of residence

In respect to residence majority (56.0%) of the respondents lived in urban residence while the remaining 44.0% lived in the rural area. There was a significant influence ( $\chi^2 = 6.292$ ;  $df=1$ ;  $P=0.012$ ) of residence on fertility preference of the respondents. More (27.7%) of

those who desired to get additional children were those who lived in the urban residence as compared to a lower (17.0%) desire among those who lived in the rural residence (Table 4.2.5)

**Table 4.2.5: Distribution of respondents' residence by intention to get additional children**

Residence	Intention to get additional children		Total
	Yes	No	
Urban	62(27.7%)	162(72.3%)	224(100.0%)
Rural	30(17.0%)	146(83.0%)	176(100.0%)
Total	92(23.0%)	308(77.0%)	400(100.0%)

#### 4.2.5 Distribution of respondents by marital status

Majority of the respondents (65.5%) in the study area were married. Other respondents were either never married (10.5%), widowed (13.5%) or divorced/separated (10.5%) (Table 4.2.6). Among those who desired continued fertility, 76.1% were married as compared to only 4.3% and 8.7% desire for more children among the divorced and widowed respectively. Marital status was found to significantly ( $\chi^2=8.410$ ;  $df=3$ ;  $P=0.038$ ) influence the fertility choices of the respondents (Table 4.2.7)

**Table 4.2.6 Distribution of respondents by marital status**

Marital status	Frequency	Percent
Married	262	65.5
Never married	42	10.5
Divorced/separated	42	10.5
Widow	54	13.5
Total	400	100.0

**Table 4.2.7: Distribution of respondents' marital status by Intention to get additional children**

Marital status	Intention to get additional child		Total
	Yes	No	
Married	70(26.7%)	192(73.3%)	262(100.0%)
Never married	10(23.8%)	32(76.2%)	42(100.0%)
Divorced/separated	4(9.5%)	38(90.5%)	42(100.0%)
Widow	8(14.8%)	4(85.2%)	54(100.0%)
Total	92(23.0%)	308(77.0%)	400(100.0%)

**4.2.6 Distribution of respondents by occupation**

Majority of the respondents (39.5%) were housewives, (22.5%) farmers, (27.0%) businesswomen while (11.0%) were on salaried employment. Only 1 respondent was still a student. However the occupation of the respondents did not significantly influence their fertility choices ( $\chi^2=1.583$ ;  $df=3$ ;  $P=0.663$ ).

**4.2.7 Distribution of respondents by religion**

The distribution of the respondents by religion was noted to be 76.0% Protestants and 19.5% Catholics while the remaining 4.5% were Muslims. (Table 4.2.8). There was no significant relationship between religious affiliation and fertility preference among the respondents ( $\chi^2=0.007$ ;  $df=2$ ;  $P=0.997$ ).

**Table 4.2.8: Distribution of respondents by religion**

Religious affiliation	Frequency	Percent
Catholic	78	19.5
Protestant	304	76.0
Muslim	18	4.5
Total	400	100.0

**4.2.8 Distribution of respondents by level of education**

Educational levels differed significantly among the respondents ( $P=0.000$ ). More than nine out of ten (91%) of the respondents had either primary or secondary levels of education. Respondents who had attained higher education (post secondary) accounted for only 5.8% while those with no formal education were also very few (3.0%)(Table

4.2.9). The results of the study showed that there was no significant influence of education on fertility preferences of the respondents. ( $\chi^2=8.567$ ;  $df=4$ ;  $P=0.073$ )

**Table 4.2.9: Distribution of respondents by education levels**

Level of education	Frequency	Percent
None	12	3.0
Adult literacy	2	.5
Primary	200	50.0
Secondary	166	41.5
College	20	5.0
Total	400	100.0

### 4.3. Knowledge on HIV and AIDS

#### 4.3.1 Knowledge on mother to child transmission of HIV

In this section the researcher sought to establish the level of knowledge on HIV and AIDS and more so mother to child transmission among the respondents. It was established that all (100%) the respondents had heard of HIV and AIDS and that MTCT was well known to the respondents as affirmed by 98.5% of them. However, a few (1.5%) were not aware of MTCT of HIV. Amongst those who were aware about mother to child transmission almost all mentioned breastfeeding (95.5%), about half (53.8%) knew that transmission could occur at delivery while 44.7% mentioned that pregnancy was also another stage in which there is a risk of transmission (Table 4.3.1). The more knowledgeable a respondent was regarding mother to child transmission of HIV the more unlikely she was to plan to get additional children (Table 4.3.2). There is therefore significant influence of awareness on MTCT ( $\chi^2=20.213$ ;  $df=7$ ;  $P=0.005$ ) on fertility preference among the respondents. To prevent MTCT, they stated that mothers could use ARV during pregnancy, that specific procedures should be adhered to at delivery and where possible caesarian section should be performed and also that breastfeeding should not be practiced.

**Table 4.3.1: Distribution of respondents by knowledge on stages of MTCT of HIV**

Stages of MTCT of HIV	Frequency	Percent
Breastfeeding	380	95.5%
Pregnancy	178	44.7%
Delivery	214	53.8%

**Table 4.3.2: Number of stages on MTCT of HIV known to the respondents by Intention to get additional children**

Stage of mother to child transmission known to the respondents	Intention to get additional Children		Total
	Yes	No	
Breastfeeding	38(36.5%)	66(63.5%)	104(100.0%)
Delivery	2(50.0%)	2(50.0%)	4(100.0%)
Pregnancy	2(25.0%)	6(75.0%)	8(100.0%)
B+ D	16(16.3%)	82(83.7%)	98(100.0%)
B + P	16(22.9%)	54(77.1%)	70(100.0%)
D+P	0(0.00%)	4(100.0%)	4(100.0%)
All(P+D+B)	15(14.9%)	86(85.1%)	101(100.0%)
None	2(33.3%)	4(66.7%)	6(100.0%)
Total	91(23.0%)	304(77.0%)	395(100.0%)

KEY -P-pregnancy

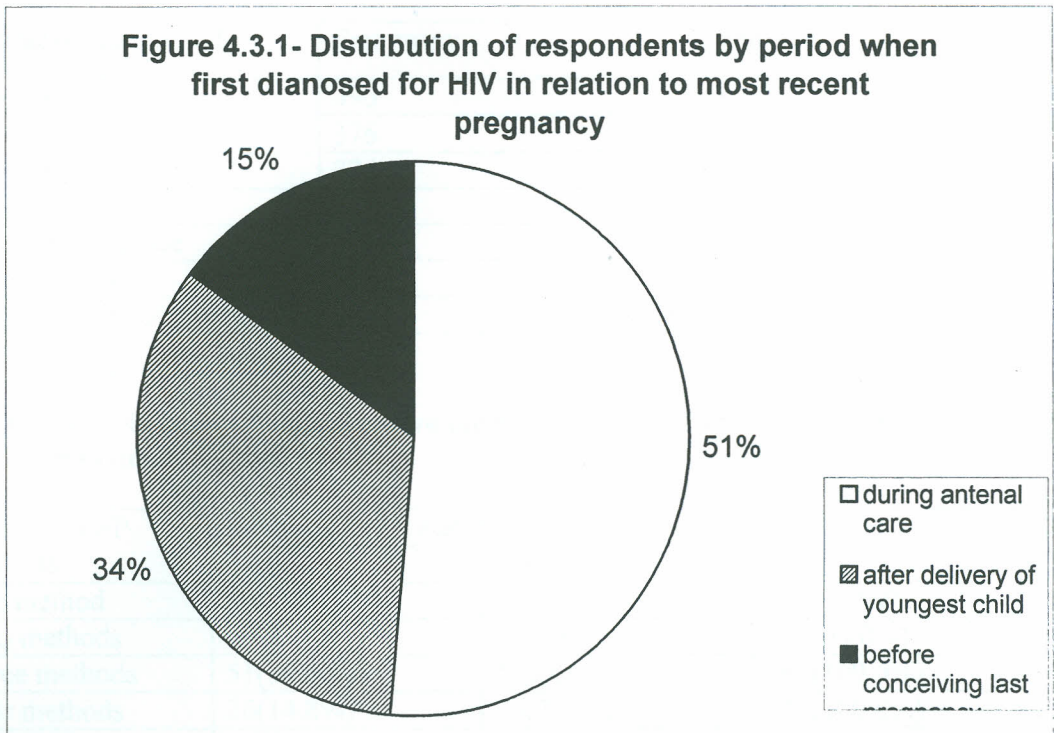
-D-delivery

-B-breastfeeding

#### 4.3.2 Timing of HIV testing in relation to most recent pregnancy

The time when the respondents discovered their HIV seropositive status for the first time differed significantly among the respondents ( $P=0.000$ ). About half of the respondents (51.5%) were diagnosed for the first time while attending antenatal care clinic for their most recent pregnancy, One-third of them after delivery of their youngest child (33.5%) while 15.0% actually had known their status even before conceiving their most recent pregnancy (Fig 4.3.1). This implies that the later group of the respondents (15.0%) had actually gone ahead to get additional children even after being diagnosed as infected. At the time the respondents became pregnant for their youngest child, most (54.3%) of them

wanted to become pregnant at that particular time, one-quarter of them (25.4%) were planning to get pregnant later (mistimed) while some (30.3%) did not want to get any more children at all (unwanted pregnancy) (Figure 4.3.1)



#### 4.4.1 Knowledge on contraceptives.

Knowledge on contraceptives was almost universal among the respondents with 99.0% of the respondents being aware of one or more methods that women could use to avoid pregnancy. Among the methods mentioned by the respondents the condom, pill and injectable contraceptives were the most popular with 99.0%, 94.0% and 81.0% of the respondents' knowledgeable about these contraceptive methods respectively. Most of the respondents were not familiar with natural family planning since only over one in ten (11.0%) mentioned it (Table 4.4.1). In respect to the number of methods known to the respondent's majority (41.6%) knew three methods of family planning followed by 30.4% who knew four methods while few respondents (3.5%) knew more than six

methods. There was a significant influence of knowledge of the respondents regarding family planning methods on their desire for getting additional children ( $\chi^2 = 12.307$ ;  $df=5$ ;  $P=0.031$ ). (Table 4.4.2)

**Table: 4.4.1: Distribution of respondents by knowledge on contraceptive methods**

Contraceptive method	Frequency	Percent
Condom	396	99.0
Pills	376	94.0
Injectables	324	81.0
Implants	134	33.5
Intrauterine device	104	26.0
Tubal ligation	50	12.5
Natural family planning	44	11.0

**Table 4.4.2: Number of contraceptive methods known to the respondents by intention to get additional children**

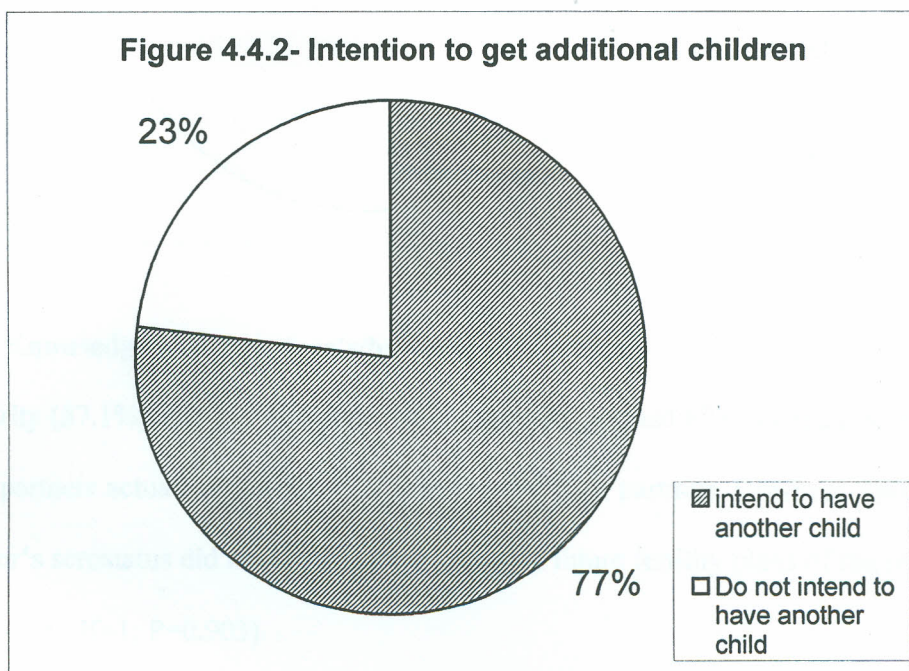
Number of FP methods	Intention to get additional children		Total
	Yes	No	
One method	0(0.00%)	4(100.0%)	4(100.0%)
Two methods	6(18.8%)	26(81.3%)	32(100.0%)
Three methods	51(30.5%)	116(69.5%)	167(100.0%)
Four methods	26(14.8%)	96(78.7%)	122(100.0%)
Five methods	9(14.8%)	52(85.2%)	61(100.0%)
Six methods	0(0.00%)	10(100.0%)	10(100.0%)
Total	92(23.0%)	304(77.0%)	396(100.0%)

#### 4.4.2 Distribution of respondents by use of contraceptives.

It was noted that during sexual intercourse only about four in ten (41.6%) of the respondents related that their partners/husbands wore a protective device (male condoms) while about six out in ten (58.4%) confided in the researcher that they did not use any protection (barrier method) (Figure 4.4.1). The most commonly used contraceptives/family planning methods included pills and injectables that were used mainly by the married respondents while the never married, widowed and divorced respondents preferred to totally abstain from sex to avoid pregnancy.

#### 4.4.3 Distribution of respondents by intention to get additional children

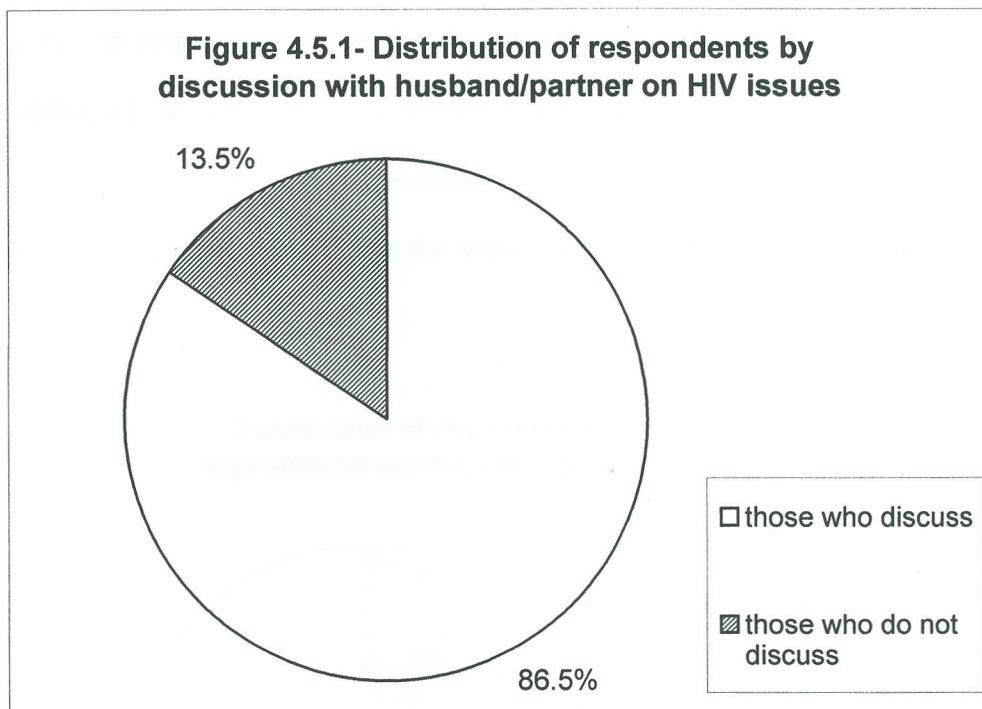
Majority of the respondents (77.0%) indicated that they did not intend to get additional children while about one-quarter (23%) still intended to get additional children in future. (Figure 4.2.2). The study showed further that 15.9% of those who intended to get additional children were already expectant at the time of the interview. Most the respondents (55.9%) who did not intend to have more children in future were on contraception while the remaining (44.1%) were not. (Female based method).



#### 4.5 Partner communication/involvement in contraceptive use and HIV discussions.

##### 4.5.1 Distribution of respondents by discussion on HIV issues

More than eight out of ten (86.5%) of the respondents indicated that they had had a discussion on HIV with their partner/ husbands whereas 13.5% of the respondents had not discussed HIV related issues with their partners (Figure 4.5.1). However, discussions with partner did not significantly influence fertility decisions among the respondents ( $\chi^2 = 0.708$ ;  $df=1$ ;  $P=0.400$ ).



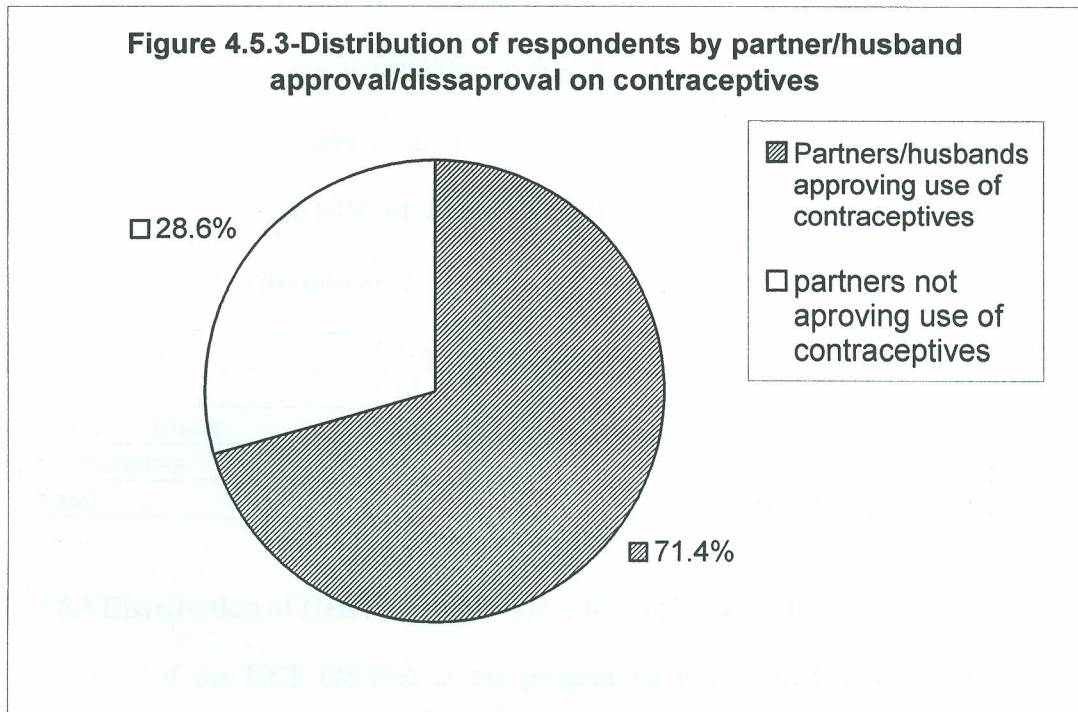
#### 4.5.2 Knowledge of the partner's/husband HIV status

Majority (57.1%) of the respondents who related having had HIV related discussion with their partners actually knew the HIV serostatus of their partners. However, knowledge of partner's serostatus did not significantly influence future fertility plans of the respondents ( $\chi^2=0.015$ ;  $df=1$ ;  $P=0.903$ ).

#### 4.5.3 Discussion on contraceptives with partner /husband among respondents.

There were significantly more respondents (84.2%) who discuss contraceptives with their partners ( $P=0.000$ ). However, discussion with partner on contraceptives did not significantly influence fertility plans among the respondents ( $\chi^2 =0.425$ ;  $df=1$ ;  $P=0.515$ ). Partners who approved contraceptive use were significantly more than those who did not ( $P=0.000$ ) with 71.4% of them indicating approval while 28.6% relating that their partners disapproved (Figure 4.5.3). However, partners' approval did not significantly influence future fertility plans among the respondents ( $P=0.473$ ). Knowledge on male

condoms as a contraceptive/protective device was almost universal in the study area with 99.0% of the respondents being knowledgeable about it. However, the number of respondents whose partners used condoms was significantly low ( $P=0.009$ ) with only 41.4% reporting use of condoms. Similarly, the use of condoms did not significantly influence future fertility plans among the respondents ( $P=0.181$ )



## 4.6 Health care Providers' responses

### 4.6.1 Introduction

A total of thirty one health workers; 16 from AMPATH center at Moi Teaching and Referral Hospital, Eldoret, 9 from AMPATH center at Turbo and 6 from AMPATH center at Burnt forest participated in the study. All these facilities are in Uasin Gishu district.

#### 4.6.2 Socio demographic characteristics of the health care providers

In respect to the gender of the health care providers almost three quarters of the healthcare providers (71.0%) were female while the remaining (29.0%) were males. The sex of the HCP did not affect their attitude in regards to mothers who desired to get additional children ( $P=0.657$ ). The health care providers that were included in the study were only those that had direct contact with the patients at the respective study sites. Nurses and Clinical officers accounted for 87.1% of all key informants while the remaining 12.9% were nutritionists (table 4.6.1). Chi-square not show a significant relationship between cadre of the HCP and their attitude towards desire for continuation of childbearing among HIV infected mothers ( $P=0.746$ ).

**Table 4.6.1: Distribution of HCP by Cadre.**

Cadre of HCP	Frequency	Percent
Nurse	14	45.2
Clinical Officer	13	41.9
Nutritionists	4	12.9
Total	31	100.0

#### 4.6.3 Distribution of Healthcare providers by Training on HIV management.

Majority of the HCP (93.5%) in the programme were found to have had additional training particularly in regard to HIV management. The results of the study showed that training ranged from those who had been trained only in one particular area to those who had been trained in four different areas of HIV management (Table 4.6.2). About half (48.4%) of the HCP had been trained in only one area. The HCP who had training in at least three areas of HIV management were few; 9.7%. Chi-square showed that having had training in more than three areas of HIV significantly influenced the HCPs attitude towards continued childbearing among HIV infected mothers ( $\chi^2=31.150$ ;  $df=16$ ;  $P=0.013$ ). Majority (74.2%) of the HCP had a special training in comprehensive care for HIV/AIDS and ARV prescription. About two in ten of the HCP had been trained in home

based care of PLWA (19.4%), HIV counseling (19.8%) and prevention of mother to child transmission of HIV (19.8%) while only 6.5% of the HCP were trained on nutrition in HIV (Table 4.6.2)

**Table 4.6.2: Distribution of HCP by additional training in HIV management.**

Number of areas of additional training on HIV	Frequency	Percent
None	2	6.5
One	15	48.4
Two	11	35.5
Three	1	3.2
Four	2	6.5
Total	31	100.0

#### 4.6.4 Distribution of HCP by Training on family planning.

All of the HCP stated that they had a responsibility to educate their clients on good reproductive health issues i.e. family planning and/or contraceptive use. However, only about one-third (32.3%) of them had an additional training on family planning while over two-thirds (67.7%) of the HCP had no additional training on family planning (Table 4.6.3). However, training on family planning did not significantly influence the attitude of the HCP towards mothers who desired to have a continued fertility ( $P=0.771$ ). Majority of the HCP (87.1%) rated their clients knowledge regarding family planning /contraceptives to be sufficient whereas 12.9% of them thought the level of knowledge was insufficient. However, when asked if they took enough time to educate their clients on family planning majority of the HCP (77.4%) admitted that they did not, only about one quarter of them felt the time taken on these issues was adequate.

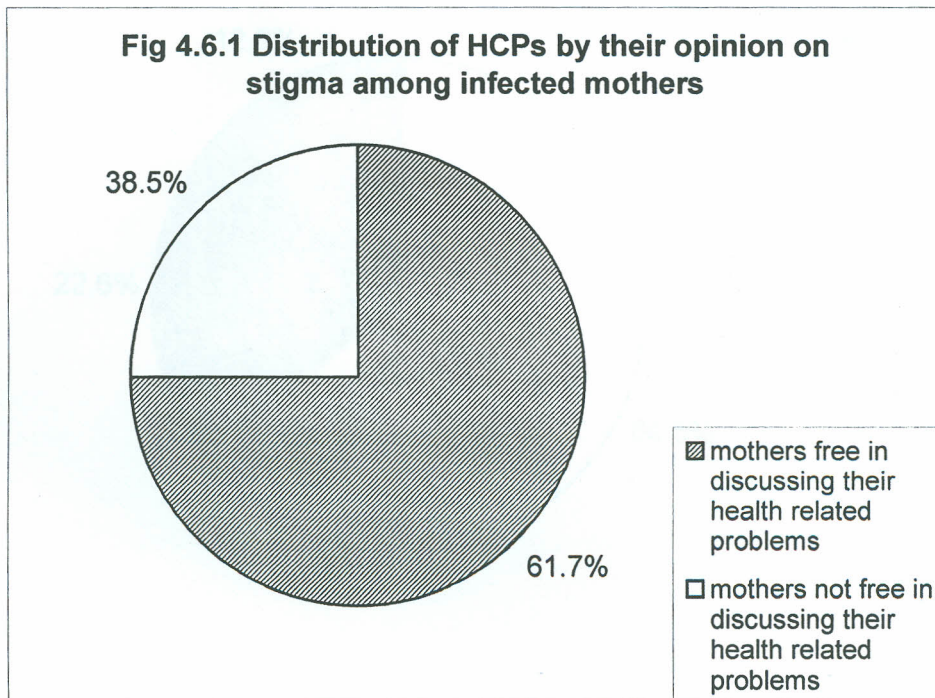
**Table 4.6.3: Distribution by training of HCP on contraceptives/FP**

Trained on FP	Frequency	Percent
Yes	10	32.3
No	21	67.7
Total	31	100.0

#### 4.6.5 Distribution of HCP by their opinion on stigma associated with HIV among infected mothers.

##### 4.6.5.1 Distribution of HCP by how they rate the HIV infected mothers' on stigma

Majority of the HIV infected mothers felt comfortable discussing their health linked problems related by over six in ten of (61.3 %) the HCP. However, about four in ten (38.5 %) of the health care providers thought that the HIV infected mothers still felt stigmatized therefore they were not comfortable in freely discussing their health related problems (Figure 4.6.1).

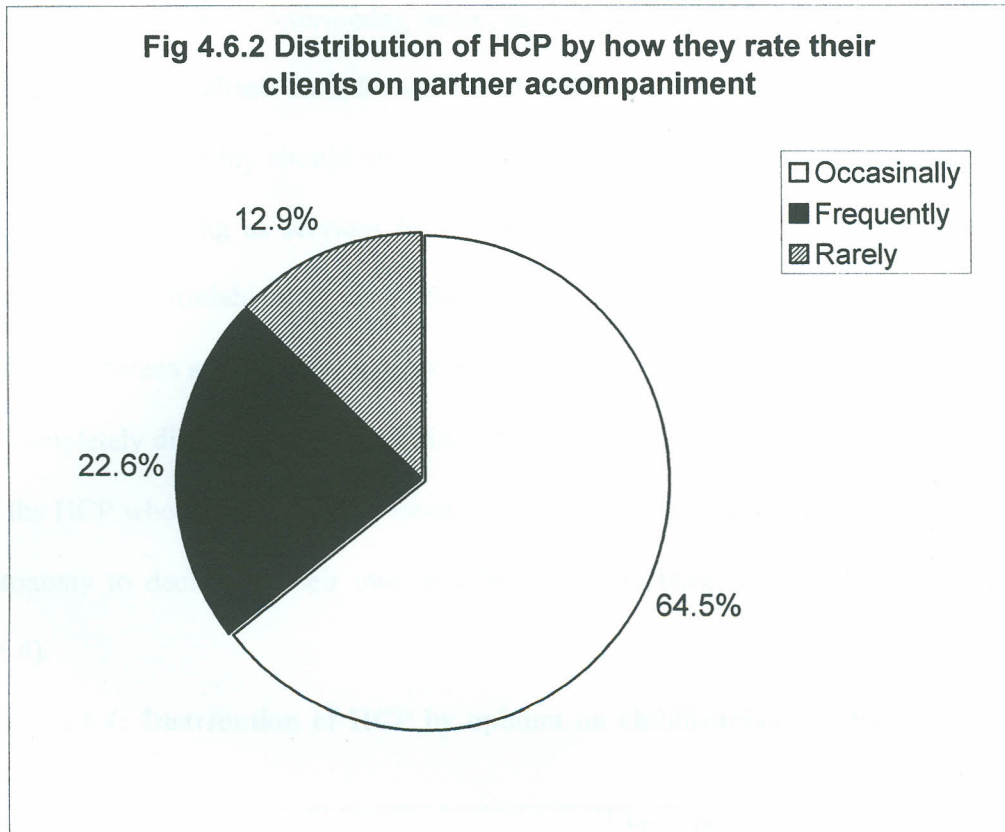


##### 4.6.5.2 Distribution of HCP by how they rate mothers' knowledge on MTCT of HIV.

Majority of the HCP (71.2%) thought the level of knowledge on mother to child transmission among infected mothers was average. Those who felt that the level of knowledge was good were 16.1% while 12.9% thought that they had poor knowledge.

#### 4.6.5.3 Distribution of HCP by how they rate clients on partner participation.

All the HCP (100%) did advise their clients on partner notification. About two thirds (64.5%) of the HCP confided to the researcher that they occasionally attended to clients who visited accompanied by their spouses. However, more than two in ten (22.6%) of the HCP rated partner accompaniment to be frequent whereas a few (12.9%) of the HCP rated partner accompaniment to be frequent whereas a few (12.9%) thought partner accompaniment was rare (Figure 4.6.3).



#### 4.6.5.4 Opinion of HCPs on fertility among the HIV infected mothers.

When the HCP's were asked whether they had ever come across a woman who desired to continue childbearing despite their seropositive status, almost all (96.8%) agreed that they had done so while only 3.2% had not attended to a woman who desired to have continued fertility. Majority (58.1%) of the HCP thought that services on prevention of mother to child transmission were available while 41.9% of them thought that services

were either not available or were inaccessible to all. The opinion of health care providers varied widely on whether an HIV infected mother should continue to bear additional children or not. More than two thirds (35.5%) of the HCP thought the immunity (CD4 count) of the prospective mothers should be considered first before decisions on future fertility were made; if immunity is high then the mothers could go ahead and have additional births. About one in five (19.4%) of the HCP thought the serostatus of the partner should be main determining factor, as in if the partner was HIV infected then the mothers could go ahead consider additional children but if the partner was discordant then continued fertility should not be considered. There were other HCP (16.1%) who thought that as long as services for prevention of mother to child transmission were available and affordable then the mothers had discretion to go ahead and bear additional children whereas another similar percentage (16.1%) of HCP thought the mothers should be completely discouraged from bearing additional children. However, there were 12.9% of the HCP who thought that the mothers should be advised accordingly and then given autonomy to decide on their own whether or not to have additional children. (Table 4.6.4).

**Table 4.6.4: Distribution of HCP by opinion on childbearing among HIV infected mothers**

Opinion of HCP	Frequency	Percent
Immunity	11	35.5
If she can observe total PMTCT	5	16.1
Reproductive health autonomy upon the client	4	12.9
Consider HIV serostatus of partner	6	19.4
Discourage completely	5	16.1

## **4.7 Discussion**

### **4.7.1 Introduction**

This section elucidates the interrelation between the study results and its relevance to the objectives. It further links it to works done by other researchers. This study has demonstrated that fertility preferences among HIV infected mothers is determined by a complex web of interrelated social-demographic factors among them age, residence, marital status and number of children.

### **4.7.2 Socio and demographic characteristics of respondents**

The study focused on respondents aged 15-49 years. As such, this age group was covered to enable comparison of results with studies done by other researchers. The assumption is that menarche signifying the start of fertility in a woman begins at 15 years on average and menopause signifying the end of fertility occurs at 49 years (Anate, 1995). Fertility desire was found to increase markedly with age among the mothers of age up to 29 years. However, fertility desire reduced drastically among mothers above 30 years with none of the mothers above 40years desiring.

The respondents in their early reproductive age (15-19years) represented the age group with the highest desire (53.8%) for additional children. This may be explained by the fact that younger women may want to have the number of children they desire first before stopping their childbearing while older women may have already attained their desired family size therefore not wanting any more births.

This pattern which shows that desire for additional children reduces as age increases, agrees well with the results of another study done by Murerwa in the year 2005, which states that majority of younger women still want to have more children as compared with

older women (Murerwa, 2005). Reduced desire for additional fertility among those in their late reproductive life may be due to reduced sexual activity among women at this age and also they may not want to sire additional children who will be orphaned early since in Kenya life expectancy is estimated at 47 years (ROK, 2005).

Area of residence was established to be one of the most important socio-demographic factors influencing fertility preference among the HIV infected mothers. More respondents from urban residence (27.7%) had a desire to get additional children as compared with a lower (17.0%) desire amongst the rural dwellers (Table 4.2.5). It was evident that there is a relationship between place of residence and fertility choices among the respondents. The findings of this study showed that the average mean number of children among those mothers who lived in the rural areas was 3.1 children whereas those who lived in urban area had a mean average of 2.6 children. This kind of results is replicated in studies elsewhere, more notably Kenya demographic and health survey, 2003, which puts fertility among the urban women to be lower than among their counterparts in the urban areas; 3.2 children on average for urban dwellers versus 6.7 children for rural dwellers (KDHS, 2003).

Majority of the respondents (65.5%) studied were married whereas other respondents were either never married, widowed or divorced/separated (Table 4.2.6). Most of the married respondents (76.1%) wanted to get additional children as compared to a lower desire (8.7%) among the widowed and only 4.3% among the divorced. Marital status was found to have a significant influence on the fertility choices of the respondents. This trend is expected since marriage is socially and economically associated with a sense of security hence the higher desire among the married women.

In respect to education of the respondents, more than four out of ten (41.5%) of the respondents had attained secondary level of education (Table 4.2.10). The explanation for this may be due to the fact that this group is at highest risk of infection since they get more exposed while schooling or working in the urban environment. One of the most surprising findings from this study is that education did not influence fertility preference among the infected mothers. The common believe is that education level being a proxy measure of one's occupation and income, gives women autonomy coupled with knowledge to enable them make better fertility choices (KDHS, 2003). The results of a study done contradicts the findings of a study by Murerwa which indicate that having low education level, that is primary or less contributes to an increased rate of desire for more births. It notes further that having primary education or lower is associated with larger family size while higher levels of education that is secondary and above is associated with smaller family sizes (Murerwa, 2005). It goes further explains that this is perhaps so because learned women could be more inclined to social mobility than their unlearned counterparts thus they therefore would perceive having fewer children as an essential step or precondition to rising to higher levels of social structure. On the other hand, the less educated in most cases do not have autonomy in decision making regarding their reproductive health choices due to their low level of education.

Over three-quarters (77.5%) of the respondents had between 2-8 children while about one-quarter (22.5%) had only one child. (Table 4.2.4). The results of the study show that none of the respondents who had more than 7 children desired to get additional children as compared to 45.5% desire among those who had only one child and 17.4% desire among those who had two children. This reflects the fact that the fertility desires of those who had more children was less than that of those who had fewer children. There was a

significant relationship between the number of children that a respondent had and their fertility preferences.

#### **4.7.3 Knowledge on MTCT of HIV among the HIV infected mothers.**

The interview focused on awareness of their HIV status, prevention of mother to child transmission of HIV and their preferences on fertility. It was realized that all the respondents had heard of HIV/AIDS. This is not surprising owing to the fact that the study was done among known HIV infected clients. These findings are in agreement with those of The Kenya Demographic and Health Survey, 2003, which demonstrated that awareness on HIV/AIDS in Kenya is almost universal, as almost all women and men (99 percent) know of HIV/AIDS (KDHS, 2003). Similarly, it was well known by the respondents that an infected mother could transmit HIV to her child as acknowledged by 98.5% of them. However, most of the respondents were not able to mention all the three main stages that transmission could occur; breastfeeding, delivery and pregnancy. Majority of them (95.5%) were aware that transmission could occur by breastfeeding followed by those who were aware that transmission could occur at delivery (53.8%). Those who knew that transmission could occur during pregnancy accounted for 44.7% of the participants (Table 4.3.1). This is in agreement with the Kenya Demographic and Health Survey, 2003, which showed, that most Kenyans knew that HIV could be transmitted by breastfeeding (about 70%) (KDHS, 2003). The more a respondent was aware of the stages of transmission the less she desired to get other children in future. The results of this study indicate a significant relationship between respondent's awareness on stages of transmission and fertility preference. This may be attributed to the unwillingness to take a risk in delivering an infected child who may be orphaned at an early age.

According to guidelines of the ministry of health of Kenya on prevention of mother to child transmission of HIV, the infected pregnant women are required to use ARVs during pregnancy and that special procedure should be followed during delivery and where possible caesarian section be performed. It is also advisable to avoid breastfeeding. Though in general almost all of the respondents were familiar with prevention of mother to child transmission; by avoiding breastfeeding, the study found out that 55.3% and another 46.2% were not familiar with prevention of mother to child transmission at pregnancy and delivery respectively. It is very worrying that such a big number of respondents were not familiar with the prevention of transmission at this stages hence not being able to undertake the appropriate intervention. Someone who is fully familiar about them can only undertake the above-mentioned measures. Therefore, it is necessary to explore how to mobilize communities to scale up prevention of mother to child transmission of HIV.

#### **4.7.4 Knowledge on contraceptives and its use among the HIV infected mothers.**

The study sought to investigate awareness on family planning; its use/non use and how it influenced the fertility choices of the HIV infected mothers. Knowledge on contraceptives in the study area was found to be almost universal as 99.0% of the respondents were aware that there are techniques women could use to avoid pregnancy. This is in agreement with the results of the Kenya Demographic and Health survey, 2003, which showed that 94.0% of women in Kenya knew at least one modern method of family planning (KDHS, 2003).

With respect to the number of methods known to the respondent's majority (41.6%) knew at least three methods of family planning followed by 30.4% who knew at least

four methods while few respondents (3.5%) knew more than six methods of family planning. Desire for additional children was found to increase markedly with the number of methods that respondents were knowledgeable about; none of the respondents who were knowledgeable about only one method desired to get any additional children whereas 30.5% of those who knew at least three methods desired to get additional children. However desire for additional births reduced drastically among those who knew more than four FP methods with none of those who knew six methods desiring to get additional children. Findings of the study reveal that there was a significant influence of knowledge of the respondents regarding family planning methods on their desire for getting additional children (Table 4.4.2).

Though the level of awareness was found to be very high, in practice only 37.0% were actually using a contraceptive device, which is in tandem with national contraceptive prevalence rates (CPR) that are estimated to be 39.0% (KDHS, 2003). However, it is lower than the average use of contraceptives in the world as a whole that is put at 58.0%(UNAIDS, 2000). Though about one-quarter (23.2%) of the respondents who did desire to get additional children were actually not using any FP method almost the same percentage (18.7%) of respondents were also using an FP method. However there was no significant influence of use/non use of a FP method on fertility preference of the respondents. The main reasons that may be cited for non-use of contraceptives among the respondents who did not desire to sire additional children could be the fear of side effects, spousal disapproval and inadequate knowledge of family planning. Findings of a study done by Anate and group (Anate *et al*, 1995) indicate that women who have adequate knowledge regarding family planning are better able to adopt family planning practice. Women with inadequate knowledge in the same study were three times more likely not to

use family planning compared to women with adequate knowledge (Anate *et al*, 1995). Majority of those with inadequate knowledge may not be able to make informed reproductive health choices ending up with unwanted pregnancies.

Access to contraceptives (condoms) is an important element in supporting women's efforts to protect themselves from reinfection with other strains of HIV (Baylies, 2000). More notable in this study is the low uptake of the condom. It is of concern to have such an occurrence which shows they could be at risk of becoming pregnant as well as re-infecting themselves with other strains of HIV. There is also the risk of infecting the partner incase the couples are discordant. Therefore men need to be involved in strategies for mutual protection (Baylies, 200). These data emphasizes the need to improve reproductive counseling, which should include a discussion on transmission of sexually transmitted infections particularly taking into account the partners' serostatus.

#### **4.7.5 Partner communication and participation on HIV issues and contraceptives.**

Most of the respondents in the study area (86.5%) reported having had a discussion with their partners on HIV issues (Figure 4.5.1). Majority (57.1%) of those who reported discussing HIV related issues with their partners also had knowledge of partner HIV serostatus. This is consistent with a study done in France by Heard and group (Heard *et al*, 1993) whereby HIV infected women were asked to answer a standardized questionnaire on sexual activity at each semiannual visit. Data obtained emphasized that counseling should include a discussion on reproductive issues as well as transmission of HIV and other sexually transmitted infections, taking into account the partner's serostatus. Most of those who did not know their partners serostatus reported that men were ignorant of what was tested in MCHC hence not wanting to prompt a discussion for fear of being

blamed of promiscuity and isolated by them if they turned negative. Though knowledge of partners' serostatus did not influence fertility among the infected mothers but it is an essential tool in prevention and control of STIs. The results of this study contradicts the results of a study that was done in the United States of America which found out that women whose partners HIV status is known were more likely to expect children in future than are women whose partners HIV status is unknown. (Chen *et al.*, 2001).

Amongst the respondents who desired to get additional children about one quarter (23.7%) of them reported having had a discussion with their partners regarding HIV related issue whereas a slightly lower percentage (18.5%) of those who had not had a discussion with their spouse still desired to get additional children. Results from a study done in Uganda by Ann and colleagues (Ann *et al.*, 2005) reveal that on being diagnosed the infected women were advised not to have any more children. However when one respondent was questioned why she had gone ahead to get pregnant even after knowing her HIV positive serostatus she related that she had no choice since her partner wanted a child. In all, approximately a third of the respondents' partners who participated in that study did not know that their partners were HIV positive. This explains why it is only realistic to achieve fertility control if there is co-operation between the two partners.

Most of the respondents in the study area (84.2%) reported having had a discussion with their partners on contraceptives. In the context of family planning, women's discussions with their husbands are strongly associated with their attitudes toward contraceptive use. Opposition to family planning by husbands contributes significantly to unmet need (Fikree *et al.*, 2001). However, discussion with partner on contraceptives did not significantly affect fertility choices among the respondents. The majority (71.4%) of respondents' related that their spouses/partners approved the use of contraceptives.

Similar results were shown in The Kenya Demographic and Health Survey, 2003 which found that 62.0% of the men approved the use of contraceptives (KDHS, 2003). However, the results of this study did not show a significant influence of partners' approval on fertility choices among the respondents. Similarly, though almost all the respondents were aware of condoms as a contraceptive device, its use among the respondents was still low as only about four in ten respondents (41.4%) reported using it (Table 4.4.1). The condom can only be effective if worn properly and used consistently attributes that were found to be lacking among the users since they reported infrequent use. The main reasons cited for that was due to some men complaining that using a condom reduces their sexual pleasure. In the African context, the man is considered as the final decision maker especially in matters pertaining to sex so if he is not ready to comply; the woman may not have much say.

#### **4.7.6 Attitude of HCP regarding fertility among HIV infected mothers.**

The study sought to know the attitude of the HCP in regard to fertility among HIV infected mothers. Furthermore, the researcher used the information obtained from the HCP to validate the responses from the infected mothers. The results of the study showed that majority of the HCP had an additional training in HIV management. However, only 19.8% of the HCP had specific training regarding prevention of mother to child transmission of HIV (Table 4.6.2). This reflects a lack of knowledge among the HCP; it is only with adequate knowledge that they will be able to advise their clients accordingly. These HCP need to be trained on new information including prevention of mother to child transmission which is quite a new concept in HIV management.

About four in ten (38.5%) of the HCP thought the infected mothers still felt stigmatized (Figure 4.6.1). This explains the need for more education so that they may understand

and accept their situation and live positively with the virus. The HCP will only be in position to assist them make better decisions regarding reproductive health if these mothers are going to open up and freely discuss their concerns. Over eight in ten (84.1%) of the HCP rated the knowledge on HIV/AIDS among the HIV infected mothers to be either average or poor (Figure 4.6.2). These findings are in agreement with results obtained through responses from the respondents in this study which states that most respondents were not aware of transmission at delivery (41.2%) and pregnancy (55.3%)(Table 4.3.1). All the HCP knew that they had a responsibility to educate their clients on good reproductive practices. However, it is disturbing to see that over two-thirds (67.7%) of the HCP did not have additional training in family planning/contraceptives (Figure 4.6.3).

The opinion of health care providers varied widely on whether an HIV infected mother should continue to bear additional children or not. There were various reasons that led to varied opinions. First, considering a very important aspect that determines fertility, 41.9% of the HCP thought that PMTCT services were either not available or if available it was not accessible to all whereas 58.1% thought it is sufficiently available. Secondly, when the HCP were asked what they would advise an infected mother to the majority (35.5%) of the HCP thought the immunity (CD4 count) of the prospective mothers should be considered first before decisions on future fertility were made; if immunity is high then the mothers could go ahead and have additional births. This is a misconception among the HCP since according to the guidelines on prevention of mother to child transmission of HIV by the government of Kenya (NASCOP, 2003) pregnancy does not affect the progression of HIV. About one in five (19.4%) of the HCP thought the serostatus of the partner should be main determining factor, as in if the partner was HIV

infected then the mothers could go ahead and consider getting additional children but if the partner was discordant then continued fertility should be ruled out. There were other HCP (16.1%) who thought that as long as services for prevention of mother to child transmission were available and affordable then the mothers had discretion to go ahead and bear additional children whereas another similar percentage; (16.1%) of HCP thought the infected mothers should be completely discouraged from bearing additional children. However, there were 12.9% of the HCP who thought that the mothers should be advised on the pros and cons and then given autonomy to decide on their own whether to have additional children or not (Table 4.6.4).

## CHAPTER 5

### 5. CONCLUSION AND RECOMMENDATIONS

#### 5.1 CONCLUSIONS

- i. It is concluded from the results of this study that marital status, age, residence and number of children were some of the social and demographic characteristics that had a significant influence on desire for additional children among the HIV infected mothers. However, it is evident that occupation, education, and religion did not influence fertility among respondents in the study.
- ii. Majority of the respondents were knowledgeable about breastfeeding as a means through which mother to child transmission of HIV could occur. However, other means of transmission; delivery and pregnancy, were only known to about half of the respondents. It is concluded that the more knowledgeable respondents in regard to mother to child transmission; those who knew at least all three means of which mother to child transmission may occur, were not willing to have any more children as compared to those who knew none of the three.
- iii. Knowledge on contraceptives in the study area was almost universal with 99.0% knowing at least one method and 89.0% of them knowing three or more methods of family planning. However, the contraceptive use was still low with only 37.0% use among the respondents. The number of contraceptive methods a respondent was knowledgeable about significantly influenced ones fertility choices with few of those who knew more methods desiring to get additional children.

- iv. Majority of the respondents (86.5%) reported having had a discussion with their partners on HIV issues. A large number (57.1%) of those who reported having had a discussed HIV issues with their partners also knew the HIV status of their partner. However, neither did discussion nor knowledge of partner's serostatus influence desire for additional children among the respondents.
- v. Majority of the respondents (84.2%) indicated having discussed contraceptives with their partners. similarly; a large number (71.4%) of those who had discussed contraceptives also reported that their partners approved the use of contraceptives. However neither did partner's no discussion or approval of use influence desire for additional children among the respondents.
- vi. In respect to the training of HCP almost all (93.5%) had been trained in one area or another of HIV management. It was realized that the number of areas of training influenced the attitude of the HCP. However majority of the HCP (67.7%) of the HCP had no additional training in regard to family planning/contraceptives.

## **5.2 RECOMMENDATION**

### **5.2.1 OPERATIONAL RECOMMENDATIONS**

- i. Given the low contraceptive prevalence rate among the respondents a section within the programme that deals particularly with reproductive health should be established with particular emphasis to be put on family planning. There should be an improved and a clear-cut channel for addressing reproductive health concerns among these HIV infected women including their partners/spouses.

- ii. There is yet no cure for HIV/AIDS so availability of ARVs should not be allowed to give a false impression that there is full success of management of HIV. The programme should focus more on prevention rather than treatment to avoid losing on the gains that have already been made.
- iii. Though the percentage of HIV/AIDS knowledge is good, the level not sufficient enough. It has been realized that some HIV infected mothers have a misconception that mother to child transmission is 100% guaranteed. This suggests the need to scale up health education about mother to child transmission in our health facilities especially prevention of mother to child transmission of HIV.
- iv. It is recommended that all the health care providers dealing with HIV infected clients be given additional training in regard to family planning and prevention of mother to child transmission of HIV. This will make them realize the need to take more time in addressing reproductive health needs of their clients. This may also change a misconception amongst some of them that pregnancy affects progression of HIV.

### **5.2.2 SUGGESTION FOR FUTURE RESEARCH WORK**

- i. There is need to carry out similar studies in other areas in Kenya especially those areas without a donor funded programme. This will enable the policy makers to establish how best to address reproductive concerns among infected mothers.
- ii. Further research needs to be carried out to understand male involvement and their contribution towards reproductive health among the HIV infected women. It is

recommended that such research should bring male partners on board since they are also stakeholders in respect to decisions affecting the reproductive health of their female partners.

- iii. There is need to carry out research on effectiveness of prevention of mother to child transmission of HIV in the country. This will enable the health care providers to advice their clients appropriately especially when they are exposed to the challenge of advising their client on whether or not HIV infected mothers should continue with childbearing or not.
- iv. Community mobilization studies ought to be carried out to enhance an understanding on how stigma contributes to non-adherence of prevention of mother to child transmission of HIV guidelines. This will enable health care providers to determine how much needs to be done to educate the people living with HIV so that they can accept their status hence live positively with the virus. Similarly, it will reduce child morbidity and mortality due to mother to child transmission of HIV.
- v. Most of the factors associated fertility in an African context is culture based. It is therefore imperative that a study be carried out to determine cultural factors influencing fertility among HIV infected persons.

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**APPENDIX 1**

I am a student from Kenyatta University conducting research on fertility among HIV mothers in Uasin Gishu district. The study involves obtaining information from you. As such you will not suffer any injury in the process. However, some questions deal with very personal information, but I assure you that it will be kept in strict confidence. The information you provide will be for research purposes only. As such it will be used to identify areas in reproductive health care that require improvement. I would like to ask you a few questions about your reproductive health. However you are free to take part or decline. If you are willing take part please sign here below. If you decide to withdraw later after recruitment you will not be penalised.

**DECLARATION BY THE PARTICIPANT**

I have read/been explained about the above information and I understand that there are no risks involved in the study. I have agreed to take part in it.

Sign \_\_\_\_\_ Date \_\_\_\_\_

Witness \_\_\_\_\_ Date \_\_\_\_\_

Investigator \_\_\_\_\_ Date \_\_\_\_\_

For any information on the study, I can be contacted through the following address:

Wycliffe serem	or	Wycliffe serem
Department of public health,		PO Box 2075
Kenyatta University,		Eldoret
P.o box 43844 Nairobi		Mobile:0722864531

## APPENDIX 2

## INTERVIEW SCHEDULE:

Date of interview \_\_\_\_\_ Schedule code number \_\_\_\_\_

District of residence \_\_\_\_\_

Division of residence \_\_\_\_\_

(The information you give is very important and therefore be sincere keenly listening to the questions and give answers that reflect the truth about yourself)

**PART 'A': SOCIO-DEMOGRAPHIC INFORMATION:****1. Educational level**

- None
- Adult literacy
- Some primary
- Completed primary
- Some secondary
- College/University

**2. Age of the mother in years**

- 15-19 years
- 20-24 years
- 25-29 years
- 30-34 years
- 35-39 years
- 40-44 years
- 45-49 years

**3. How old is your youngest child?**

- 1-4 months
- 5-9 months
- 10-14 months
- 15-19 months
- 20-24 month

**4. Sex of youngest Child**

- Male
- Female

**5. Do you have another/other child/children?**

- Yes
- No

If yes, how many other children do you have? ...

**6. Where do you live?**

- Urban
- Rural

**7. What is your marital status?**

- Married
- Never married
- Divorced/separated
- Widowed

**8. Occupation**

- ( ) Housewife  
 ( ) Farmer  
 ( ) Businesswoman  
 ( ) Salaried employment  
 ( ) Student  
 ( ) Other specify.....

**9. Religion**

- ( ) Catholic  
 ( ) Protestant  
 ( ) Muslim  
 ( ) Others Specify.....

**PART "B": KNOWLEDGE ON MOTHER TO CHILD TRANSMISSION OF HIV:****10. Have you ever heard of HIV or AIDS the disease?**

- ( ) Yes  
 ( ) No

If the answer is No, end the session on Mother to child transmission of HIV.

If the answer is Yes, proceed to question 11.

**11. Did you receive VCT services when you were expecting this child?**

- ( ) Yes  
 ( ) No

If Yes, was that the first time you received the service? ...

**12. Can an infected mother transmit HIV to her child?**

- ( ) Yes  
 ( ) No

If No, end the session on mother to child transmission of HIV

If Yes, at what stage can this transmission occur?

1.  
 2.

**13. Is there anything that can be done to prevent mother to child transmission of HIV?**

- ( ) Yes  
 ( ) No  
 ( ) I don't know

If Yes, explain your answer....

**SECTION "C": KNOWLEDGE ON CONTRACEPTIVES AND ITS USE****14. Do you know any techniques that women can use to avoid getting pregnant?**

- ( ) Yes  
 ( ) No

If Yes, which family planning methods/contraceptives do you know about?

1.  
 2.

THANK YOU FOR PARTICIPATING IN THIS SURVEY. YOUR RESPONSES ARE APPRECIATED.

**15. Do you intend to get another child in future?** Yes No

If No, skip to question 18.

If Yes, are you pregnant at the moment?

 Yes No

(Irrespective of the answer from above go to question 20.)

**16. Are you currently doing something or using a method to avoid getting pregnant?** Yes No

If No, go to question 19

If yes, what measures or methods are you using to avoid getting pregnant?

1.

2.

**17. You have said that you do not want another child, but you are not using a method to avoid getting pregnant. Why? \_\_\_\_\_****18. At the time you became pregnant for this child (youngest 2<years), did you want to become pregnant then, later or not at all?** Then Later Not at all**PART "D": PARTNER COMMUNICATION AND INVOLVEMENT IN CONTRACEPTIVE USE AND HIV DISCUSSIONS:****19. Do you and your partner/ husband discuss issues related to HIV?** Yes No

If Yes, do you know your partners HIV status?

 Yes No**20. Do and your partner discuss contraceptive use/family planning** Yes No

If Yes, do you think your partner/husband approves on the use of contraceptives?

 Yes No

If Yes, do you and your partner/husband use any protection during sexual Intercourse?

 Yes No**21. When was the first time you knew about your current HIV status?** After delivering the youngest child. During antenatal care Before getting pregnant for the youngest child.**THANK YOU FOR PATICIPATING IN THE STUDY.GOD BLESS YOU.BYE**

**APPENDIX 3**  
**QUESTIONNAIRE**

Name of Health Care Facility \_\_\_\_\_

Code of Health Care Facility \_\_\_\_\_ Date \_\_\_\_\_

**Questionnaire Number**

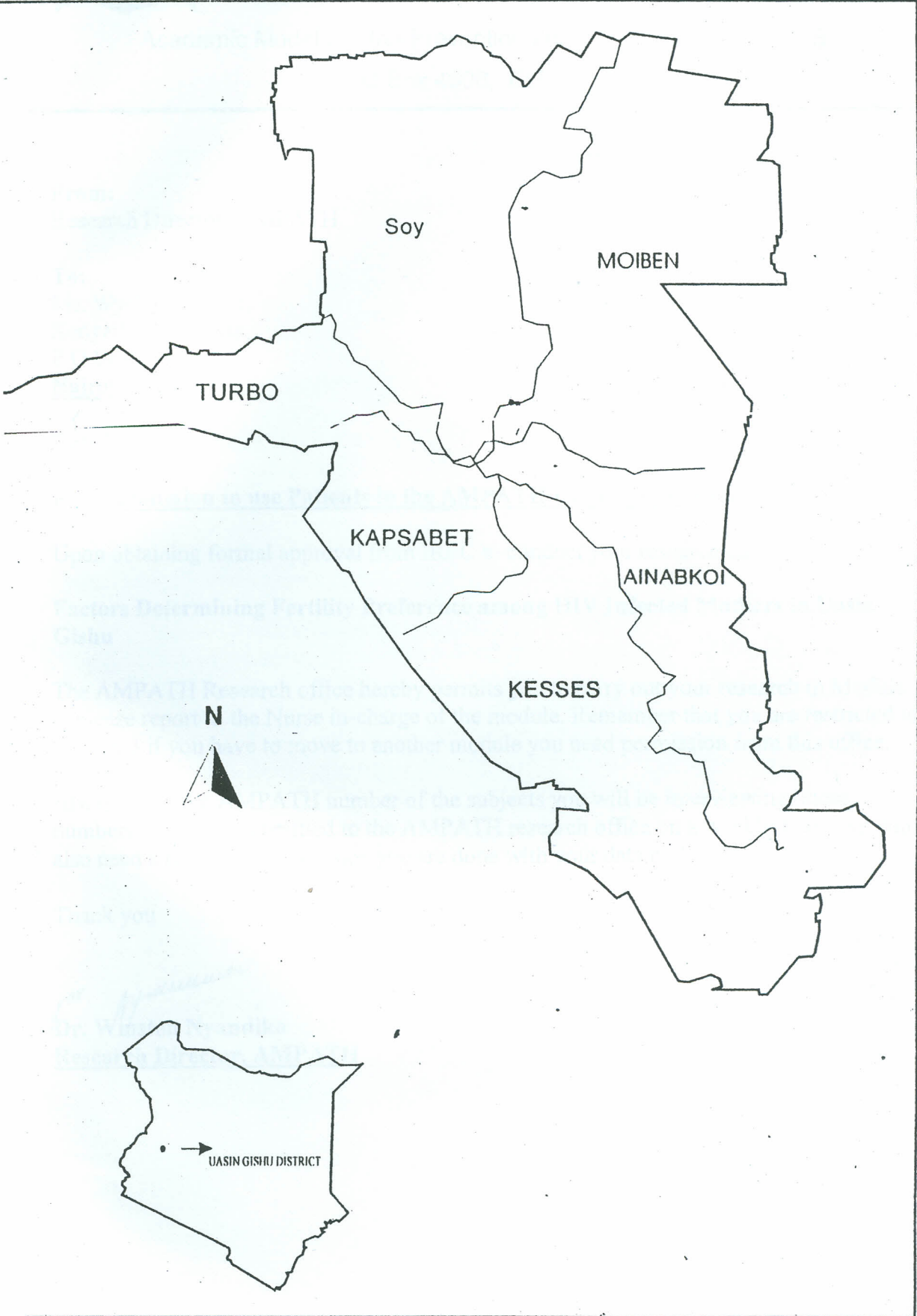
I am carrying out a study on reproductive health among HIV infected mothers in Uasin Gishu district. I invite you to participate in the study by answering some questions. I assure you that the information obtained from you will be kept in strict confidence. The information you give is very important and therefore be sincere and careful in filling the questionnaire.

1. **Sex of health care provider**  
 Male  
 Female
  
2. **Profession of health care provider**  
 Doctor  
 Nurse  
 Clinical Officer  
 Others specify...  
 Years of working experience...
  
3. **Do you have any special training on HIV patient care and management?**  
 Yes  
 No  
 If Yes, which areas of HIV are you trained on?  
 1.  
 2.
  
4. **Do HIV infected mothers' feel comfortable discussing their health related problems?**  
 Yes  
 No  
 Explain your answer \_\_\_\_\_
  
5. **In your own opinion how would you rate the level of knowledge about mother to child transmission among HIV infected mothers?**  
 Good  
 Average  
 Poor
  
6. **Do you advice your clients on partner notification?**  
 Yes  
 No  
 If Yes, how often do you deal with clients who visit for services accompanied by their partners/husbands?  
 Rarely  
 Occasionally  
 Frequently

7. **Do you educate your clients on good reproductive health issues i.e. family planning methods and /or contraceptive use.**  
 Yes  
 No  
 If No, skip to question number 12. If yes, proceed to next question.
8. **Do you have a special training on family planning?**  
 Yes  
 No
9. **In your own opinion, is the time you take to discuss fertility issues adequate?**  
 Yes  
 No
10. **Do you think HIV infected mothers have sufficient knowledge on contraceptives/family planning.**  
 Yes  
 No
11. **Do you supply your clients with contraceptives?**  
 Yes  
 No  
 If Yes, which contraceptive methods do you offer?  
 1.  
 2.  
 3.
12. **Have you ever come across a woman who despite having known her HIV seropositive status still went ahead to get pregnant?**  
 Yes  
 No
13. **What would be your advice to a woman who still wants to get a child even after HIV diagnosis?** \_\_\_\_\_  
 \_\_\_\_\_
14. **Do you think available technology in the country can assist an HIV infected mother to continue safe childbearing?**  
 Yes  
 No  
 Explain your answer  
 \_\_\_\_\_

**THANK YOU.GOD BLESS.**

### UASIUN GISHU DISTRICT: DIVISION BOUNDARIES





# AMPATH



Academic Model For the Prevention and Treatment of HIV/AIDS  
P.O Box 4606, ELDORET.

1/11/2005

**From:**

Research Director, AMPATH

**To:**

Mr. Wycliffe Serem,  
Kenyatta University,  
P.O Box 44844,  
Nairobi

Dear Madam;

**Ref: Permission to use Patients in the AMPATH Clinic for Research**

Upon obtaining formal approval from IREC to conduct your research on

**Factors Determining Fertility Preference among HIV Infected Mothers in Uasin Gishu**

The AMPATH Research office hereby permits you to carry out your research in Module 3, please report to the Nurse in-charge of the module. Remember that you are restricted to module 3 if you have to move to another module you need permission from this office.

Always keep the AMPATH number of the subjects you will be interviewing, these numbers should be submitted to the AMPATH research office on a weekly basis, we will also need a report from you once you are done with your data collection.

Thank you

*for Nyandiko*  
Dr. Winston Nyandiko

**Research Director, AMPATH**

# MINISTRY OF HEALTH

TELEGRAMMES "MEDICAL" ELDORET  
 Tel. (053) 62711  
 Fax (053) 62711  
 Email; moh.ug@africaonline.Co.ke  
 Or. moh.ug@multitechweb.com



DISTRICT MEDICAL OFFICER OF HEALTH  
 UASIN GISHU DISTRICT  
 P.O. BOX 5665  
 ELDORET

When replying please Quote the  
 Ref: UG/MOH/STI/HIV/ VOL.I/58

DATE: 21<sup>TH</sup> June 2005

WYCLIFFE SEREM  
 KENYATTA UNIVERSITY  
 P.O BOX 43844  
 NAIROBI

## RE: RESEARCH AUTHORITY

I am in receipt of your letter dated 20/6/2005 requesting for authority to undertake your postgraduate research thesis entitled "Factors determining fertility preferences among HIV-1 infected mothers in Uasin Gishu District in Kenya".

This office has no objection and grants you authority to carry on with the said study in Uasin Gishu District subject to meeting the following requirements i.e production of:

- (i) Letter of authorization from the Ministry of Education
- (ii) Ethical clearance by the research and ethics committee of Kenyatta University.

MEDICAL OFFICER OF HEALTH  
 UASIN GISHU DISTRICT

*Dr. David Rotich*  
 MEDICAL OFFICER OF HEALTH  
 UASIN GISHU DISTRICT

C.C

THE DIRECTOR  
 MTRH

OFFICER I/C TURBO, BURNT FOREST HEALTH CENTRES

**MINISTRY OF EDUCATION, SCIENCE & TECHNOLOGY**

Telegrams: EDUCATION", Nairobi

Fax No.  
Telephone: 318581  
When replying please quote

REPUBLIC OF KENYA

JOGOO HOUSE  
HARAMBEE AVENUE  
P. O. Box 30040  
NAIROBI  
KENYA**MOEST 13/001/35C 317/2****27<sup>th</sup> June, 2005****Serem Wycliffe K.  
Kenyatta University  
P.O. BOX 43844  
NAIROBI**

Dear Sir

**RE: RESEARACH AUTHORIZATION**

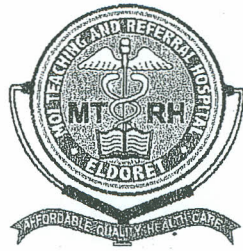
Following your application for authority to carry out research on "Factors determining fertility preferences among HIV:- I infected Mothers in Uashin Gishu District". I am pleased to inform you that you have been authorized to conduct research in Uashin Gishu District for a period ending 30<sup>th</sup> October, 2005.

You are advised to report to the District Commissioner, the District Education Officer, Uashin Gishu District before embarking on your research project.

Upon completion of your research project, you are advised to submit two copies of your research findings to this Office.

Yours faithfully

**B. O. ADEWA****FOR: PERMANENT SECRETARY**



# MOI TEACHING AND REFERRAL HOSPITAL

Telephone: 2033471/2/3/4  
 Fax: 61749  
 Email: [director@mtrh.org](mailto:director@mtrh.org)

P. O. Box 3  
 ELDORET

Ref: ELD/MTRH/R.6/VOL.II/2005

28<sup>th</sup> October, 2004

Mr. Wycliffe Serem,  
 Kenyatta University,  
 P.O. Box 44944,  
**NAIROBI**

**RE: APPROVAL TO CONDUCT RESEARCH AT MTRH**

Upon obtaining approval from the Institutional Research and Ethics Committee (IREC) to conduct your research proposal titled:

*“Factors Determining Fertility Preference Among HIV Infected Mothers in Uasin Gishu”.*

You are hereby permitted to commence your investigation at Moi Teaching and Referral Hospital.

**PROF. H. N. K. arap MENGECH**  
**DIRECTOR**  
**MOI TEACHING AND REFERRAL HOSPITAL**

- CC - Deputy Director (CS)  
 - Chief Nurse  
 - HOD, HRISM