Impact of HIV infection on fertility intention and Modern contraceptives methods use among women attending Kiambu County Referral Hospital Comprehensive Care Centre.

By:

DR. MUTHONI KARANJA.

W64/69570/2013.

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF

THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN

TROPICAL AND INFECTIOUS DISEASES

AT THE UNIVERSITY OF NAIROBI-INSTITUTE OF TROPICAL AND INFECTIOUS

DISEASES (UNITID).

DECEMBER 2015.

DECLARATION

I declare this is my original work and has not, to the best of my knowledge been presented anywhere else.

This thesis is submitted in partial fulfilment for the award of master's degree in tropical and infectious diseases at the University of Nairobi.

Dr. Muthoni Karanja MB Ch B

_____

SUPERVISOR:

Dr. Joshua Kimani MB Ch B, MPH,

Institute of Tropical and Infectious Diseases (UNITID)

College of Health Sciences University of Nairobi

P.O. Box 19676 – 00202, KNH Nairobi, Kenya

Tel: 2714851, 2713697, and 2713139 Fax: 2728860

jkimani@csrtkenya.org

_____

Funding: This is a self-sponsored study.

DEDICATION

This dissertation is dedicated to my parents, brother, sister and friends for their support and assistance while pursuing my studies.

ACKNOWLEDGEMENT

For every effort made and for all works completed I honour and glorify God the Almighty. This work has been made possible through assistance, support and guidance of the various individuals whom l shall acknowledge below. My sincere thanks to my supervisor: Dr. Joshua Kimani, for his tireless efforts, availability and guidance throughout the research and thesis writing. I was fortunate to work with such dedicated individuals. I would also like to acknowledge my family for their support and unending faith in me, my friend Capt. (Dr) Peter Ndichu for sharpening my Kiswahili skills and my close friends for the encouragement that they continuously gave me. I would also like to express my sincere gratitude to the Medical Superintendent, Kiambu County referral Hospital for allowing me to use the facility for my study, to Maina for assisting in data collection, Sylvia Masia for her assistance in data analysis and to all the health care workers. This study would not have been possible without your co-operation and I say a big thank you. Special thanks to all the two hundred and seventy five HIV-positive mothers for participating in this study. There are many other people who directly or indirectly facilitated the completion of this thesis. To them I express my whole hearted gratitude. May our good Lord continuously show you his favour.

ABBREVIATIONS

ANC	**Antenatal Care**
ART	**Antiretroviral Therapy**
AIDS	**Acquired Immune Deficiency Syndrome**
CD4	**CD4 T lymphocyte cell**
HIV	**Human Immunodeficiency Virus**
KDHS	**Kenya Demographic and Health Survey**
KNAS	**Kenya National Aids Strategic Plan**
LWHA	**Living With HIV and AIDS**
MTCT	**Mother to Child Transmission**
MOT	**Modes of Transmission**
PMTCT	**Prevention of Mother to Child Transmission**
PLHIV	**People Living With HIV**
PLWHA	**People Living With HIV and AIDS**
SRH	**Sexual and Reproductive health**
WHO	**World Health Organisation.**

ABSTRACT

Background

HIV has a profound effect on morbidity and mortality particularly among the affected individuals from sub-Saharan Africa. Of the 75 % individuals now living with HIV in the region more than half of them are female. Besides, women carry a higher burden from the disease as it affects their reproductive health choices and plans. However modern contraceptive methods if used effectively can prevent Mother to Child HIV transmission, unintended pregnancies and maternal mortality

Objective

The aim of this study was to evaluate the impact of HIV infection on fertility intention and modern contraceptive use amongst women living with HIV. The reproductive age group was (15 – 49 years).

Methodology

A survey was conducted at Comprehensive Care Centre (C.C.C.) Kiambu County Referral Hospital and ethical approval was obtained as required. Participants meeting the inclusion criteria were approached briefed about the study and those willing signed the informed consent. Data collection involved interviews using structured questionnaires, focus group discussions and Key informants interviews with selected service providers. Information gathered included socio-demographic, how HIV infection and woman's parity influences fertility intention ,the role of partners to these HIV infected women in their decision making process to use or not use modern contraceptives methods and the role of counseling on the decisions made by women living with HIV/AIDS(LWHA) concerning fertility intention.

Results

A total of 275 participants were enrolled into the study. The median age group of the participants was (30 – 34) years with range of 15 – 49 years. 123(45%) of the participants were single while 114 (41%) of the respondents had primary level as the highest level education. 250(91%) were pregnant at the time of data collection.

Most of the respondents, 153 (56%) wanted to have more children. 122(44%) did not want to have more children due to assorted reasons. Of the respondents who did not want to have more children, 70(57%) stated that they were satisfied with the number of children, 26(21%) agreed that they would not risk due to HIV, 12(10%) stated that their spouse disapproved, 10(8%) of the respondents had no spouses while 4(3%) stated that their age would not allow them to have more children. Most of the participants, 193(71%) were using a family planning method while 82 (29%) did not. Out of those who used contraception, 70(36%) used condoms. Most of the respondents 196(71%) used condoms and other contraceptive methods. Only 113 (62%) reported that their partners supported them in using contraceptives. 66% made self-decisions on the mode of family planning that they use. From the 25 respondents who were pregnant, 24(95%) were on ART while 1(4%) was not on further inquiry it was reported that the patient was not compliant with ARV's. Majority of the respondents from the focussed groups agreed that condoms were the safest mode of contraception. In the focus groups, it was also agreed that proper advice was given on family planning methods by medical attendants at the CCC and emphasis of using condoms alongside other methods of family planning were given. 48% agreed that they received family planning services during HIV support. There was a significant association between being a member of the HIV support groups and contraceptive use. Most of the respondents got more information through support groups.

From the interviews given to Key informants reported that contraceptives; short and long-term were available, and free to the women attending CCC.

Conclusion

This study has been useful in determining the impact of HIV Infection on fertility intention and modern contraceptives use among women LWHA. Socio-demographic factors like age and marital status were found to influence the use of contraceptive methods among women LWHA. Most of them are in the peak reproductive age and they are single hence the necessity of contraception. Moreover, women's parity was crucial since most women are not afraid of bearing children due to the availability of ART to all affected women. Partners' role is minimal in decision making on contraception since most of the women make self-decisions.

Recommendation

The county health management team should emphasize on community outreach activities at the household level on HIV and family planning education to fill out the gap of those not on contraception and promotion of more HIV support groups.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND OF THE STUDY

An estimated 35.3 million people are currently living with HIV/AIDS (PLHIV) worldwide. Sub-Sahara Africa is currently home to 75% of people living with HIV/AIDS, with women making up 69% of new infections in the region. Women in general are 30% more likely to be living with HIV/AIDS than men in the locality, while young women aged 15-24 are nearly four times more likely to be infected than their male counterparts [1]. Therefore, young, married women, who are often monogamous, have become one of the most vulnerable groups to HIV in the region. Since this group is at its peak of reproduction; control of mother to child HIV transmission is a priority. From the available data, the risk of an HIV-infected mother passing the virus to her infant during pregnancy, labor and delivery or in the postnatal period is 1 in 3[2].

Although HIV/ AIDS prevalence seems to be on the decline globally, it is important to point out that those living with the infection remains higher among women in Kenya at 7.6% compared to men at 5.6% [3]. Studies further indicate that HIV prevalence among young females aged 15-24 is higher than that of males in the same age group at 2.7% and 1.7% respectively. HIV infection is also linked to women's sexual and reproductive health, as more than half of the 2.6 million new infections globally occur among women [1]. As a result, there is a growing recognition of the reproductive decision dilemma faced by HIV infected individuals.

In settings where HIV prevalence is high, management of sexual and reproductive health of HIV infected women is critical to reducing HIV transmission and maternal mortality. Enabling women living with HIV to avoid unintended pregnancy can reduce vertical transmission of HIV and infant mortality associated with HIV infection. In particular, contraceptive use averts 19.7% of infections and 13.1% of deaths [4]. Consequently, one of the main goals of the World Health

Organization (WHO) comprehensive strategy 2011–2015 for PMTCT is to increase contraceptive use among HIV-positive women who wish to use it [1]. HIV status ,may however, be only a minor consideration among the variety of factors that impact contraceptive use and choice [5] .As the movement toward integration of contraceptive provision and HIV care progresses, the social and cultural context of women's needs and reproductive rights must be considered to maximize the impact of counseling and services. In this regard, prevention of unintended pregnancies is an essential element in reducing Mother-to-child transmission (MTCT) and the overall reduction in maternal mortality. However, contraceptive use still remains a sub-optimal intervention in Prevention of mother-to-child HIV transmission (PMTCT).

Studies in both developed and developing countries confirm that many HIV-positive women continue to desire children, despite the knowledge of their HIV status[6] .Hence, meeting women's sexual and reproductive health (SRH) needs ensures women have control over their reproductive lives, as well as contributing to public health by reducing maternal and infant mortality and morbidity. In resource poor settings, it is critical that prevention procedures be integrated into existing sexual and reproductive health (SRH) and maternal and child health (MCH) services, reaching as many women as possible and lowering transmission rates.

1.2 STUDY OBJECTIVES.

1.2.1 BROAD OBJECTIVE.

To determine the impact of HIV Infection on fertility intention and modern contraceptives use among women LWHA attending a C.C.C. Kiambu County Referral Hospital.

1.2.2 SPECIFIC OBJECTIVES

a) Determine the impact of socio-demographic factors on the intention to use modern contraceptive among women LWHA attending C.C.C. Kiambu County Referral Hospital.

b) To evaluate how HIV infection and woman's parity influences fertility intention among affected women accessing services at the Kiambu County Referral Hospital C.C.C

c) To establish the role of partners to these HIV infected women in their decision making to use or not use modern contraceptives methods

d) To determine the role of counselling on the decisions made by women LWHA concerning fertility intention.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION.

HIV stands for human immunodeficiency virus; it affects specialized cells of the immune system i.e., T helper and T- Suppresor cells (CD4 and CD8 cells) monocytes and macrophages. The function and number of CD4 cells and other affected immune cells is greatly reduced with overall immune suppression, eventually leading to AIDS. AIDS is a condition in which the immune system begins to fail and this leads to life threatening opportunistic infections. There is staging based on severity of clinical symptoms and/or CD4+ cell counts developed by WHO [7] to help with the management of the disease

2.2 VIROLOGY.

HIV is a retrovirus from the Lentivirus family. Genetic material consists of a single-stranded ribonucleic acid (RNA) Viral particle is spherical in shape with a diameter of 80-100 nanometres (nm).There are two types of HIV 1 and 2 where HIV 1 is found worldwide while HIV 2 is mainly found in West Africa, Mozambique and Angola. HIV 2 causes a similar illness to HIV 1 though it is less efficiently transmissible rarely causing vertical transmission and less aggressive with slower disease progression. Three classes of HIV 1 have been identified: Major (M), Outlying (O), and New (N). M group accounts for over 90% of reported HIV cases and is sub classified into 9 major classes: A-D (East Africa has A and D), F-H and J & K ,Viral diversity is highest in sub-Saharan Africa. Group N is very distinctive having been identified in a few individuals in Cameroon. Group O sometimes referred to as the ‘outlier group’ is rare and contains various viruses .For both phylogenetic analysis of the gag and env genes don not reveal subtypes [8].

2.3 HISTORY.

In 1984 the first case of AIDS was described in Kenya. Later in 1986, HIV 2 was isolated from AIDS patients in West Africa, where it may have been present decades earlier.

2.4 EPIDEMIOLOGY

Currently there are approximately 35 million PLWHA, of this the new infections could account up to 2.1 million per year and death due to AIDS is said to be 1.5 million [9] over the same period. The Kenya Indicator AIDS Survey (KAIS 2012) revealed that 5.6% of people aged between 15 and 64 were living with HIV infection in 2012. This represented a significant decline from the 2007 estimates that showed the prevalence to be 7.1%. The HIV incidence was 0.5% in 2012 (KAIS 2012). This represented approximately 106, 000 new infections in 2012[10]. Just like in previous studies, the Kenya National AIDS Strategic Plan (KNASP) (2009), the KAIS of 2012 also showed that women continued to carry a higher burden of HIV infection compared to men. The study further showed a wide HIV regional prevalence variation in adults and adolescents aged between 15 and 64 years with prevalence highest in Nyanza (15.1%) and lowest in North Eastern Region (2.1%). Moreover, the prevalence was found to be higher among widowed women (20.3%) and men (19.2%) than women and men who had never married before or even cohabited. Their prevalence was found to be 3.5% and 1.4% respectively [10]. Overall, there was a significant decline in HIV prevalence among men and women of all age groups between 2007 and 2012.

65% of the new HIV Infections occur in nine out of the 47 counties. 21% of these occur among the young women aged 15-24 every year [11].Hence, the HIV epidemic is geographically diverse, ranging from a prevalence of 25.7 % in HomaBay County in Nyanza region to

approximately 0.2 % in Wajir County in North Eastern region. Luckily, these estimates confirm a decline in HIV prevalence among both men and women at national level. In 2008, HIV prevalence was reported to be as high as 13.9% in Nyanza region to as low as 0.9% in North Eastern region. Kiambu County which is the subject of this study happens to be among the top ten counties with individuals estimated living with HIV is at 46,656. The County HIV prevalence was also estimated at 3.8% with men at 2.0 % and women at 5.6 % [11].

Wide variations in the number of new infections have been noted between urban and rural regions, adults and young people and men and women, with an estimated 60,000 new infections in 2005, dropping to 55,000 in 2006 and rising to an estimated 105,000 in 2010[12]. Latest data shows 101,560 new infections in 2013 [11]. Most of the new infections occur among young people, in whom the main mode of transmission is through sexual intercourse. Modes of transmission include: Unprotected sexual intercourse with an infected partner (Sexual transmission accounts for 93.7% of all new HIV infections) [13] and Maternofetal transmission (during pregnancy, at birth or through breastfeeding) .In Kenya, there is a 30-40% chance that a HIV Positive breastfeeding mother will pass HIV to her child in the absence of ARV's. Some projects are underway to reduce maternal and infant mortality, one of them being he 'beyond zero' campaign which was started by the country's first lady to raise 500 million to purchase mobile clinics to serve in the counties. So far she has managed to raise 200 million [14] and provided counties with mobile clinics. Globally, the maternal mortality ratio dropped by 45 percent between 1990 and 2013, from 380 to 210 deaths per 100,000 live births. Thus, worldwide, almost 300,000 women died in 2013 from causes related to pregnancy and childbirth. Maternal death is mostly preventable and much more needs to be done to provide care to pregnant women [15].

2.5 CONTRACEPTION.

Persons living with HIV and AIDS have been shown to have a higher over 50% [10] unmet need for FP. Thus, FP service providers must ensure that safe and effective contraception is accessible to women who are HIV positive in order to help them not only plan their future child bearing patterns but also to prevent the births of HIV positive children [2].

Among married or cohabiting women aged 15-49 years, 73.3% either did not want a child within the next two years or did not want a child (or more children) in the future. Among these, 60.8% were using modern contraception to prevent pregnancy [10].

The county is committed towards eliminating mother to child transmission of HIV as part of the national program on PMTCT. In 2011, there were approximately 1, 923 HIV-positive pregnant women in the county. Of the PLWHA in Kiambu County, 10% are children. This is a significant number, and implies that vertical transmissions are contributing significantly to the HIV transmissions in the county. Transmission of HIV from mother to child occurs from delivery, pregnancy and breastfeeding. It is especially difficult to prevent breastfeeding as it is crucial in the survival, growth and development of the child. For this reason, provision of antiretroviral medications to mothers during the breastfeeding period significantly reduces mother to child transmissions of HIV infections. The national government is committed to eliminating new HIV infections among children by 2015, while keeping mothers of these children alive.

The WHO Medical Eligibility Criteria for Contraceptive Use indicates that most methods used for contraception are effective and safe for HIV positive women, whether with asymptomatic HIV or AIDS. Recent studies in Ghana, Kenya, Rwanda, Ethiopia and South Africa have revealed that male condoms are the most widely used contraceptive method by PLWHA.

However, the use of condoms requires communication and negotiation. Women have been found to influence condom use and reduce sexual risk in men. A study [16] reveals that married women play a crucial role in condom use as they are conscious about HIV risk. A recent study in Kampala Uganda shows that appropriate condom use and counseling are factors that increase condom use in married couples LWHA [17]. Other studies have shown that women LWHA feel more in control when using the female condom compared to unprotected sex or the male condom [18]

The following contraceptive methods are available in Kenya: - progesterone only pills, low dose combined oral contraceptives, depot medroxyprogesterone acetate (DMPA – depo), levonorgestrel and etonogestrel implants. Also available are emergency contraceptive pills, copper intrauterine contraceptive devices, and barrier methods, female and male sterilisation [19].

2.6 REPRODUCTIVE CHOICE FOR PEOPLE LIVING WITH HIV

Many studies have been conducted to investigate the reproductive choices for men and women living with HIV and AIDS. PLWHA need to make informed choices concerning their reproductive lives without any coercion. The health condition of these people, coupled with the socio-economic implications makes them vulnerable, but due to these situations, supporting their reproductive rights becomes a priority [20] .Despite the inadequacy of antiretroviral treatment in many setups, PLWHA have reproductive health needs especially the need for family planning services in countries with a high prevalence of HIV [21].In order to provide for these services, health care practitioners need to integrate HIV-related services and reproductive health services. However in most setups around the world, these services have not been integrated but rather, they have been given vertically [22].This study will assess the fertility-related needs of women LWHA attending C.C.C. at Kiambu County Referral Hospital and how HIV affects decision making processes on these needs.

2.7 FERTILITY RELATED NEEDS OF PEOPLE LIVING WITH HIV AND AIDS

Research by Siegel Schrimshaw (2001) reveals that in areas with a high HIV prevalence, more than 80% of women with HIV are in their reproductive years. Even after they have a positive HIV status, many will still continue desiring children. This will prompt them to either want to start a family or to have more children. For some, regulation of fertility therefore becomes a necessity. We can also assume that fertility related needs of HIV negative women and HIV positive ones are different. For one, HIV infection affects the sexuality of the couples involved. This is because they fear infecting their non-infected partners. Others may have stigma related to the condition which leads to emotional and psychological disturbance. However, with the advent of ART services for the improvement and treatment of HIV, there has been a renewed interest in

sexual relations and the desire to have children by PLWHA [23].In terms of family planning choices, factors that come into play are whether one partner is infected and possibility of infection with other STIs. These factors may change when both of the partners are infected. Studies have been done also to gauge the use of contraception in PLWHA. A study by Chen, Philips and kanuse, 2000[6] reveals that with no HIV-related symptoms, decision making on childbearing and contraceptive use is weakly affected by the impact of having HIV [6] .Studies evaluating contraceptive use among HIV patients in different countries do not produce identical results. This implies that the decision of contraception may be related to other significant factors apart from the HIV status. For instance, PMTCT in Kenya and Zambia discovered that the contraceptive use in HIV positive women is of the same rate as that used by HIV negative women[23].In Rwanda, a study established that contraceptive use is higher among HIV positive women when compared with HIV negative ones [24].Factors like availability of contraceptives, economic factors, provider bias, and prevalence of contraceptive use continue shaping the pattern of use among women LWHA. This has marked implications on the national government. In African countries with a high prevalence of PLWHA, higher contraceptive use is encouraged through amplifying promotional activities. However, in countries with a low prevalence rate of contraceptives, there is a need to strengthen condom promotions and family planning services.

2.8 LEGAL AND POLICY IMPLICATIONS

Apart from personal decisions, legal and policy implications determine sexual and reproductive rights. This has a bearing on the type and degree of contraception to be used by people LWHA. For this reason, these people need to be accorded family planning options and a range of contraceptive options. Despite this fact, this is not the case in countries with a low contraceptive prevalence rate. A study conducted on the reproductive rights of women LWHA in Kenya,

Poland, Lesotho, Argentina and South Africa reveals that contraceptive options are limited as a result of their socio-economic status [25]. This eventually has a bearing on the fertility decision and contraceptive decision by people of this group. For this reason, counseling needs to be scaled up, and has to be characterized by assurance of confidentiality and information on effectiveness so that the affected are able to make informed choices [25]].There is bias towards dual method as the contraceptive of choice for women LWHA by caregivers. All women and couples living with HIV infection should know about and have access to the means of dual protection. Family planning counseling protocols should include an individual/couple risk assessment to informed choice of method in relation to effectiveness for both pregnancy prevention and prevention of HIV/STI. HIV treatment centers should also include or refer for contraceptive counseling on a routine basis. Thus, health care providers are in a key position to help convey messages about dual protection. Many of the obstacles to using dual protection with contraceptives like condoms can be overcome by sympathetic and knowledgeable support from health workers. Negotiation and communication skills with partners are also crucial for effective dual protection and gender-specific strategies need to be adopted to promote these.

2.9 STATEMENT OF THE PROBLEM

The need for enhanced contraceptive access that is geared to meet the needs of HIV positive women has in the recent past gained escalating awareness. It has been indicated in reports that a high rate of unmet contraceptive need and unplanned pregnancies among HIV positive women in Sub-Saharan countries, have led to several proposals to test the integration of HIV and contraceptive services [5]. Kenya has witnessed a remarkable improvement in the contraceptive prevalence rate since the 1980s, which currently stands at 58% [27]. Despite the observed improvement, the unmet need for modern contraceptive use in Kenya has remained unacceptably

high ranging from 90% in the first 3 months to 68% by the end of first year after delivery. The national statistics are a stark reflection of the situation at the county level of government.

The high unmet need for modern contraceptive use exposes the first time mother living with HIV/AIDs to high risk of unwanted/unintended pregnancy in the year following delivery. Such pregnancies are either illegally aborted or associated with poor health outcomes for both the mother and the infant; a situation that has contributed significantly to the high maternal mortality in Kenya. The risk is greater among the first time mothers because they do not know what to expect after their first delivery and rely on the advice and explanations from their female relatives, friends and neighbors.

Concerted efforts have been made by the Kenyan government through the Ministry of Health and the development partners to meet the contraceptive need of women living with HIV/AIDs. These efforts are through training of health workers and integration of family planning services to the maternal and child health services. Despite these concerted efforts, the proportion of women using contraception is still relatively low, and if the problem is not addressed, achievement of millennium development goals of reducing two thirds of maternal and infant mortality by 2015 will be handicapped. Although the unmet need for modern contraceptive use is high, factors determining the intention to use the modern contraception among the first time mothers are not fully known and this calls for such investigation in Kenya. Such investigation can only begin at the lowest level. In this case, this study focuses on women LWHA attending C.C.C Kiambu County Referral Hospital.

2.10 SIGNIFICANCE OF THE STUDY.

The main aim of this study is to describe family planning utilization among HIV infected women besides estimating the unmet needs. Identification of knowledge gaps and factors associated with improved family planning services utilization among women LWHA attending Kiambu County Referral Hospital will be key. Understanding the factors will benefit the patients as well as care givers with regards to cost effective intervention programs to be undertaken. This study may also benefit many concerned stakeholders in decision making and policy development sectors in Kenya

2.12 RESEARCH QUESTION.

What is the impact of HIV infection on fertility intention and modern contraceptive use among women in the reproductive age group attending C.C.C in Kiambu County Referral Hospital?

CHAPTER 3: RESEARCH METHODOLOGY

3.1 METHODOLOGY

This section describes the research design and provides information regarding the population of the study, sample size and sampling procedure, study instruments, data collection and data analysis techniques.

3.2STUDY DESIGN

A descriptive cross sectional research study was conducted where both quantitative and qualitative techniques were used.

3.3 TARGET POPULATION AND STUDY AREA

The project was conducted at Kiambu County Referral Hospital CCC, located in Kiambu town, targeting women of the reproductive age and how their HIV situation affects fertility intentions and modern contraceptive use. Women in the Hospital are to represent women in the larger Kiambu County.

The county borders the Nairobi Country and has a population of 1, 623,282 from the 2009 census estimates. The town has an urban population of approximately 14,000 residents but is surrounded by many rural regions of central Kenya.

Kiambu County Referral Hospital is a level 4 hospital in Kiambu County. The hospital offers family planning, immunization and HIV Counseling and Testing services among other health care services. The comprehensive care Centre (CCC) in Kiambu Hospital serves around 800 to 1000 patients monthly i.e. 625 adults and 180 children were served in the month of April 2015. This facility was chosen since it is located in an area with a cosmopolitan population and one

that serves a large population. The area is also served with a noteworthy road network which made it easier for the researcher in the data collection exercise.

3.4 SAMPLE SIZE DETERMINATION

Sample size was estimated using the formula recommended by Cochran (1963)

$$\mathbf{n= z^2 pq/ d^2}$$

Where

n = Desired sample size (when population is greater than 10,000 in this case 46,000 PLWHIV)

z = Standard Normal Deviation which is equal to 1.96 corresponding to 95% confidence interval

p = Prevalence of the issue under study,

Q = 1-p

d = confidence limit of the prevalence (p) at 95% confidence interval 1-0.95 = 0.05

Degree of accuracy desired for the study is hence set at 0.05.

Substituting the figures above in the formula,

n = 275

3.5 SAMPLING METHOD

The study involved non-probability sampling by convenience method where Patient's making their first and subsequent visits to the CCC were asked to participate. However, in order to be included in the research exercise, participants must have met the inclusion criteria detailed below. The facility was visited during the days when patients were received in the CCC for

family planning and other services. Patients who met the inclusion criteria were selected randomly from the large group available. From this inclusion criteria every 40th individual who consented took part in the Focus group discussions (FGDs) which were conducted and recorded using a field guide and focused on the main themes surrounding the topic of interest. Key informant Interviews were conducted by a moderator with a session recorder present to capture areas of group consensus and disagreement.

3.6 INCLUSION CRITERIA

- Female patients LWHA attending the C.C.C of Kiambu County Referral Hospital.
- On their second and subsequent CCC visits since enrollment
- Women of reproductive aged 18-49 years.
- Married or pregnant women aged 15-18 years (mature minors).
- Health care providers at the CCC for the key informant interviews.

3.7 EXCLUSION CRITERIA

- Women who did not consent to take part in the study

3.8 STUDY MATERIALS

The study utilized stationery in the form of consent forms, questionnaires and focus group discussions for both qualitative and quantitative data collection. Data collection was conducted by the principal investigator and volunteer research assistants.

3.9 PROCEDURES

In terms of data collection, patients who met the criteria were approached and requested to participate in the study. The researcher explained the study objectives and aims. Each patient

approached was given a written consent, and given time to read through and sign voluntarily, for those who were unable to read there were verbal consent and a witness present. Those who agreed to take part in the study were interviewed by use of structured questionnaire and every 40th individual was invited to participate in the Focus Group Discussions. Volunteer research assistants were used as interpreters to those who cannot understand English.

3.10 MEASURES/VARIABLES

3.10.1Dependent Variables

- Current receipt of Antiretroviral Therapy (ART)
- Current sexual partnership
- Fertility intentions
- Spouse involvement
- Contraceptive use

3.10.2Independent Variables

- Age
- Level of education

3.11 DATA COLLECTION PROCEDURE.

To be eligible to participate in the overall study, women were required to be between the ages of 15–49 years of age; with those between 15 and 18years required to be either married or pregnant, attending care: 1st or subsequent visits, competent to give informed consent. For the 2nd and subsequent visits they should have been willing to allow medical record review for the purposes of confirming HIV sero-status and other medical histories. The researcher considered a woman

was a contraceptive user if she was using contraceptives at the time of interview .A woman was considered a no contraceptive user (not using contraceptives) if not on a method past 3 years.

The research project included both secondary and primary data collection. With primary data collection methods used being; use of structured questionnaires and in depth interviews/FGDs. Research assistants were hired to assist in the collection of data.

Data collection took two months. Medical records of HIV positive women were reviewed to confirm HIV status and other medical history, and to obtain all necessary clinical data, including CD4 cell counts and WHO stage of disease using data extraction tool (checklist).

After confirming eligibility and seeking written informed consent, participants were asked to participate in a 25–35 minute interviewer-administered questionnaire. Approximately 10 women were interviewed daily by the data collector at the health facility nurses with HIV/AIDS-related training to review medical records of participants. Focused group discussions were conducted on every 40^{th} individual who was requested to participate thus making 6 groups in total. Key informant interviews took place involving the health service providers 10 participants were involved. Recording was done using a recorder.

3.12 DATA MANAGEMENT AND ANALYSIS

Data was collected by the principal investigator, with the help of research assistants and hospital staff. Questionnaires were filled by qualified participants who met the inclusion criteria and understood English those who could not there was an interpreter for them who assisted in filling the questionnaire. Focus groups and interviews to the key health care provider informants were carried out by the principle investigator. There was checking of the filled questionnaires and

checklists for consistency and completeness on a daily basis for all clients.A code was given to the completed questionnaires and then data entered into a database using excel and subsequently analyzed.

Quantitative Data from the structured questionnaires was entered and cleaned using Excel. Analysis was performed using both Excel and SPSS. Data have been presented using frequency table and graphs. Important summary statistics were obtained and associations were examined using linear regression. Significance level of 0.05 (i.e. $p<0.05$) was used to determine the significance of associations being examined. A linear equation has the following general form:

$$y = a + bx$$

where

y = the dependent variable

a = the intercept

b = the slope of the line

x = the independent variable

Transcriptions and summaries of emerging issues from the Qualitative Data Analysis from the focused group discussion and key informant interview were documented. The responses from healthcare providers were grouped into the themes. The recurring statements and narratives where then summarized and analyzed.

3.13 ETHICAL CONSIDERATIONS

Ethical approval to conduct the study was sought from the KNH-UON Ethical Review board as in appendix 10. Permission to collect that data was also sought from Kiambu county health official as in appendix 11. Potential participants were only allowed to take part in the study after they signed the informed consent document. Any women below 18years were not allowed to

take part in the study, unless they were mature minors. Those who consented were not coerced to do so, and those who consented signed an informed consent form that explained the entire study and what they stand to gain from the findings. Those who consented to take part were given the freedom to withdraw from the study at any time. Finally, responses of study participants were kept confidential. Participants who qualified filled questionnaires in private and anonymity was observed by allocating the specific study numbers and not recording the names. The filled questionnaires were stored under lock and key and the data from the research was password protected in a laptop under the possession of the principal investigator to ascertain confidentiality.

3.15 OTHER ISSUES RELATED TO THE PROJECT

Contraceptive utilization refers to the use of any form of either modern or traditional contraceptive methods to avoid or delay pregnancy. Current use of contraceptive method referred to respondents who were to respond positively to the use of contraceptive methods at the time of the survey to delay or avoid pregnancy. In assessing the contraceptive method profile, dual protection was defined as the use of both a barrier contraceptive method (male or female condom) and use of a hormonal or permanent contraceptive. A traditional method (coitus interrupts and calendar method) was incorporated as part of the responses in the questionnaire. Modern Contraceptive method queries included use of male and female condoms (restricted to those reporting “Always” use), injections (depomedroxyprogesterone acetate (DMPA) or norethisterone enantate), oral contraceptive pills, diaphragm, intrauterine devices (IUD), female tubal ligation, hysterectomy, and male partner sterilization

CHAPTER 4: DATA ANALYSIS

This chapter presents the study findings. It is organized under the following subheadings:

- Univariate summary of socio-demographic data using descriptive statistics,
- Analysis of on how HIV infection and woman's parity influences fertility intention among affected women accessing services at the Kiambu County Referral Hospital C.C.C,
- Analysis of the role of partners to these HIV infected women in their decision making to use or not use modern contraceptives methods
- Analysis on the role of counselling on the decisions made by women LWHA concerning fertility intention.

4.1Univariate summary of socio-demographic data

The sample group includes age, marital status, education, and religion. The details are of the following:

4.1.1 Age

The median age group of the participants was (30 – 34) years with range of 15 – 49 years. Two thirds (65.8%) of the subjects were aged between 25 – 39 years.

The results are presented in Figure 4.1.1 below;

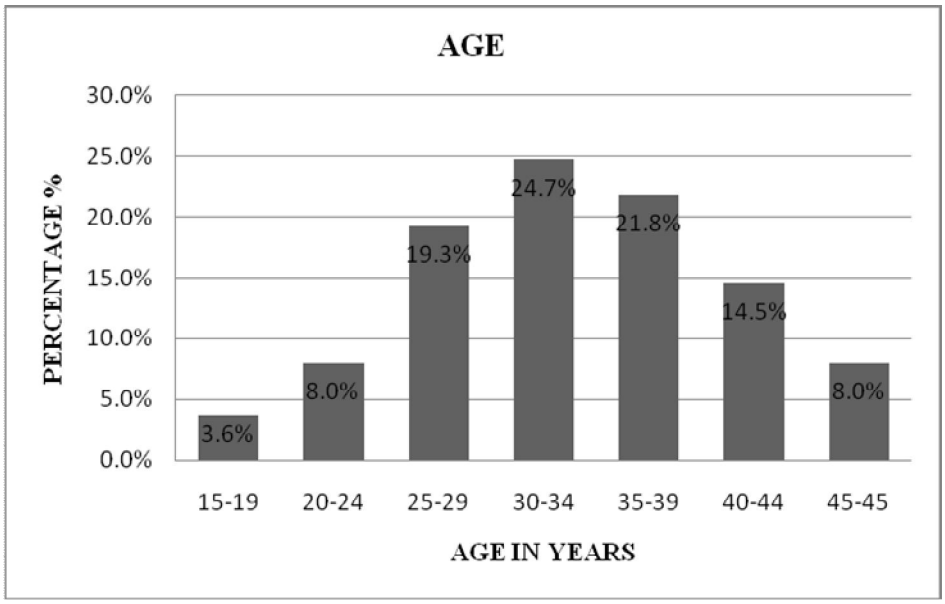


Figure 4.1.1: Participants' distribution by Age group

4.1.2 MARITAL STATUS

123(45%) of the participants were single. Majority of the women LWHA reported fear of stigmatisation from the partners due to their status [10].

The results are presented in the Figure 4.1.2 below;

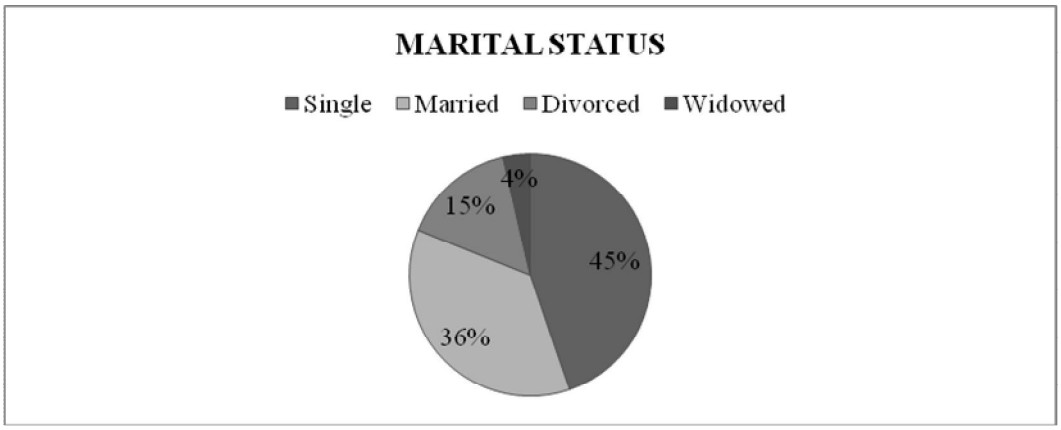


Figure 4.1.2: Marital Status

4.1.3 LEVEL OF EDUCATION

As shown in Figure 4.1.3 114(41%) of the respondents had primary level as the highest level education. 107(39%) of the respondents had secondary level of education. This shows that majority of the women have at least basic education.

The results on level of education are presented in Figure 4.1.3 below.

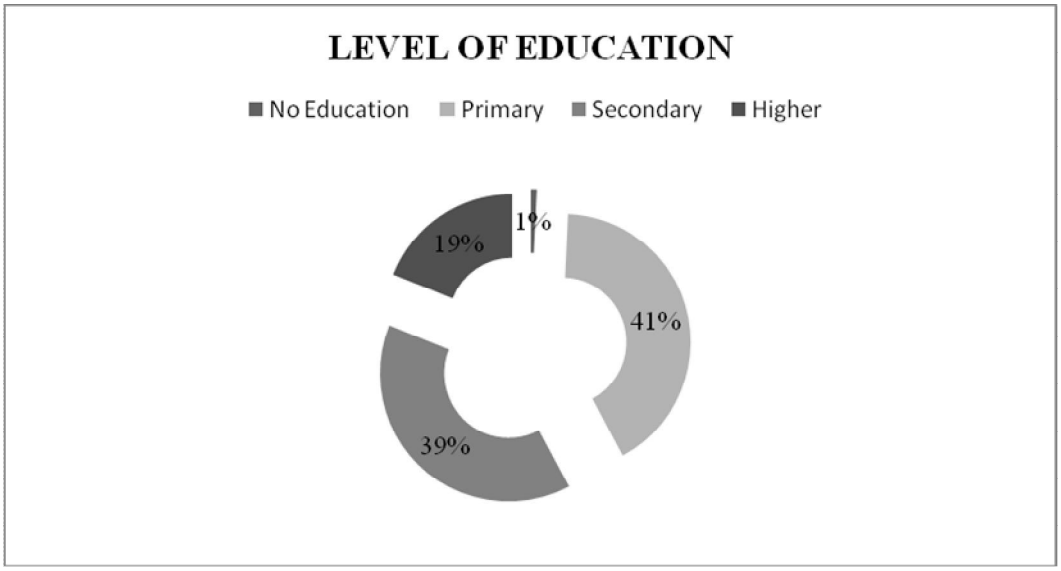


Figure 4.1.3: Level of Education

4.1.4 RELIGION

Figure 4.1.4 below illustrates the frequency of Religion of the respondents. Protestants are the highest in number with 54.5% and 41% are Catholics.

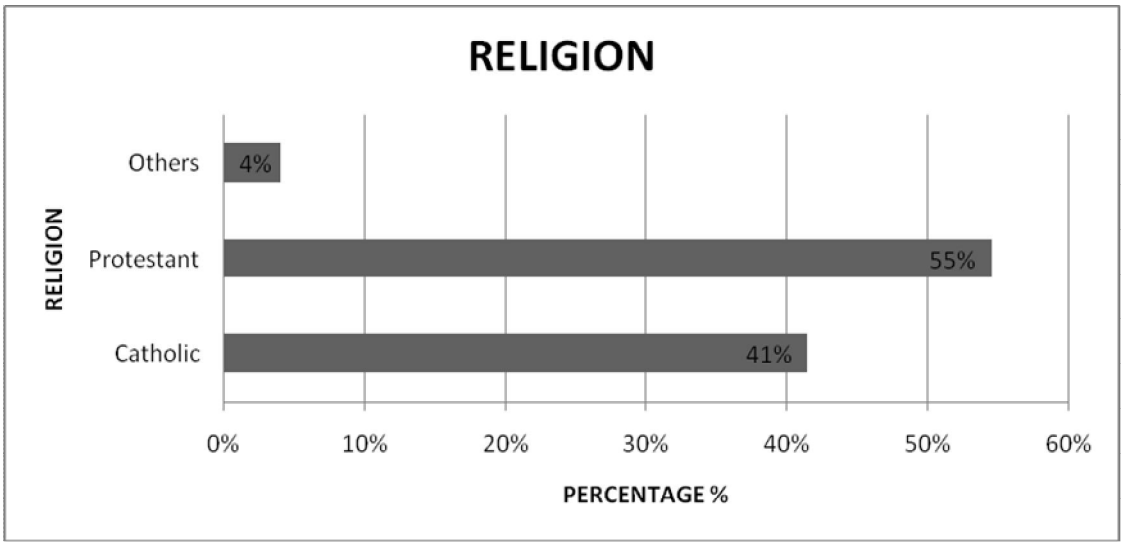


Figure 4.1.4: Religion

4.2 WOMEN PARITY

From the data collected, 259(94%) of the respondents attended ANC clinics during their last pregnancy, 3(0.007%) did not attend ANC clinic in their last pregnancy and 13(5%) had never been pregnant. The high number at the ANC attendance can be attributed to the fact that Mother and Child care in the country is affordable and accessible in Kiambu County [11]. From the respondents who attended ANC 86% of them were given information on family planning while 14% were not. 66% of the respondents, who had given birth, received information on family planning 6 weeks post pregnancy while 34% of the respondents were not.56% of the respondents would want to have more children while 44% would not want more children. The results are as shown as Table 4.2.1 below.

RESPONSE	PERCENTAGE
YES	56%
NO	44%
TOTAL	**100%**

Table 4.2.1: Want more Children

Of the respondents who did not want to have more children, 70(57%) stated that they were satisfied with the number of children, 26(21%) agreed that they would not risk due to HIV, 12(10%) stated that their spouse disapproved, 10(8%) of the respondents had no spouses while 4(3%) stated that their age would not allow them to have more children. As shown in Table 4.2.2 below.

REASON FOR NO MORE CHILDREN		
RESPONSE	**FREQUENCY**	**PERCENTAGE**
SATISFIED WITH NUMBER OF CHILDREN	70	57%
DUE TO HIV	26	21%
SPOUSE DISAPPROVES	12	10%
NO SPOUSE	10	8%
AGE	4	3%
TOTAL	**122**	**100%**

Table 4.2.2: Reason for not wanting children

4.3 CONTRACEPTION USE AND PARTNER ROLE

Of all respondents, 71% were on contraceptives while 29% were not. The most used contraception was the condom 36% followed by injectables 22% then implants at 19%.IUCD

and Pills follow with 11% each. The least used was BTL at 1% while lactational and withdrawal, are not used at all as Table 4.3.1 below.

TYPE OF CONTRACEPTION		
RESPONSE	**FREQUENCY**	**PERCENTAGE**
CONDOMS	70	36%
INJECTABLES	42	22%
IMPLANTS	37	19%
IUCD	21	11%
PILLS	21	11%
BTL	2	1%
LACTATIONAL	0	0%
WITHDRAWAL	0	0%
TOTAL	**193**	**100%**

Table 4.3.1: Type of Contraceptive

Of the respondents who were not on contraception, 46% stated that they were single, 30% were pregnant, 10% were trying to get pregnant and 9% were in the postpartum Period. Those of whom the spouses were involved in decision making on contraceptive use were 2% and drug intentions and lack of knowledge were at 1% each.71% of the respondents reported that they use condom and other family planning methods at the same. As shown in Table 4.3.2.

CONDOM AND OTHER FP METHODS		
RESPONSE	**FREQUENCY**	**PERCENTAGE**
YES	196	71%
NO	79	29%
TOTAL	**275**	**100%**

Table 4.3.2: Condom and other FP methods

The respondents who stated that the providers knew about their status while providing counselling on contraceptive use were 133(48%) while 142(52%) said that the providers did not know about their status. 66% of the respondents had disclosed their status to their partners, 25% had not disclosed and 9% did not have partners. Of those with partners, 62% stated that their partners supported family planning methods while 38% did not support., 61% reported that their partners approved the use of family planning, 17% disapproved and 22% were not sure on their spouse decision on family planning methods. Table **4.3.3** below illustrates the results.

PARTNERS DECISION ON FAMILY PLANNING		
RESPONSE	**FREQUENCY**	**PERCENTAGE**
APPROVES	152	61%
DISAPPROVES	43	17%
UNSURE	54	22%
TOTAL	**249**	**100%**

Table 4.3.3: Partners decision on FP

Of all respondents, 66% independently make decisions on the mode of family planning that they use, 28% stated that it was a joint decision and 3% said it was the spouse's decision and another 3% said it was the medical practitioner. This is illustrated in Table 4.3.4 below.

DECISION ON FAMILY PLANNING		
RESPONSE	**FREQUENCY**	**PERCENTAGE**
SELF	181	66%
JOINT	77	28%
MEDICAL PRACTITIONER	9	3%
SPOUSE	8	3%
TOTAL	**275**	**100%**

Table 4.3.4: Decision on Family Planning

4.3.1 PREGNANCY

Nine percent (9%) 25 of all respondents were pregnant.. 76% of these were using contraception while 24% were not. (96%) 24 of the respondents were using ART during pregnancy while (4%) 1 were not on ART on further inquiry it was reported that the patient was not compliant. This was because it was their first ANC visit. 92% of respondents wanted to get pregnant at the time while 8% did not want to get pregnant56% of the pregnant women would want to have another child, 28% were undecided while 16% did not want any more children due to the risk involved.

4.4 FAMILY PLANNING AND HIV SERVICES

Most of the respondents (81%) had found out about their status years before the study while 19% had found out months before. 48% reported that they received family planning services during HIV support. This is shown in Table 4.4.1

FP THROUGH HIV SUPPORT		
RESPONSE	**FREQUENCY**	**PERCENTAGE**
YES	131	48%
NO	144	52%
TOTAL	**275**	**100%**

Table 4.4.1: FP through HIV Support

There was a significant association between Contraception use and receiving Family planning advice through HIV support groups with (p= 0.03) at 95% CI [0.009, 0.23].

Of all respondents, 99% were on HIV treatment 76% agreed that the providers gave them information on having children while on HIV treatment and 24% did not. This is illustrated in Table 4.4.2

PROVIDER INFO ON HAVING CHILDREN WHILE ON HIV TREATMENT		
RESPONSE	**FREQUENCY**	**PERCENTAGE**
YES	209	76%
NO	66	24%
TOTAL	**275**	**100%**

Table 4.4.2: Provider information

66% of the respondents reported being advised about the consideration of family planning while on HIV treatment (Table 4.4.3).

FP CONSIDERATION WHILE ON HIV TREATMENT		
RESPONSE	**FREQUENCY**	**PERCENTAGE**
YES	182	66%
NO	93	34%
TOTAL	**275**	**100%**

Table 4.4.3: FP Consideration while on HIV Treatment

93% stated that women LWHA can safely use family planning while receiving HIV treatment, While 7% were not sure if it was safe to use family planning while on treatment.44% of the respondents said that it was safe to use condoms as a contraceptive method, 16% said that it was safe to use all methods of family planning, 15% suggested IUCD as the safe contraception, Implants and injectable were at 11% and the least was pills at 4%.

4.5 FOCUS GROUPS AND INTERVIEWS

4.5.1 FOCUS GROUPS

Three focus groups were held with five members in each group. From the discussion, all groups agreed that any type of contraception was safe to use during HIV treatment. It was also agreed that proper advice was given on family planning methods by medical attendants at the CCC and emphasis of using condoms alongside other methods of family planning were given.

Most of the women in the focus group preferred not to have more children due to the risk of infection involved. The women also reported that their partners are in full support of family planning. Advice on ART during the CCC clinic is offered as well. The women also reported contentment with the CCC services although they raised a few improvement measures such as

more time with the medical attendants increase in the number of attendants, better handling of lab samples so that accurate results are met, flexibility with the clinic attendance.

4.5.2 KEY INFORMANT INTERVIEWS

Five medical attendants were interviewed. It was unanimous that more staff was needed in the CCC department on average; each medical attendant had 10 to 15 patients per day. It was also agreed that all contraceptive; short and long-term were available, effective and free to the women at CCC.

Major challenges encountered included, patient perception and partner disagreement on contraception. They however pointed out that contraceptive use is important especially for a woman LWHA for better planning and spacing of children. They also suggested that women should be enlightened during pregnancy about family planning and let to choose for themselves. The need for Health education was also pointed out so that people especially Women LWHA can understand better the importance of contraceptives. Increase in availability of ARV'S as well as qualified personnel were reported as areas of improvement due to the shortages they go through.

CHAPTER 5: DISCUSSION

5.1 INRODUCTION

The overriding purpose of this study was to to determine the impact of HIV Infection on fertility intention and modern contraceptives use among women LWHA attending a C.C.C. Kiambu County Referral Hospital. To accomplish that goal it became necessary to achieve the main four objectives falling under: socio-demographics; woman's parity; role of the partner and counseling regarding contraception

5.2 SUMMARY OF FINDINGS

Of the 275 qualified respondents, Two thirds (65.8%) of the subjects were aged between 25 – 39 years. The results also showed that, 123(45%) of the participants were single. 114(41%) of the respondents had primary level as the highest level education. 107(39%) of the respondents had secondary level of education Protestants were the majority with 54.5%.There was a significant association between age and contraceptive use as well marital status and contraceptive use with both having p-values less than 0.05.

From the data 94% of the respondents attended ANC clinics during their last pregnancy. 56% of the respondents would want to have more children while 44% would not want more children. From the respondents who did not want to have more children, 57% of the respondent stated that they were satisfied with the number of children, 21% agreed that they would not risk due to HIV, 10% stated that their spouse disapproved, 8% of the respondents had no spouses while 3% stated that their age would not allow them to have more children.

Of the 275 respondents, 71% were on contraceptives while 29% were not. The most used contraception was the condom with 36% while the least used was BTL at 1% while lactational

and withdrawal, are not used at all. For the respondents who do not use contraception, 46% stated that they were single, 2% of the participants said that spouses were involved in the decision not to use contraception. 71% of the respondents agreed that they use condom and other family planning methods at the same time. From those who have partners, 62% stated that their partners supported family planning while 38% said that their partners did not support. From the respondents who have partners, 61% said that their partners approved the use of family planning, 17% disapproved and 22% were not sure on their spouse decision on family planning methods. From the total number of respondents, 66% made self-decisions on the mode of family planning that they use, 28% stated that it was a joint decision and 3% said it was the spouse's decision and another 3% said it was the medical practitioner. In the focus groups, all groups agreed that any type of contraception was safe to use during HIV treatment.

From the respondents who attended ANC, 86% of them were given information on family planning. 66% of the respondents who had given birth, received information on family planning 6 weeks post pregnancy. Most of the respondents got their advice on family planning from Government hospitals at 61%. In the focus groups, it was also agreed that proper advice was given on family planning methods by medical attendants at the CCC and emphasis of using condoms alongside other methods of family planning were given. 48% agreed that they received family planning services during HIV support, while 52% disagreed on family planning services through HIV support. From the total number of respondents, 99% are on HIV treatment while a minimum of 1% are not on HIV treatment. 76% agreed that the providers gave them information on having children while on HIV treatment and 24% disagreed on the same issue. There was a significant association between HIV support groups and contraceptive use.

Of the respondents 66% agreed that they were advised about the consideration of family planning while on HIV treatment and 34% of the disagreed. 93% stated that women LWHA can safely use family planning while receiving HIV treatment, while 7% were not sure if it was safe to use family planning while on treatment. Majority of the respondents agreed that condoms were the safest mode of contraception. From the interviews given to Key informants, It was unanimous agreed that all contraceptive; short and long-term were available, effective and free to the women at CCC.

5.3 DISCUSSION

With the analysis showing a significance association between age , marriage and contraceptive use [4]this could be attributed to the fact that most of the women who are reproductive are in the age 25 to 39 and prefer to use contraception so as to ensure better planning and spacing of children[19]. FP service providers must ensure that safe and effective contraception is accessible to women who are HIV positive in order to help them not only plan their future child bearing patterns but also to prevent the births of HIV positive children [2]. Most of the women prefer single life due to their HIV status [10].

High number of ANC attendance was attributed to the fact that Mother and Child care in the country in affordable and accessible in Kiambu County [12]. Most women wanted to have more children. This contradicts [10]. This could be as a result of the policy on advent of ART services to affected parties. However, an equally large number of women did not want to have any more children because of contentment and also risk involved with HIV as in [6]

Partner role in decision making on contraceptive use was minimal [5]. However, majority of the partners supported family planning but were not involved in the mode of family planning used [4].

ANC and Post natal clinics were a good source of information on family planning. Government hospitals were the most frequented. This could be attributed to the affordable PMTCT services [2]. The use of condoms alongside other of modern contraception was also reported [10].family planning services were offered by the health care providers thus prevention of unwanted pregnancies was dealt with [[2] However, family planning services during HIV support was low. This shows that if integration of CCC clinic with family planning services would be emphasized, then more women LWHA will receive counseling and family planning simultaneously [25]. Contraceptive counseling within HIV support groups seemed to report significant association contradicting [5] stating that Counseling can pass incorrect information and favour contraceptive practice.

5.4 LIMITATIONS OF THE STUDY

Stigma associated with HIV may have acted as a barrier in disclosing contraceptive options practiced by the women during the interviews. The study failed to capture responses from partners of the HIV positive women who could have provided vital information regarding the challenges they face. Sampling of hospitals within Kiambu County would have been more appropriate but time and financial constraints did not allow in this case thus limiting to Kiambu county referral hospital.

CHAPTER 6: CONCLUSION AND RECOMENDATIONS

This chapter presents conclusion and recommendations of the study.

6.1. Conclusion:

This study has been useful in determining the impact of HIV Infection on fertility intention and modern contraceptives use among women LWHA. Socio-demographic factors like age and marital status were found to influence the use of contraceptive methods among women LWHA. Most of them are in the peak reproductive age and they are single hence the necessity of contraception. Moreover, women parity was crucial since most women are not afraid of bearing children due to the advent of ART services to all affected women. Partners' role is minimal in decision making on contraception since most of the women make self-decisions.

6.2 RECOMMENDATIONS

The researcher recommends that the county health management team should emphasize: On the role of the male partner in decision making on contraceptive use; Increase in the number of HIV support groups; Promotion of family planning education and PMTCT; issue of availability, accessibility and affordability of contraceptives not only at the CCC clinics but all health facilities.

Health care practitioners need to integrate HIV-related services and reproductive health services. Counseling needs to be scaled up, and has to be characterized by assurance of confidentiality and information on effectiveness so that the affected are able to make informed choices

There are areas of improvement such as building the capacity of service providers at the institutional level, safety with the lab so as to ensure accurate results are met, flexibility with the clinic schedules as opposed to twice a week and better operating systems.

6.3 SUGGESTIONS FOR FUTURE STUDIES

The researchers recommended that Future studies should try and find out;

- The impact of integration of family planning services at the CCC clinics.
- Role of the male partner in determining contraception at the household level.
- Evaluations of the HIV support groups and its impact in contraception.

REFERENCES

1. Global report: *UNAIDS report on the global AIDS epidemic* 2013.

2. Ministry of Health: Guidelines *for PMTCT of HIV/ AIDS in Kenya* 4th Edition 2012

3. Ministry of Health: *Kenya HIV Estimates Nairobi*: June 2014

4. Melaku, Yohannes Adama, and Ejigu Gebeye Zeleke. "*Contraceptive Utilization and Associated Factors among HIV-positive Women on Chronic Follow up Care in Tigray Region, Northern Ethiopia*: A Cross Sectional Study." PloS one 9.4 (2014): e94682.

5. Imbuki, Kennedy, et al. "*Factors influencing contraceptive choice and discontinuation among HIV-positive women in Kericho, Kenya*." African Journal of Reproductive Health 14.4 (2010)

6. Chen, James L., et al. "*Fertility desires and intentions of HIV-positive men and women*." Family planning perspectives (2001): 144-165.

7. AETC National Resource Centre: *HIV ClassificationCDC and WHO Staging Systems*, April 2014

8. Lihana, Raphael W., et al. "*Update on HIV-1 diversity in Africa: a decade in review*." AIDS Rev 14.2 (2012): 83-100.

9. UNAIDS: *Fact sheet* 2014.

10. Ministry of Health: *Kenya AIDS Indicator Survey*, 2012 Nairobi.

11. Ministry Of Health: Kenya *HIV Estimates Technical Report* 2013

12. Joint United Nations Programme on HIV/AIDS: *countdown to zero HIV-PMTCT Fact sheet Kenya*, 2012

13. Ministry Of Health: *Kenya HIV Prevention Response and Modes of Transmission Analysis* March 2009

14. United Nation Systems in Kenya :*UN Kenya Newsletter Special Edition* March 2014.

15. United Nations:*The Millennium Development Goals Report*. 2014.

16. Pullum, Thomas, John Cleland, and Iqbal Shah. "*Consensus, power and trust in the use of family planning and condoms by couples in Eastern and Southern Africa*." IUSSP International Conference, Tours. Vol. 18. 2005.

17. Williamson, Nancy E., et al. "*A qualitative study of condom use among married couples in Kampala, Uganda*." Reproductive health matters 14.28 (2006): 89-98.

18. Welbourn, Alice. "*Sex, life and the female condom: some views of HIV positive women*." Reproductive Health Matters 14.28 (2006): 32-40.

19. UNFPA: *Annual Report* 2004.

20. Walker, Dilys M., et al. "*Emergency contraception use is correlated with increased condom use among adolescents: results from Mexico*." Journal of Adolescent Health 35.4 (2004): 329-334.

21. Delvaux, Therese, and Christiana Nöstlinger. "*Reproductive choice for women and men living with HIV: contraception, abortion and fertility*." Reproductive health matters 15.29 (2007): 46-66.

24. Ministry of Health, Rwanda. *Evaluation of access to and utilization of prevention of mother-to-Child transmission (PMTCT) services in Rwanda*. *Kigali TRAC, ICAP, EGPAF,* January 2007.

25. International Planned Parenthood Federation, International Community of Women Living with HIV/AIDS. Dreams and Desires: *Sexual and Reproductive Health*. *Experiences of Women Living with HIV* London IPPF, ICW, 2005

26. KNBS: Kenya *Demographic and Health* survey, 2014.

APPENDICES

Appendix 1: Information & Consent Form

University of Nairobi Institute of Tropical and Infectious Diseases

Investigator: Dr. Muthoni karanja
Supervisors: Dr. Joshua kimani.

INFORMATION AND CONSENT FORM

STUDY TITLE: Impact of HIV on fertility and modern contraceptive use among women living with Hiving Kiambu County Referral Hospital.

Introduction & Purpose of Study:
This is a study being conducted Dr. Muthoni karanja a Masters student at the University of Nairobi Institute of Tropical and Infectious Diseases (UNITID).The aim is to determine the impact of HIV on fertility and modern contraceptive use among women living with HIV attending Kiambu County Referral Hospital. It will involve approximately 275 participants.

Procedures:
If you accept to take part in this study, you will be asked to fill an anonymous questionnaire which will take 15-20 minutes of your time. Please do not write your name on the questionnaire.

Risk
Participating in this study bears minimal risk. Some of the questions may make you feel Uncomfortable. You do not have to answer any question that you don't want to.

Benefits:
This study has no direct benefit to you as an individual. The study will help to increase knowledge on impact of HIV on fertility intention and modern contraceptive use among women attending Kiambu County Referral Hospital .This information may help in designing programs or policies later helping the society at large.

Voluntary Participation and Right to Withdraw from the Study:
Participation in this study is voluntary, you may refuse to participate or withdraw at any point in time. There will be no consequences if you refuse to participate or pull out of the study.

Confidentiality:
No personal identification information will be collected so no one, including the researcher, will know how you answered your questions. Any report on this study will not include your name.

Ethical Approval:
To ensure that the study conforms with research ethics, it has been reviewed and approved by the Kenyatta National Hospital-University of Nairobi Ethical Review Committee.

Contacts:
If you have any questions regarding the study or your participation in the study, you can call **Dr.muthoni karanja**, the principle investigator, Mobile No.**0722966323**. If you have a question about your rights as a volunteer you should contact **Prof Guanta**i, the chairman of the Ethics Committee at Kenyatta National Hospital, **Tel: 726300-9** or make an appointment to see her at the University Of Nairobi School Of Pharmacy.

Declaration:
I have read the above information and had the opportunity to ask questions to my satisfaction. I Voluntarily consent to participate in the study.

Appendix 2: Statement of Consent

University of Nairobi Institute of Tropical and Infectious Diseases

Investigator: Dr. Muthoni karanja
Supervisors: Dr. Joshua kimani.

STUDY TITLE: Impact of HIV on fertility and modern contraceptive use among women living with HIV attending Kiambu County Referral Hospital.

STATEMENT OF CONSENT:
If you agree to participate in this study by filling in a questionnaire please sign below

I, _____, have read or have had read to me, the consent form for the above study and have discussed the study with _____. I understand that the following (check the box only if you fully understand and agree with each statement):

 The goal of this research is to study impact of HIV on fertility intention and modern contraceptive use among women living with HIV attending Kiambu County Referral Hospital.
 Participation is completely voluntary and I can withdraw from the study at any point
 I am aware and give permission that the information I give shall be analysed and disseminated but my personal identification details shall not be recorded in any analysis or report in this study.

Name of Study Participant_____
Signature: _____ Date: _____

For Research Staff:
I, _____, have explained the nature and purpose of the above study to _____
Name of Research Staff: _____
Signature: _____ Date: _____

All study participants will be issued with a copy of this information and consent form

Appendix 3: Questionnaire

QUESTIONNAIRE

STUDY TITLE: Impact of HIV on fertility intention and modern contraceptive use among women living with HIV attending Kiambu County Referral Hospital.

1. DEMOGRAPHICS:

Please fill in the following information about yourself:

1. How old are you?

☐15- 19 years ☐35-39years

☐20-24years ☐40-44years

☐25-29 years ☐45-49years

☐30-34years

2. What is your current marital status?

☐Single ☐Married

☐Divorced ☐Other_____

3. What is your level of education?

☐No education ☐Secondary Level

☐Primary level ☐Higher

4. What is your religion?

☐Catholic ☐Other_____

☐Protestant

2. REPRODUCTION.

1. Did you ever attend A.N.C. while last pregnant?

☐Yes☐ No

2. Who attended to you?

☐Doctor ☐Nurse ☐Nursing aid ☐ Other

3. Did you receive any information during your pregnancy about family planning method after giving birth?

☐Yes ☐ No

4. Within the first 6 weeks after giving birth did a health or community worker talk to you about family planning method?

☐Yes ☐ No

5. How many children do you have?

☐ 0 ☐ 1- 2 ☐ 3-5 ☐ 5 +

6. Do you wish to have a child or add another?

☐Yes ☐No

If No got to question 7.

7. Reason(s) for not wanting to have a child or add another?

☐Satisfied ☐Would not risk due to HIV ☐ Spouse Disapproves

☐No spouse ☐ other reasons _____

3. CONTRACEPTION.

1. Are you currently on any mode of contraception?

☐Yes ☐No

If yes go to Q.2.
If no got to Q.4.

2. If yes which one?

☐Iucd's ☐implants ☐injectable. ☐Pills ☐condom ☐lactational amenorrhoea

☐Withdrawal ☐Other _____

3. Current method for the first listed not first mentioned ☐_____

Then go to question 5.

4. If no why?

☐Single ☐Drug interactions ☐Lack of knowledge.

☐Trying to get pregnant ☐spouse involvement ☐other_____

5. Are you currently using condoms and any other method of family planning?

☐ Yes ☐No

6. Who last advised you about condom and other mode of contraception?

☐ Government Hospital ☐private hospital ☐Ngo based facility.

☐ Family planning clinic ☐other_____

7. In q.6 who provided the advice?

☐medical doctor ☐ nurse ☐friend ☐Other_____

8. Did the provider who gave you advice know of your status?

☐Yes ☐No

9. Is your partner aware of your status?

☐ Yes ☐No

If yes go to question 10. If no go to question 11.

10. If **yes** does he support you in using family planning method?

☐Yes ☐No

11. Partner's attitude on family planning?

☐ Approves ☐ Disapproves ☐ Unsure

12. The decision for family planning is it?

☐self ☐Spouse decision ☐joint decision

☐Other_____

4. CURRENT PREGNANCY

1. Are you currently pregnant?

☐ Yes ☐ No ☐Unsure.

2. Were you using anything or in any way delaying or avoiding to get pregnant?

☐ Yes ☐No

3. Are you currently receiving ART to prevent transmission of HIV, to your child?

☐Yes ☐No

4. When you got pregnant did you want to get pregnant at that time?

☐ Yes ☐ No

If yes go to question 5.
If no got to question 6.

5. After this current pregnancy would you want another child later on or not at all?

☐Have another ☐ not at all ☐Undecided

6. Did you want to have a baby later on or not at all?

☐ later on ☐ Not at all

5. FAMILY PLANNING / HIV SERVICES

1. How long did you find out your HIV positive?

☐ Months ☐Years ☐ Don't remember

2. Have you ever received information regarding family Planning through HIV support group?

☐ Yes ☐ No

3. Are you currently receiving treatment for HIV?

☐ Yes ☐ No

4. When receiving treatment has a provider talked to you about whether or not you'd like to have children?

☐ Yes ☐ No

5. Were you advised about special considerations of family planning while on HIV treatment?

☐ Yes ☐ No

6. Can women with HIV safely use family planning?

☐ Yes ☐ No ☐ Not sure.

7. If yes which one?

☐ Iucd's ☐implants ☐ injectables

☐ Condoms ☐lactational amenorrhoea

☐other_____.

Appendix 4: Invitation to Focus Group Discussion

University of Nairobi Institute of Tropical and Infectious Diseases

Investigator: Dr. Muthoni karanja
Supervisors: Dr. Joshua kimani.

STUDY TITLE: Impact of HIV on fertility and modern contraceptive use among women living with HIV attending Kiambu County Referral Hospital.

Invitation to Participate in a Focus Group Discussion

Introduction & Purpose of Study:

This is a study being conducted by Dr. Muthoni Karanja, a Masters student at the University of Nairobi Institute of Tropical and Infectious Diseases (UNITID). The aim is to establish the impact of HIV infection on the fertility intention and modern contraceptive use among women attending Comprehensive Care Centre in Kiambu County Referral Hospital. The main aim of this study is to describe family planning utilization which will help in estimating the family planning needs of HIV positive women and which in turn will help to prepare the necessary resources and flourish programs for better reproductive health services. The other main purpose of this study is to address the knowledge gap with regard to factors associated with family planning utilization among women LWHA attending Kiambu County Referral Hospital.

Procedures:

I consent to take part in a focus group discussion about the impact of HIV infection on fertility intention and modern contraceptive use among women attending Kiambu County Hospital's C.C.C. I agree to share my ideas, opinions in full understanding that the discussion will be recorded

Risk

I understand that the discussion is held in confidence and my name shall not appear in the reports or publications hereafter.

Benefits:

I understand that this study may not have direct benefits to me as an individual. Understanding the factors being studied will benefit the patients as well as care givers with regards to intervention programs. This study also benefits many concerned stakeholders in decision making and policy development

Voluntary Participation and Right to Withdraw from the Study:

I volunteer to participate in this study and I understand that I am free to leave the group at any time without suffering any negative consequences

Ethical Approval:

I understand that this study has been reviewed and approved by the Kenyatta National Hospital-University of Nairobi Ethical Review Committee. If I have any complains about the study I can contact the committee chairperson or make an appointment to see her at the University Of Nairobi School Of Pharmacy.

Contacts:

If I need to contact the investigator on any matter relating to the study I can call **0722966323.** If you have a question about your rights as a volunteer you should contact **Prof Guanta**i, the chairman of the Ethics Committee at Kenyatta National Hospital, **Tel: 726300-9** or make an appointment to see her at the University Of Nairobi School Of Pharmacy.

Appendix 5: Consent Form - Focus Group Discussion

University of Nairobi Institute of Tropical and Infectious Diseases

Investigator: Dr. Muthoni karanja
Supervisors: Dr. Joshua kimani.

STUDY TITLE: Impact of HIV on fertility and modern contraceptive use among women living with HIV attending Kiambu County Referral Hospital.

STATEMENT OF CONSENT:

If you agree to participate in this study by taking part in a focus group discussion please sign below:
I, _____, have read or have had read to me, the consent form for the above study and have discussed the study with _____. I understand that the following (check the box only if you fully understand and agree with each statement):

☐ The goal of this research is to study the impact of HIV infection on fertility intention and modern contraceptive method use among women attending Comprehensive Care Centre in Kiambu County Hospital.

☐ Participation is completely voluntary and I can withdraw from the study at any point

☐ I am aware and give permission that the information I give shall be recorded, analysed and disseminated but my personal identification details shall not be recorded in any analysis or report in this study.

Name of Study Participant_____

Signature: _____ Date: _____

For Research Staff:

I, _____, have explained the nature and purpose of the above study to _____

Name of Research Staff: _____

Signature: _____ Date: _____

Appendix 6: Focus Group Discussion Guide.

Focus Group Discussion

STUDY TITLE: Impact of HIV infection on fertility intention and modern contraceptive method use among women attending Comprehensive Care Centre in Kiambu County Hospital

Date: _____ Time: _____
Venue: _____
Number of participants: Male: _____Female:_____

Name of Note-taker:_____

1. Introduction:

Thank you everyone for coming.

My name is Muthoni Karanja. I am a Masters Student at the University of Nairobi Institute of Tropical and Infectious Diseases (UNITID) and I will be facilitating this focus discussion. My colleague, _____, shall be doing the recording and note taking.

The Purpose of this discussion is to explore the impact of HIV infection on fertility intention and modern contraceptive method use among women attending Comprehensive Care Centre in Kiambu County Hospital.

This discussion shall be recorded using a voice recorder and noted on paper also to ensure we capture everything that will be discussed. We shall keep it confidential as much as possible and we will not use your names in our reports. Our reports will only have quotes from the discussion. This discussion will take approximately 90 minutes. Your participation is voluntary and you are free to leave the discussion at any time if you feel the need to do so.

Consent:

If you agree to participate, please sign the consent forms we have issued to you.

2. Ground Rules:

Before we start our discussion, I'd like us to agree on our ground rules: (Group to suggest any ground rules they would like to have)

The following should be included:

1. Everyone should participate, there are no right or wrong answers, we are here to hear your opinions and get ideas from you**.**

2. Bring out all sides of any issue, both positive and negative

3. Confidentiality: 'Everything we discuss here should remain here'

4. One person talks at a time—avoid interruptions

5. Phones on silent mode and avoid attending to them until after the discussion

Ice breaker: What are the contraceptives that you have been using ever since you were diagnosed with HIV?

1. Contraceptive options:

(a) What contraceptive options have you been given in the C.C.C**?**

(b) Have you been told about the effectiveness of each of these contraceptive options?

(c) Have you been taught about dual protection?**?**

(d) Do the healthcare givers advice on all contraceptives or they are specific on one?

(e) Is there a specific contraceptive you prefer with your partner?

2. Fertility Intention

(a) Has your desire to have a child or have more children been affected by your HIV status?

(b) If your desire to have children has been affected by your HIV situation, has this changed your approach about contraceptives**?**

(c). Have the healthcare givers at the C.C.C advised on the contraceptives to use**?**

(d) Have you discussed the issue with your partner?

3. Health Awareness

(a) Have you been educated about prevention of mother to child transmission?

(b) Has your partner's HIV status affected your view about contraceptives? And if they are negatives, have they been educated about ways of preventing transmission?

4. Concerns

a) Do you have any concerns with the contraceptives you use**?**

b) Do you feel your reproductive needs are being attended well at the Comprehensive care centre**?**

c) Do you feel the time you are given is sufficient to visit the facility for reproductive needs?

d) What improvements, if any, do you think should be effected in the facility in order to make it more efficient?

Appendix 7: Informed Consent for Key Informant interview guide for Service Providers.

University of Nairobi Institute of Tropical and Infectious Diseases

Investigator: Dr. Muthoni karanja
Supervisors: Dr. Joshua kimani.

STUDY TITLE: Impact of HIV on fertility and modern contraceptive use among women living with HIV attending Kiambu County Referral Hospital.

STATEMENT OF CONSENT:
If you agree to participate in this study please sign below

I, _____, have read or have had read to me, the consent form for the above study and have discussed the study with _____. I understand that the following (check the box only if you fully understand and agree with each statement):

 The goal of this research is to study impact of HIV on fertility intention and modern contraceptive use among women living with HIV attending Kiambu County Referral Hospital.
 Participation is completely voluntary and I can withdraw from the study at any point
 I am aware and give permission that the information I give shall be analysed and disseminated but my personal identification details shall not be recorded in any analysis or report in this study.

Name of Study Participant_____
Signature: _____ Date: _____

For Research Staff:
I, _____, have explained the nature and purpose of the above study to _____
Name of Research Staff: _____
Signature: _____ Date: _____

All study participants will be issued with a copy of this information and consent form

Appendix 8: Key informant interview guide for service providers.

Hello, my name is _____. I'm from_____.
I am interested in finding out impact of H.I.V. infection on fertility intention and modern contraceptives use among women LWHA attending C.C.C. Kiambu District Hospital. I would like to ask you a few questions and would be very grateful if you would spend a little time talking with me. I will not write down your name, and everything you tell me will be kept strictly confidential. Your participation is voluntary, and you are not obliged to answer any questions you do not want to answer.

Do I have your permission to continue?
Level of the HF service provider…….
Title of the HF service provider……
Sex……
Age……..

KEY QURESTIONS

1. How many service providers are you in this facility? Is the number adequate to meet the demand from the clients you are attending?
2. How many clients does your facility serve per day?
3. How long have you been working in this facility and this section/unit?
4. Which family planning services are available in this clinic?
5. How would you describe the quality of contraceptive methods offered from this health facility?
6. How would you describe availability of contraceptive methods?
7. What are the challenges in providing contraceptive methods to women attending this health facility?

8what are the barriers to family planning service provision?

9.Why do you think it is important for women to use contraceptive methods? Why?

10. What suggestions can you make to improve women to use of contraceptive methods at this facility?

THANK YOU VERY MUCH.

Appendix 9:Informed consent - Swahili version.

Kiambatisho cha saba: Habari na Fomu ya Idhini

Chuo Kikuu cha Nairobi Taasisi ya Tropikali na magonjwa ya kuambukiza

Mpelelezi: Dk Muthoni Karanja

Msimamizi: Dk Joshua kimani.

HABARI NA FOMU YA IDHINI

KICHWA CHA UTAFITI: Athari ya Virusi Vya Ukimwi (VVU) juu ya uzazi na utumizi wa mbinu za kisasa za kupanga uzazi miongoni mwa wanawake wanaoishi na VVU katika Hospitali ya rufaa ya Kata ya kiambu

Uanzishi na Madhumuni ya Utafiti:

Huu ni utafiti unaofanywa na Dkt. Muthoni Karanja mwanafunzi katika Chuo Kikuu cha Nairobi Taasisi ya Tropikali na magonjwa ya kuambukiza. Lengo lake ni kutathmini Athari ya Virusi Vya Ukimwi (VVU) juu ya uzazi na utumizi wa mbinu za kisasa za kupanga uzazi miongoni mwa wanawake wanaoishi na VVU katika Hospitali ya rufaa ya Kata ya kiambu. Utahusisha takriban 275 washiriki.

Taratibu:

Ukikubali kushiriki katika utafiti huu, utaombwa ujaze dodoso isiyo na majina ambayo itakuchukua muda wa dakika 15-20 . Tafadhali usiandike jina lako kwenye dodoso.

Hatari:

Athari mbaya ziletwazo na ushirika katika utafiti huu ni kidogo mno. Baadhi ya maswali mengine yaweza kukutia Wasiwasi. Hujalazimishwa kujibu swali lolote usilotaka.

Faida:

Utafiti huu hauna faida ya moja kwa moja kwako binafsi bali utasaidia kuongeza habari kuhusu athari ya Virusi Vya Ukimwi (VVU) juu ya uzazi na utumizi wa mbinu za kisasa za kupanga uzazi miongoni mwa wanawake wanaoishi na VVU katika Hospitali ya rufaa ya Kata ya kiambu .habari hii inaweza kutumika baadaye kubuni mipango au sera za kusaidia jamii kwa ujumla.

hiari ya kushiriki na haki ya kujiondoa kwenye Utafiti:

Kushiriki katika utafiti huu ni kwa hiari yako , unaweza kukataa kushiriki ama ujiondoe wakati wowote ule. Hakutakuwa na madhara yoyote kwako ukikata kushiriki ama kujiondoa kwenye utafiti.

Usiri:

Hakuna habari ya kibinafsi ya kitambulisho itakayosanywa hivyo basi hakuna mtu, akiwemo mtafiti ,atakaye jua jinsi umeyajibu maswali yako. Ripoti yoyote juu ya utafiti huu haitahusisha jina lako.

Kibali cha Maadili :

Kuhakikisha kuwa utafiti umejilainisha na maadili ya utafiti, uchunguzi umefanywa na utafiti ukapitishwa na kamati ya kuchunguza maadili ya utafiti ya hospitali kuu ya Kenyatta l-Chuo Kikuu cha Nairobi. Ukiwa na malalamishi yoyote kuhusu utafiti huu tafadhali wasiliana na mwenyekiti wa kamati, Prof. Anastacia Guantai -020 2726300 au kufanya uteuzi kumwona katika Chuo Kikuu cha Nairobi .

Mawasiliano:

Kama unahitaji kuwasiliana na mpelelezi kuhusu jambo lolote linalohusiana na utafiti tafadhali piga **Dk. Muthoni karanja0722966323** au **Prof Guantai 020 2726300.**

Azimio:

Nimesoma habari hapo juu na nikapata nafasi ya kuuliza maswali na nimeridhika . Nimepeana ridhaa ya kushiriki katika utafiti kwa hiari yangu.

Sahihi:

Mimi …….. nimesoma/nimeielewa hii fomu,maswali yangu yamejibiwa. Nakubali kushiriki katika utafiti huu.

Sahihi ya mshiriki _____

Sahihi ya shahidi (kama hawezi kusoma na kuandika)_____

ASANTE KWA WAKATI WAKO

Appendix 10: Ethics Approval.

1st Resub P369/05/2015

Dr. Muthoni Karanja.
Reg. No.W64/69570/2013
UNITID
University of Nairobi.
31th July 2015.

Kenyatta National Hospital,
P.o. Box 20723 code 00202
KNH/UON-ERC Tel: 726300-9

KENYATTA NATIONAL HOSPITAL ETHICS & RESEARCH COMMITTEE 27 AUG 2015

Ref: KNH-ERC/RR/516

Research Proposal: Effect of HIV infection and modern contraceptive methods use among women attending Kiambu County Refferal Hospital Comprehensive Care Centre (P369/05/2015).

Thank you for the prompt response. I have reviewed the recommendations and made changes as advised and highlighted for ease of reference.

1. I have addressed the 2nd specific objective **page 10** under subheading **2. Reproduction from question 5 to 7 page 35,** it is also covered under the focused group discussion **question no. 2** under **fertility intentions page 42.**
2. The 3rd specific objective page 10 is covered in the questionnaire under subheading **3.contraception in questions 9 to 12. Page 36** also in the focussed group discussion **question no. 2 under fertility intentions.**
3. I have revised the references as suggested **Pages 30- 31**
4. The ERC contact is now provided on the consent documents. **Pages 32, 39 and 47.**

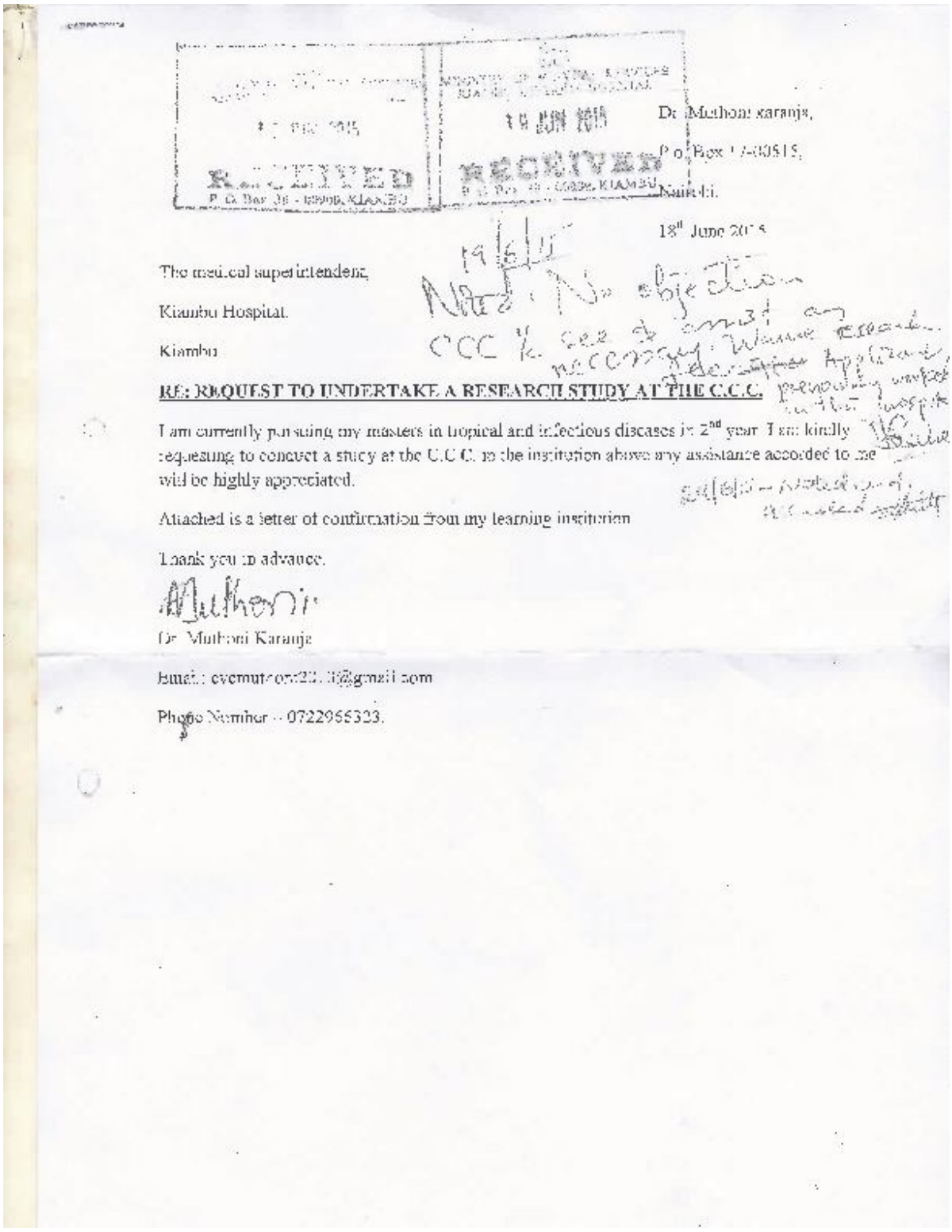
Thank you.

Muthoni.

Dr. Muthoni Karanja.

KENYATTA NATIONAL HOSPITAL RECEIVED 31 JUL 2015

Appendix 11: Letter to Conduct Research.



RECEIVED
P. O. Box 30 - 00902, KIAMBU

RECEIVED
P. O. Box 30 - 00902, KIAMBU

Dr. Muthoni karanja,
P.o Box 17-00515,
Nairobi.

18th June 2015

The medical superintendent,
Kiambu Hospital.
Kiambu

RE: REQUEST TO UNDERTAKE A RESEARCH STUDY AT THE C.C.C.

I am currently pursuing my masters in tropical and infectious diseases in 2nd year. I am kindly requesting to conduct a study at the C.C.C. in the institution above any assistance accorded to me will be highly appreciated.

Attached is a letter of confirmation from my learning institution

Thank you in advance.

Dr. Muthoni Karanja

Email: evemuthoni22.3@gmail.com

Phone Number :- 0722955323.