

**HIV infection Predisposition among women of reproductive age attending Postnatal  
clinic in a District Hospital. Homabay County - Kenya.**

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**A research Thesis submitted in partial fulfillment of the requirements of the award  
of Master of Public Health (Reproductive Health), in the School of Public Health of  
Kenyatta University**

**January, 2018.**

**DECLARATION.**

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

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**SUPERVISORS' APPROVAL:**

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**DEDICATION**

I dedicate this work to my husband, Simon Nderitu Githui, my son James Nderitu and daughter, Mary Nderitu, for their love, support and encouragement. May the almighty God bless all of you.

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**LIST OF ABBREVIATIONS:**

**AIDS- Acquired Immune Deficiency Syndrome**

**AMREF- African Medical and Research Foundation**

**ANC- Antenatal Care**

**CCC- Comprehensive Care Center**

**CDC- Centers for Disease Control**

**DFID- Department of International Development**

**HIV- Human Immunodeficiency Virus**

**KAIS- Kenya Aids Indicator Survey**

**KDHS-Kenya Demographic Health Survey**

**MCH- Maternal and child health**

**NACC- National Aids Control Council**

**PMTCT- Prevention of Mother-to-Child Transmission of HIV**

**UNAIDS- United Nations Program on HIV and AIDS**

**WHO- World Health Organization**

**DEFINITION OF TERMS:**

**Reproductive age-** those years of life between menarche and menopause, roughly from ages 15 to 49, when a woman is able to conceive and give birth.

**Predisposition-** susceptibility to disease/condition. (in this study, susceptibility to HIV infection).

**Postpartum period-** is the time after childbirth, during which the anatomic and physiologic changes brought about by pregnancy resolve and a woman adjusts to the new or expanded responsibilities of motherhood and non-pregnant life. (Mosby's Medical Dictionary 2009, Elsevier.)

**Socioeconomic factors:** This refers to the social and economic experiences and realities that help define one's personality, attitudes, and lifestyle.

**Sociocultural factors:** This refers to the customs, lifestyles and values that characterize a society, i.e. religion, attitudes, economic status, class, language, politics and law.

**Behavioral factors:** Behaviors that exert a strong influence on health i. e. disease screening

**Postnatal:** Immediately after childbirth.

**Seroconversion –** This refers to the interval, a number of weeks after HIV infection, during which antibodies are first produced and rise to detectable levels.

**Perceptions –** the way in which something (HIV risks) is regarded, understood or interpreted

**ABSTRACT:**

This study is about HIV infection Predisposition among women attending Postnatal clinic in a District Hospital in Homabay County. Postpartum period is a period after birth which is the most neglected aspect of maternal health, yet a time of high risk for maternal mortality. While many women access antenatal care, much fewer women globally have access to postnatal care. It is clearly evident that some women who test HIV negative in pregnancy end up testing HIV positive post-delivery. Although most pregnant women in sub-Saharan Africa are HIV negative, they remain at risk for HIV infection in the breastfeeding period (Kinuthia et. al.2004). The broad objective of this study is to contribute to a better understanding of the risk factors for HIV infection in the breastfeeding period among mothers in Homabay county. A descriptive cross-sectional study was conducted among postpartum mothers. The study was conducted in Homa Bay District Hospital – Homa Bay county. The target population was women, who were breastfeeding within 2years, tested HIV negative in their previous postnatal HIV test and attended clinic within 2months. Simple random sampling was used to select the study participants. The target population was 234. Pre-testing of the study tool on breastfeeding women was done at Rachuonyo district hospital. Researcher administered questionnaires were used to collect data. Data collected was entered into an excel spreadsheet for computation. SPSS version 22 was used to analyze the data. In the study, there was a 100% response rate, (n=234), the HIV seroconversion rate was 22%. From the analysis, the status of employment ( $p <0.0001$ ) correlated with HIV transmission. Violence of a partner correlated with mothers post HIV test ( $p <0.0001$ ). Refusal to use condom also correlated with mothers post HIV test ( $p <0.001$ ). Lastly, being forced to have sex correlated with mothers post HIV test ( $p <0.001$ ). The type of rituals commonly practiced were wife inheritance (84%). The ability to refuse sex if partner did not want to use condom was a strong factor that showed correlation ( $p<0.001$ ). The number of sexual partners affected the HIV status according to the most recent test and most who had 3 to 4 partners were positive (n=46). The fewer the partners, the less the chances of being positive and the correlation was significant at alpha level of 0.05 ( $p=0.001$ ). From the study, mothers perceived differently the risks that predispose them to HIV infection during their breastfeeding period agreeing that, condom use prevents spread of HIV infection. Other factors such as domestic violence, unprotected sex and multiple sex partners were seen to be part of the major contributors to HIV infection. Need for further research to be carried out to determine the uptake of HIV related care services for both pre and post natal mothers as there is minimal evidence to show that women actually utilize these services, which then becomes a risk to both mother s and their children who eventually become exposed to the virus. The study was conducted following approval by the Kenyatta University research and ethics committee and National Council for Science and Technology. Permission was sought from the specific facility heads (Medical Superintendent) where the research was conducted, and finally the study participants were consented before participating in the study.

## **CHAPTER ONE: INTRODUCTION.**

### **1.1. BACKGROUND:**

Postpartum period is the time after childbirth, during which the anatomic and physiologic changes brought about by pregnancy resolve enabling a woman adjust to the new and/or expanded responsibilities of motherhood and nonpregnant life. (Mosby's Medical Dictionary 2009, Elsevier.) This period after birth has been seen to be the most neglected aspect of maternal health, though a time of high risk for maternal mortality (WHO et al., 2011). Further to this, it has been found that while many women access antenatal care, much fewer women globally have access to postnatal care. In a particular finding in Africa, almost 75% of women in Uganda, who have had a live birth, did not receive care during the postpartum period and that only one in five mothers received post-delivery care within the critical first two days after delivery, (Rosen et. al, 2010).

While in some countries, especially in Sub-Saharan Africa, infection rates have been seen to be high among pregnant women, majority of pregnant women in the world remain HIV-negative hence a continuing challenge to the world's health care providers, to enable the nearly 99% of women who become pregnant each year and who are not infected with HIV to maintain their HIV-negative status through even after birth. (WHO et. al, 2013).

Kimanga et.al (2012) provides the HIV prevalence in Kenya among adult aged 15-49 years, to be (6.9%) among women. Drake et al. (2014), recommended that, because many women have an ongoing risk of acquiring HIV during Postpartum period, emphasis should be put on HIV retesting through to this period (PMTCT guidelines, 2013), which

recommend that women, despite being tested during pregnancy, should have repeat HIV tests after delivery, this rarely occurs. In addition, their findings revealed that mothers who acquire HIV during postpartum period are more likely to transmit the infection on to their offspring. According to (Kinuthia et. al. 2004), HIV incidence among women who were 6 weeks postpartum was 2.6% and that mothers who were found to be HIV negative were likely to be employed, married and located in a higher HIV prevalence region (western Kenya).

Canner J.et al. (2006) concluded that the incidence of HIV infection rose in the first 24 months after birth, while the yearly seroconversion rates being 2.84 per 100 person-years in the one year and 6.66 in the second year postpartum. More findings reveled that, only 2.2% of the women recorded to have had sexual contact in the first 6 weeks after birth. According to KDHS, (2008), Nyanza had a HIV prevalence of 17.1% among women aged 15-49 years while in Homabay county, HIV prevalence, as revealed by (KAIS 2012), was 27.1% among women. Also, according to the figures of a research conducted by (NACC, 2011), women were leading in HIV infection. The high prevalence rate in Homa Bay County was attributed to some social cultural practices like widow inheritance, widow cleansing and postpartum abstinence that, all which promote the spread of HIV infection. (Global AIDS Progress Report, Kenya, 2012.)

Additional findings also suggest that, because of extreme poverty, sex has become a common practice, a transaction escalating the spread of HIV/AIDS, hence leaving behind many AIDS orphans and widows (AMREF 2013). HIV education makes up a major part of the prevention efforts as an effective means of reducing its transmission. Therefore,

understanding the risk factors for HIV transmission allows infection to be avoided (Canning et. al., 2006). Though (Gupta et al. 2009), revealed that, most prevention efforts aim at reducing individual risks, few efforts have been explored to deal with societal factors which increase susceptibility to the HIV infection. Evidently therefore, according to (De Cock et al. 2002) is that the best means of preventing HIV infection in mothers would be to prevent HIV infection in all women in their reproductive age by reducing HIV risk factors. Therefore, to ensure the recommended preventive measures, it's essential to achieve have HIV testing and counseling during pregnancy and advocate for uptake of interventions, ensuring timely contact with these mothers during the two years after delivery, (Temmerman et al. 2003). Therefore, there is a need to conduct this study among women who are breastfeeding to determine what risks expose them to HIV infection in Homabay County.

## **1.2. PROBLEM STATEMENT.**

UNAIDS, (2008), found an increasing evidence revealing high rates of new HIV cases during the postpartum period in Homabay County, where the HIV prevalence among women of childbearing age stands at 27.1% (KAIS, 2012). According to a study by (KDHS, 2014), slightly above half (53%) of women age 15-49 who has a live birth in the last two years received postpartum checkup within two days after delivery while more than 2 in 5 women did not receive postpartum care. Its therefore evident that, lack of HIV retesting after delivery represents a missed opportunity that help to reveal women who recently acquire the HIV infection and pose a much higher risk of MTCT due to their high HIV viral loads. (Moodley. et. al, 2011). Therefore, while most pregnant women in

sub-Saharan Africa are HIV negative, they still are at risk for HIV infection in the postpartum period (WHO et. al, 2013). Several reasons, some which, according to (Kinuthia et. al.,2004), are attributed to the woman's or her partner's sexual behavior and the woman's immediate sexual resumption after birth, before complete healing. Emphasis is put on maintaining the HIV negative status of those women not infected in an effort to eradicate HIV infection. There is a need to identify some of the risk factors for HIV acquisition during postpartum period, which have not been well documented, hence the necessity of carrying out the study in Homabay County.

### **1.3. JUSTIFICATION OF THE STUDY:**

There is need to conduct this study because risks for HIV infection for women still exists even during the two-year breastfeeding period. Therefore, HIV prevention should be emphasized for women during this period. Determining HIV risk factors will therefore enable more women to know their HIV status during the 2-year breastfeeding period, encouraging utilization of provided strategies to minimize HIV transmission to their infants. This will also give direction on how to control and manage the HIV infection and hence succeed in ensuring there is effective HIV Prevention.

### **1.4. RESEARCH QUESTIONS:**

1. What is the HIV seroconversion rate among women during the postpartum period who tested HIV negative after delivery from their last HIV test?
2. What are the socioeconomic factors associated with HIV transmission among postpartum women?

3. What are the sociocultural factors associated with HIV transmission among postpartum women?
4. What are the behavioral factors associated with HIV transmission among postpartum women?
5. What perceptions do postpartum women have towards HIV infection?

### **1.5. BROAD OBJECTIVE:**

The broad objective is to determine the HIV infection predisposition among women of reproductive age attending postnatal clinic in Homabay district hospital- Kenya.

#### **1.5.1. SPECIFIC OBJECTIVES:**

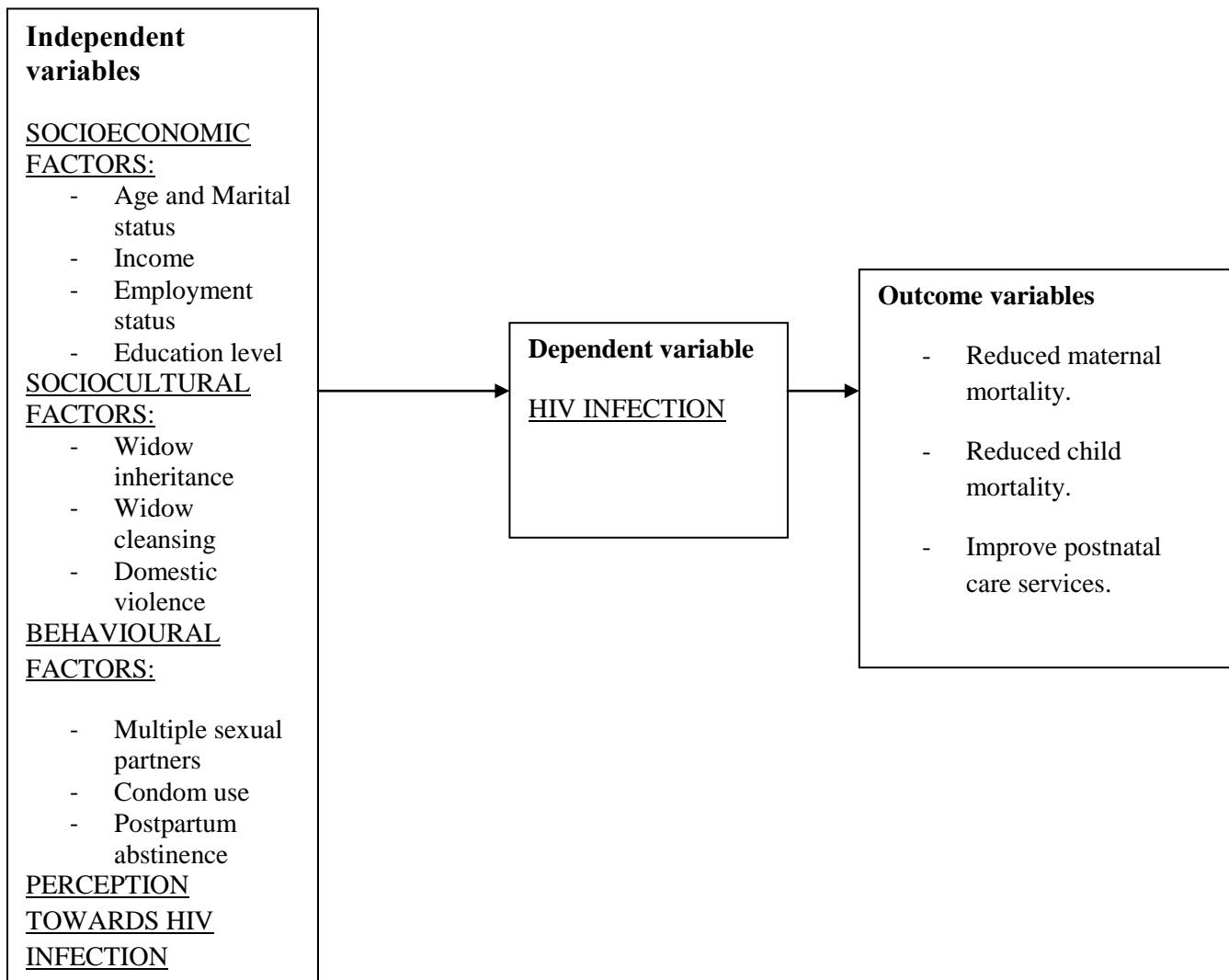
1. To determine the HIV seroconversion rate among women who tested HIV negative in the last HIV test after delivery.
2. To describe the socioeconomic factors associated with HIV transmission among postpartum women.
3. To determine the sociocultural factors associated with HIV transmission among postpartum women.
4. To describe the behavioral factors associated with HIV transmission among postpartum women.
5. To assess the perceptions of postpartum women towards risks HIV infection.

### **1.6. LIMITATIONS**

The respondents may not agree to the HIV testing. Some participants may not complete their questionnaires.

## 1.7. CONCEPTUAL FRAMEWORK. (From Glanz,2002)

**Figure 1: Conceptual framework.**



The conceptual framework above describes individual risks towards acquiring the HIV infection. Depending on the individual's behavioral, social, economic, cultural factors, the infection can be spread. The relationship, for example, when a mother practices risky cultures like wife inheritance, she will most likely acquire the infection, and if not, maternal mortality will be reduced as she will be safe. The perceptions of the women towards the HIV infection also determines the outcome of the individual's HIV status.

## **CHAPTER TWO: LITERATURE REVIEW:**

### **2.1. INTRODUCTION**

The chapter reviews literature on HIV seroconversion during the postpartum period and other related studies done to address the same. This chapter will identify and further address some of the risks associated with HIV infection in postpartum women evidenced through the research literature done previously.

### **2.2. SOCIOECONOMIC FACTORS**

Socio-economic factors have been seen to put women and girls at greater risks for HIV infection. In many developing countries, as suggested, pervasive gender inequalities disadvantage women and girls who especially live in poverty, in many ways. Many cultural norms and lack of economic empowerment imply that women most of the time struggle to negotiate their rights to have safe sex while some are led into sex work. (DFID, 2008).

**2.2.1. Income and employment status:** A study in South Africa revealed that imputed HIV positive women come from poorer households than HIV negative women. (Najma Shaikh et. al, 2005). Casale et.al (2006) agrees with (Najma Shaikh et. al, 2005) that low income does increase susceptibility to HIV/AIDS transmission through various channels because of increased migration, limited health care access, nutrition and other basic services to include limited access to education and information, sex exploitation and gender inequality.

Accordingly, (Snelling et al .2007) found that, HIV/AIDS, is linked to poverty. Central to an understanding of the effect of the epidemic on rural livelihoods is the complex relationship between poverty and HIV/AIDS. The relationship, being bi-directional means that poverty is a key factor in HIV/AIDS spread and can impoverish many people.

Fenton et al (2004), reviewed evidences on how poverty is a cause of high-risk behaviors' and concluded that poverty reduction may be the only viable long-term response to the epidemic. Additionally, poverty driven sex work have been found to foster behaviors that are risk-taking, hence encouraging unprotected sex to be more prevalent. (Collins et.al, 2001).

### **2.2.2. Level of education**

According to Kelly (2013), education has played a useful in mitigating the effects of HIV/AIDS; knowledge that will inform self-protection, fostering the development of a constructive value system, inculcating skills that will facilitate self-protection, promoting behavior that will lower infection risks, and enhancing capacity to help others to protect themselves. Blanc et.al (2000) argues that education promotes both logical and different ways of thinking, which allows better educated people to take charge in protecting their health.

In a report from (Global Campaign for Education, 2004) it's revealed that without education, young mothers are less likely to understand the information regarding HIV/AIDS education provided, and therefore become less confident in accessing services and openly discussing the HIV epidemic.

The World Bank (2002), in its findings outlines that education protects against HIV infection through awareness and health messages that may affect long-term behavioral change, particularly for women. From these studies, it is clear that, if women are educated, they are in a good position to protect themselves against risks for HIV infection.

### **2.3. SOCIOCULTURAL FACTORS**

**2.3.1. Widow inheritance.** Widow inheritance, being a common cultural practice in sub Saharan Africa that has been discovered as to be a major risk of HIV transmission (Agot et al. 2010). The above practice has persisted among the Luo community in Kenya despite the emergence of HIV/AIDS in Kenya in 1984. Studies carried out have provided evidence of the association between widow inheritance and HIV/AIDS (Shisanya A. et al. 2007). Widow inheritance, has been seen to be a practice that has a sexual component except older women who may neither bear children nor have interest in sex.

#### **2.3.2. Widow cleansing and rituals;**

Gunga S. et.al (2009) in a study revealed that, sex rituals remained very important among the Luo. They further observed that, unprotected sex constituted a key part of the ritual for blessings and in the marking of important events in the farming calendar, like cleansing of widows after the death of their husbands and the initiation of activities such as the establishment of a homestead. Other birth related rituals included cleansing of unplanned pregnancies, abortion, breech and stillbirths. Evidently, a study conducted among the Yao, revealed that once a young unmarried woman has just delivered, she is prevented from mixing with other people or members of the family until she is cleansed.

A man termed “hyena” was hired to have sex with her, an act that is believed to cleanse her (Chimbiri et al. 2007).

### **2.3.3. Domestic violence**

Domestic violence is defined by the World Health Organization as, the range of sexually, psychologically and physically coercive acts used against adult and adolescent women by current or former male intimate partners. The women who are victims of sexual violence are at a higher risk of being exposed to HIV, and the lack of condom use and forced nature of rape means that women are immediately more vulnerable to HIV infection

According to UNAIDS (2012), its revealed that women’s inability to negotiate safe sex and refuse unplanned sex is closely linked to the high prevalence of HIV infection. Forced sex and even rape results in a higher risk of abrasion and bleeding and easier transmission of the virus. Women who are beaten by their partners are 48 per cent more likely to be infected with HIV/AIDS. Young women are particularly vulnerable to coerced sex and are increasingly being infected with HIV/AIDS. Further to this, sexual assault and sexual coercion have been seen to involve unequal power relations, which limits the extent to which a woman can have control over condom use, (Kacanek D. et al. 2013).

Domestic violence has since increased women's risk of HIV acquisition through forced sex, coercive sexual practices, and by limiting women's ability to negotiate safer sex (such as condom use). The result of Sexual violence often leads to trauma to the genital

tissues, which increases infection risk. In most female cases, the initiation of coitus involves sexual coercion. In addition, a study revealed that childhood physical and sexual violence is associated with greater risks for sexual behavior in adolescence or adulthood (Kacanek D. et al. 2013).

In a study by (Maman et al, 2010) it was revealed that the odds of having sexual or physical violence was higher among the HIV positive than among the HIV negative women, and was 10 times higher for women under 30 years. The authors concluded that violence is a risk factor for HIV infection.

## **2.4. BEHAVIOURAL FACTORS:**

### **2.4.1. Postpartum abstinence:**

Gregson et. al. (2010) in the study explained that, some men in Zimbabwe cited that postpartum abstinence by their wives was a reason for them having extra-marital relationships. While in the era of HIV/AIDS epidemic, this was seen to be dangerous to both women and men as it could attract HIV infection to the family. They then concluded that it is women who opted to reduce the duration of this abstinence, so as to decrease the risks of HIV infection from other women from the extramarital relations. In addition, a study done suggested that Malawi's tradition demanded the couple to abstain from sex for eight to 36 months after birth of the child, (Zulu 2003). In addition, it was found that the prescribed period of abstinence varied across ethnic groups therefore leading to changes in this practice as evidenced by its reduction in the period of abstinence. As a result of the escalating killer AIDS, prolonged post-partum sexual abstinence was most

likely to be undermined because abstinence increases the likelihood of husbands seeking extra-marital affairs (Zulu 2003).

If a woman abstained from sexual intercourse for a long time, she would not acquire the virus during the postpartum period. However, this is not practical today; therefore immediate resumption of sexual activity puts women at a higher risk for HIV infection.

#### **2.4.2. Condom use.**

In West Africa, a study among sexually active women aged 15 - 49 years in Nigeria found that due to fear of being HIV infected, there was a tendency that made individuals relies on condoms (Kacanek D. et al. 2013).

Concurrently, other studies from different countries have shown similar associations, revealing that lack of communication with partners, perception of barriers of condom use, not feeling confident to use the condoms, drinking alcohol, low age at sexual intercourse, poor social support and multiple partners as some of the factors that reduced condom use (Ali Mehryar Karim et al. 2009). Erulkar et al (2007), further explained that some of the studies in Kenya have suggested some traditional practices as the main factors causing this low usage of condoms for example wife inheritance domestic violence and widow cleansing.

#### **2.4.3. Multiple partners;**

According to Tanser F. et. al (2011) reports indicate that Kenyan women continue to have unprotected sex with multiple partners - despite numerous national media campaigns to

sensitize the public about the dangers of sex without a condom and more than one partner. According to the preliminary findings of the 2008/2009 Kenya Demographic and Health Survey, only 32 percent of women who reported having multiple sexual partners agreed that they used a condom during their last sexual encounter. Another suggested reason for lack of condom use amongst people engaged in multiple partnering, as observed is the belief that they know those partners well and can therefore engage in unprotected sex with them.

A recent study from Thailand and Uganda found that prevalence of concurrent partnerships is aligned with HIV prevalence (Hund L. et al., 2010). In addition, other studies found that in some regions, large numbers of partners and low concurrency were associated with high incidence of infection in women (Tanser et al., 2011).

In another study among low-income Chilean women revealed that women who are vulnerable to HIV didn't perceive themselves at risk. They therefore believed that HIV affects homosexuals or to sex workers and that it's not something that happens to women in a stable relationship (Humphrey JH. et.al 2011).

**In summary;** the literature reviewed in this chapter has brought out most of the risk factors that are likely to contribute to HIV infection in women during postpartum period. Widow inheritance, domestic violence, lack of condom use, employment and education status. All these factors have been associated, from the reviews done, to increased risk for HIV infection.

## **CHAPTER THREE: METHODOLOGY**

### **3.0. Introduction: Research design:**

This section focuses on research design, description of the study site, target population, sampling technique, sample size determination, management and analysis of data as well as ethical considerations and outline of the pilot study that will be carried out to test the feasibility of the study and the reliability and validity of the study tools.

A descriptive cross-sectional study which was conducted among mothers during their two-year postpartum period and who were attending postnatal clinics within two months in Homabay County.

### **3.1. Variables:**

**Dependent variable:** HIV infection:

**Independent variables:**

- a. Demographic factors: age, sex and marital status.
- b. Socioeconomic factors: income, level of education, and occupation.  
Employment
- c. Behavioral factors: Postpartum abstinence, Condom use, Multiple sex partners
- d. Sociocultural factors: Domestic violence, Widow inheritance, Widow cleansing

**Outcome variables:** Reduced maternal mortality, reduced child mortality, Improve postnatal care services.

### **3.2. Location of study:**

The study was conducted in Homabay district hospital, in Homa Bay County, located in the former Nyanza Province, along the south shore of Lake Victoria's Winam Gulf,

in Homa Bay town County constituency. Fishing and agriculture are the main economic activities in Homa Bay County. Tourism is also a major income-earner for Homa Bay, with tourist attraction sites such as Ruma National Park and Mfangano Island drawing thousands of visitors to the county.

### **3.41. Justification for the study site:**

Although fishing, being the biggest economic activity in Homabay, it is associated with a lifestyle that has seen the rise of HIV and AIDS cases in the area. Many young men and women are lured by the money from this industry and often find themselves in short term relationships with multiple partners depending on who has the most money.

### **3.3. Study population**

The target population was women, who were breastfeeding within 2years, who tested HIV negative at the last HIV test after delivery.

#### **3.31. Inclusion criteria**

- i. Mothers who attended postnatal and MCH clinics within 2months and have been breastfeeding within two years after delivery
- ii. Mothers willing and able to provide informed consent.
- iii. Mothers who tested HIV negative, from their last HIV test results after delivery

#### **3.32. Exclusion criteria**

- i. Mothers not willing or not able to provide informed consent.
- ii. Mothers, who tested HIV positive.

### **3.4. Sampling technique and sample size: Sampling frame**

The sampling frame for this study was mothers attending MCH clinic at the Homabay Clinic. The participants were sampled from 900 women who tested negative during the last test after delivery. Only women who tested HIV negative were included in the study but were subjected to HTC to assess the sero-conversion.

#### **3.41. Sampling techniques:**

The participants will be selected through simple random sampling, from the (MCH) postnatal clinic. A table of random numbers will be developed; the numbers will be allocated to the clients as they come in the clinic, once they meet the sampling criteria.

#### **3.42. Sample size:**

The sample size was determined by the population size by use of the following formula:

$$n = \frac{Z^2 pq}{d^2}$$

Where: n = the desired sample size

Z = the standard normal deviation at the required confidence level

p = the proportion in the target population estimated to have the characteristics being measured

$$q = 1 - p$$

d = the level of statistical significance set

- The sample size will be determined by the population size using Fischer's *et al* formula(Kothari,2003): p=27.1%
- $n = \frac{Z^2 p q}{d^2}$

$$\begin{aligned}
 n &= (1.96)^2(0.29)(0.71) \\
 &\quad (0.05)^2 \\
 &= 3.8416(0.2059) \\
 &\quad 0.0025 \\
 &= 0.791 \\
 0.0025 &\quad = 316 = \underline{\text{316 subjects}}
 \end{aligned}$$

Where:  $n_f$  = desired sample size (a population less than 10000). (Mugenda & Mugenda, 2003). Therefore, this formula will be used:

$$\begin{aligned}
 n_f &= \frac{n}{1 + (n/N)} \\
 &\quad 1 + (n/N)
 \end{aligned}$$

$n$  = desired sample size (a population is more than 10000)

$N$  = population size estimate- Number of women who tested HIV negative at their last test after delivery - **(900 women)**

$$\begin{aligned}
 N_f &= 316 / (1 + (316/900)) \\
 &= \underline{316} \\
 &\quad 1.351 \\
 &= \underline{\text{234 participants}}
 \end{aligned}$$

### 3.5. Pilot study:

#### 3.51. Validity:

Pre-testing of the study tool on breastfeeding women was done at Rachuonyo district hospital. This is because this facility offers the Maternal and child health services. The pre-test gave feedback to the researcher as to whether all the areas required in the study had been captured well, omissions and need for addition of some items for adequate

information gathering; this meant that it helped in testing the feasibility of the study as well as assessing the reliability and validity of the study tools.

### **3.52. Reliability**

The competency of the research assistants in conducting the interviews was to be assessed. Eventually, the questions in the questionnaire were revised to have the final set of questions made based on the results of the pre-testing.

## **3.6. Data collection techniques:**

### **3.61. Research instruments:**

Questionnaire: Questionnaires were administered to determine mother's sociodemographic characteristics, previous HIV testing and results, any history of physical assault by the partner. A Likert scale will be used to measure perceptions towards HIV infection, a scale ranges from strongly agree, agree, disagree and strongly disagree. HIV test kit and results sheet: HIV test was performed using the KHB rapid test kit (new a logarithm), for participants, which was reported as the true results. The results were recorded using codes that matched the questionnaires to assist in determining the sero-conversion rate. Mother's Clinic booklet: The mother's clinic booklet was used as a source for secondary data to assist the researcher determines the last status of the mothers attending MCH for purposes of inclusion or exclusion in the study. The last HIV statuses were recorded using codes matching the questionnaires to assist in tracing if the status had changed.

**3.62. Recruitment of research participants:**

The study population was mothers who were HIV negative attending MCH clinic in a period of 2months who breastfed within two years after delivery. Mothers were recruited after receiving MCH postnatal services. The research assistant helped the mother to get her child weighed and vaccinated, invited the mother to the study room and explained the study aims and procedures. Mothers who were interested to participate signed a study consent form and got enrolled. A questionnaire was then administered. Following administration of the questionnaire, mothers received individual pre-test counseling by a trained counselor, and were then offered HIV testing. Those who accepted re-testing signed a HIV test consent form. The result of the HIV test was confirmed from the antenatal care (ANC) booklets.

**3.63. Care and protection of research participants:**

HIV test was performed using the KHB rapid test kit (new a logarithm), for participants, which was reported to be the actual results. Women who tested HIV positive were referred to Comprehensive Care Clinics (CCC) at the clinic, where they were counseled on their status and educated on how to live positively, advised on how to take care of themselves, i.e. good nutrition and about the benefits of maintaining a healthy sexual lifestyle, provided with the necessary medication and put on a follow-up schedule to monitor progress of their health. Mother's were encouraged to participate but were informed that refusal to participate in the study wouldn't impact on care provided by the clinic.

### **3.7. Logistical and Ethical considerations:**

The study was conducted following approval by the Kenyatta University research and ethics committee and from the National Council for Science and Technology. Permission was also sought from the specific facility heads (Medical Superintendent) where the research was conducted. The study participants were consented before participating in the study. All the information was held confidentially. The researcher was linked to coded data only on a paper patient tracking form which was stored in a locked file cabinet at the study site accessible only by study investigators and study clinician. The participants' names were not required in any of the forms.

### **3.8. Data analysis:**

After all the questionnaires were filled, information was entered into an excel spreadsheet for computation. SPSS version 22 was used for the data analysis. To give a comparison of variables between those women who seroconverted and those who did not, Chi square test for categorical variables and t tests for continuous variables was used. Data was presented in frequency distribution tables. Results was interpreted, discussed, conclusions made and recommendations given. A report was written and findings disseminated to the relevant authorities.

### **3.81. Dissemination and community considerations.**

The results of this study will first be disseminated to the Director of health services offices in the county, who will be able to share the results to the rest of the health care facilities within the county. Kenya will be informed, and through the government, strategies will be devised to help reduce the spread of HIV infection and therefore enhance a healthy lifestyle for its people.

Finally, the community must be involved to participate in controlling HIV infection spread. The results will therefore form a basis from which the community will be educated more on the facts of HIV infection. This will enable the skilled health care providers to work with the community health workers and other community leaders to identify gaps faced in preventing HIV infection.

Through identification of the gaps, measures will be taken to educate the community on the importance of healthy living, emphasizing on the benefits of prevention rather than cure of the disease. At the same time, support, counseling and follow-up care provided to those are HIV infected.

## **CHAPTER FOUR: RESULTS.**

### **4. Introduction**

The chapter presents the analysis of data followed by a discussion of the findings from the research. The findings relate to the objectives and research questions that guided the study. Data were analyzed to describe the HIV infection predisposition among mothers in Homabay County. Data were obtained from self-administered questionnaire, completed by 234 participants (n=234). A 100% response rate.

### **SOCIODEMOGRAPHIC CHARACTERISTICS.**

The total number of respondents included in the analysis were 234. A majority of the respondents were of the age 19-29 years (n=151, 64.5%) with a majority of them being married but monogamous arrangements (n=81, 34.8%). Most of the infants were in the age bracket of 6-8 months (n=50, 28.1%).

**Table 1: Respondents demographic characteristics.**

<b>Factor</b>	<b>Variable</b>	<b>Frequency(N=234)</b>	<b>%</b>
Age	(19-29)	151	62.7
	(30-39)	83	37.3
Marital status	Currently married (monogamous)	81	34.8
	Divorced/Separated	36	15.0
	Currently married(polygamous)	71	30.5
	Widowed	27	11.6
	Come we stay	11	4.7
	Never married	9	3.4
Age bracket of child	(3-5)months	31	17.4
	(6-8)months	50	28.1
	(9-11)months	24	13.5
	(12-14)months	10	5.6
	(15-17)months	17	9.6
	(18-20)months	14	7.9
	(21-25)months	32	18.0

Chi-square analysis showed that some of the demographic factors had a positive relationship between marital status ( $p=0.004$ ), and mothers post HIV test. The findings are depicted below.

**Table 2: Respondents HIV status compared to marital status. (N=234).**

<b>Factor</b>	<b>Variables</b>	<b>Mothers post HIV test</b>		<b>Chi square</b>
		<b>Positive</b>	<b>Negative</b>	P=0.004
Marital status	Currently married (monogamous)	10 (19.2%)	40 (21.8%)	P=0.004
	Divorced/Separated	11 (21.2%)	24 (13.3%)	
	Currently married(polygamous)	16 (30.8%)	40 (21.8%)	
	Widowed	6 (11.5%)	23 (18.3%)	
	Come we stay	7 (13.5%)	36 (28.6%)	
	Never married	2 (75.0%)	19 (15.1%)	
	3-5 months	8 (15.4%)	23 (18.3%)	
Age bracket of child	6-8 months	14 (26.9%)	45 (35.8%)	P=0.783
	9-11 months	15 (28.8%)	29 (23%)	
	12-14)months	4 (7.7%)	6 (4.8%)	
	15-17)months	5 (9.6%)	13 (10.3%)	
	18-20)months	12 (23.1%)	9 (7.1%)	
	21-25)months	31 (23.1%)	20 (15.9)	

Further, pre and post assessment showed the sero-conversion rate to be at 22%.

HIV status pre-test – 0 HIV cases

HIV status post-test – 53 cases

Thus Sero-conversion rate –  $53/234 = 22\%$ . The detailed analysis is shown below.

**Table 3. Mothers pre-HIV test**

	Frequency	Percent	Valid Percent	Cumulative Percent
Negative	234	100.0	100.0	100.0

**Table 4. Mothers post HIV test**

	Frequency	Percent	Valid Percent	Cumulative Percent
Positive	53	22.2	22.2	22.2
Negative	182	77.8	77.8	100.0
Total	234	100.0	100.0	

#### **4.1. The socioeconomic risk factors associated with HIV transmission**

Slightly more than half of the respondents had at least reached primary or higher in their education (n=123, 52.6%) and most of them were employed (n=128, 55.4%). Fishing is the main activity for most of the respondents (n=196, 84.1%) and the respondents believed it lead to the spread of HIV. A majority of the respondents utilized condoms (n=198, 99.5%).

**Table 5: Respondents socioeconomic characteristics. (N=234)**

<b>Factor</b>	<b>Variable</b>	<b>Frequency</b>	<b>%</b>
Highest level of education	<primary	48	20.5
	>=Primary	123	52.6
	No answer	1	.4
	Tertiary	62	26.5
Employment status	Salaried	28	12.1
	Self employed	128	55.4
	Housewife	52	21.6
	Unemployed	26	10.8
Economic activity (Fishing)	Yes	197	84.1
	No	37	15.9
It contributes to spread of HIV	Yes	27	13.8
	No	169	86.2
Sexual behaviors	Condom use	198	99.5
	Having fewer sexual partners	34	100.0
	Coil	2	100.0

Chi-square analysis showed that some of the socioeconomic factors had a positive relationship between employment status ( $p=0.033$ ), and mothers post HIV test. The findings are depicted below.

**Table 6: Respondents HIV status compared to reported socioeconomic factors.  
(N=234)**

<b>Factor</b>		<b>Mothers post HIV test</b>	<b>Chi square</b>
Highest level of education	<primary	22 (45.8%)	P=0.184
	>=Primary	100 (82.9%)	
	No answer	0 (0.0%)	
	Tertiary	23 (37.1%)	
Employment status	Salaried	5 (17.9%)	P=0.033
	Self employed	75 (58.3%)	
	Housewife	39 (76.0%)	
	Unemployed	25 (100%)	
		0 (0.0%)	

#### **4.2. The sociocultural risks associated with HIV transmission**

Majority of the respondents claimed that their partners were sometimes violent (n=116, 49.6%) and sometime refused to use condoms (n=81, 34.6%) and their partners also sometimes forced them to have sex (n=122, 52.4%). Sexual rituals are also common among the respondents (n=233, 99.6%) with wife inheritance being most common (n=188, 80.7%) however the respondents believed that these practices did not predispose them to HIV (n=129, 55.6) and a majority never exchanged sex for money (n=145, 81.5%).

**Table 7: Respondents sociocultural characteristics (N=234)**

<b>Factor</b>	<b>Variable</b>	<b>Frequency</b>	<b>%</b>
Violent partner	Never	26	11.1
	Rarely	31	13.2
	Sometimes	116	49.6
	Frequently	61	26.1
Refused to use condom	Never	37	15.8
	Rarely	46	19.7
	Sometimes	81	34.6
	Frequently	70	29.9
Forced you to have sex	Never	31	13.3

	Rarely	48	20.6
	Sometimes	122	52.4
	Frequently	33	13.7
Perform sexual rituals	Yes	233	99.6
	No	1	.4
Type of rituals	Widow cleansing	46	19.3
	Wife inheritance	188	80.7
Above practices predispose you to HIV infection	Yes	103	44.4
	No	129	55.6
Exchanged sex for money	Yes	33	18.5
	No	145	81.5

Further, violent partners ( $p=0.007$ ), refusal to use condom ( $p=0.001$ ), and forceful sex

( $p=0.004$ ) correlated with mother's post HIV test.

**Table 8: Respondents HIV status compared to reported sociocultural factors. (N=234)**

<b>Factor</b>	<b>Variables</b>	<b>Mothers post HIV test</b>	<b>Chi square</b>	<b>Factor</b>
		<b>Positive</b>	<b>Negative</b>	
Violent partner	Yes	156(85.7%)	-	$P=0.007$
	No	52(100%)	26(14.3%)	
Refused to use condom	Yes	52(100%)	37(20.3%)	$P=0.001$
	No	-	145(79.7%)	
Forced to have sex	Yes	51(98.1%)	30(16.6%)	$P=0.004$
	No	1(1.9%)	152(83.4%)	
Perform rituals	Yes	51(98.1%)	182(100%)	$P=0.061$
	No	1(1.9%)	-	

#### **4.3. The behavioral risks associated with HIV transmission.**

A number of the respondents had resumed sexual intercourse after delivery mostly after 3-4 weeks ( $n=113$ , 48.3%). A majority of the respondents were utilizing birth control

(n=163, 69.7%) with injectable contraception being mostly common (n=75, 45.7%). The respondents talked about condom use (n=221, 95.3%) however such conversations were mostly had in a duration of 1-3 years (n=141, 84.4%) with family friends (n=167, 74.2%). A majority of respondents have used condoms to avoid diseases (n=137, 58.5%) but they were unable to ask their partners to ask their partners to use condoms (n=135, 57.7%). Additionally, most of the respondents could not refuse their partners if they did not put on condoms (n=150, 64.1%). A majority of the respondents had 3-4 partners in their lifetime (n=127, 55%) and majority of their partners did not have HIV (n=148, 63.8%) and in their last test most of them attested that their partners were negative (n=37, 62.7%). Consequently, a majority of the respondents claimed that they had other partners (n=124, 53%).

**Table 9: Respondents behavioral characteristics**

<b>Factor</b>	<b>Variable</b>	<b>Frequency</b>	<b>%</b>
Resumed sexual intercourse since delivery	Yes	234	100.0
Estimate week postpartum sex resumed	(2 weeks and below)	70	29.9
	(3-4 weeks)	113	48.3
	(5-6weeks)	41	17.5
	(7 weeks and above)	10	4.3
Currently using birth control method	Yes	163	69.7
	No	71	30.3
If yes which one	Condoms	24	14.6
	Injectable contraception	75	45.7
	Oral contraception	58	35.4
	IUD	4	2.4
	Implants	3	1.8
Talked to about condom use	Yes	221	95.3
	No	11	4.7
Duration of last discussion	(3 months and below)	1	.6
	(7-9)months	1	.6
	(10-12)months	2	1.2

	(1-3)years	141	84.4
	(4-6)years	19	11.4
	above 6 years	3	1.8
Settings of discussion	Healthcare setting	10	4.4
	Antenatal	26	11.6
	Postpartum	17	7.6
	Non-health care setting	5	2.2
	Family member or friend	167	74.2
Ever used condoms to avoid disease	Yes	137	58.5
	No	97	41.5
Able to ask a partner to use condoms	Yes	99	42.3
	No	135	57.7
Able to refuse sex if partner didn't use condom	Yes	84	35.9
	No	150	64.1
Number of sexual partners in a lifetime	None	1	.4
	(1-2)	102	44.2
	(3-4)	127	55.0
	(5 and above)	1	.4
Current partner tested for HIV	Yes	57	24.6
	No	148	63.8
	Don't know	27	11.6
Duration	(1-3)years	58	98.3
	Don't know	1	1.7
Partners status in last HIV status	Negative	37	62.7
	Positive	22	37.3
Currently have any other sexual partners	Yes	124	53.0
	No	110	47.0

Further, current status ( $p=0.000$ ), having other sexual partners ( $p=0.000$ ), refusal to use condom ( $p=0.001$ ), and forceful sex ( $p=0.004$ ) correlated with mother's post HIV test.

**Table 10: Respondents HIV status compared to reported behavioral factors. (N=234)**

<b>Factor</b>	<b>Variables</b>	<b>Mothers post HIV test</b>		<b>Chi square</b>	<b>Factor</b>
		<b>Positive</b>	<b>Negative</b>		
Current partner tested for HIV	Yes	7 (13.5%)	50 (27.8%)	P=0.000	
	No	31 (59.6%)	117(65%)		

Currently have any other sexual partners	Yes No	46(88.5%) 78(42.9%)	6(11.5%) 104(57.1%)	P=0.000
Refused to use condom	Yes No	52(100%) -	37(20.3%) 145(79.7%)	P=0.001
Forced to have sex	Yes No	51(98.1%) 1(1.9%)	30(16.6%) 151(83.4%)	P=0.004

### **Multiple sexual partners:**

The number of sex partners affected the HIV status with reference to the most recent test and most who had 3 to 4 partners were positive (n=46, 88.5%). The fewer the partners, the less the chances of being positive and the correlation was significant at alpha level of 0.05 (p=0.000).

### **Postpartum abstinence.**

#### *Resumption sex after delivery:*

Findings show that almost all the respondents (99.4%) resumed sex after delivery.

**Table 11: Respondents distribution by time of postpartum sexual resumption**

Resumed sex	Frequency	Percent
Yes	233	99.4
No	1	0.6

Estimated time after delivery when one resumed sex

The estimated time when respondents resumed sex with their couples varied. A majority (48%) resumed sex after 3 – 4 weeks.

#### **4.4. Perceptions of breastfeeding towards HIV infection**

Analysis on the perceptions regarding HIV infection revealed that a majority of the respondents agreed that they would not get HIV if they used condom (n=171, 73.1%), knew that HIV was transmitted sexually (n=100, 42.7%), and understood that low income levels would encourage risky behaviors (n=120, 51.3%). Further, there were also very high agree responses on the perceptions that domestic violence increase risk of HIV (n=131, 56%) and female condom can help in reducing HIV (53%). In addition, 71% of the respondents disagreed with the perception that a HIV breastfeeding mother will have a HIV positive baby.

**Table 12: Respondents characteristics of reported perceptions towards HIV infection. (N=234).**

<b>Factor</b>	<b>Variable</b>	<b>Frequency</b>	<b>%</b>
Will not get HIV if I use condom	Strongly agree	51	21.8
	Agree	171	73.1
	Disagree	12	5.1
HIV is transmitted sexually	Strongly agree	39	16.7
	Agree	100	42.7
	Disagree	95	40.6
Wife inheritance puts one at risk for HIV infection	Strongly agree	38	16.3
	Agree	81	34.8
	Disagree	114	48.9
Low income levels encourage risky behaviors	Strongly agree	38	16.2
	Agree	120	51.3
	Strongly agree	38	16.2
If I have more than one sexual partner, I can get HIV infection.	Strongly agree	38	16.2
	Agree	128	54.7
	Disagree	68	29.1
Domestic violence highly contributes to having unprotected sex hence being a risk for HIV infection	Strongly agree	41	17.5
	Agree	131	56.0
	Disagree	62	26.5
All pregnant women infected	Strongly agree	1	.4

with HIV can have babies with HIV when breastfeeding	Agree	60	25.6
	Disagree	168	71.8
	Strongly disagree	5	2.1
There is a female condom that can help decrease a woman's chance of getting HIV	Strongly agree	31	13.3
	Agree	125	53.6
	Disagree	77	33.0
Having sex with more than one partner puts a woman at risk for HIV infection	Strongly agree	34	14.5
	Agree	117	50.0
	Disagree	83	35.5

## **CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS.**

### **5.1. Discussion**

This section presents a discussion of the main findings of the study “HIV infection Predisposition among Mothers attending postnatal clinic in Homabay County.” Conclusions are drawn and recommendations made based on the study findings.

#### **5.11. HIV seroconversion rate**

The results of this study revealed that the HIV seroconversion rate among women during the two-year breastfeeding period was found to be at 22% (N=53). This agrees with Canner J.et al. (2006) who concluded that there is increased incidence of HIV infection in the first 24 months after delivery, and annual seroconversion rates being 2.84 per 100 person-years in the 1st year and 6.66 in the 2nd year postpartum. While, only 2.2% of the women reported sexual contact in the first 6 weeks postpartum.

This further agrees with (Kinuthia et. al. 2004), who reported that the incidence of HIV among women who were 6 weeks postpartum was 2.6% and that mothers who tested HIV positive were more likely to be employed, married.

This finding further corresponds to the high HIV prevalence in women aged 15-49 years, according to (HIV/AIDS data booklet, 2005), which is 29% among women of reproductive age.

### **5.12. Socioeconomic risk factors**

According to the study findings of level of education, the highest number affected were those who went to school above the primary level, (n=100, 82.9%). This disagrees with findings from A Global Campaign for Education (2004), which reported that without education, young mothers may not understand the information regarding HIV/AIDS education provided, and hence become less confident in accessing services and openly discussing the HIV epidemic. World Bank (2002) further disagrees with findings from this study by revealing that education protects against HIV infection through awareness and health messages that may affect long-term behavioral change, particularly for women.

Among other factors, status of employment was revealed to be a major risk towards HIV transmission whereby the highest number affected were those women who were self-employed, (n=75, 58.3%). These findings agree with Fenton et al (2004), who concluded that poverty reduction could be the only viable long-term response to the HIV epidemic.

Collins et.al, (2001) further supports these findings by reporting that sexual transactions that are poverty driven are likely to encourage behaviors that are risk-taking, which makes unprotected sex to be more prevalent. Accordingly, (Snelling et al .2007) agrees with the study's findings from his report that, like all communicable diseases, HIV infection is linked to poverty and that the relationship between poverty and HIV/AIDS is central to the understanding of the impact of the epidemic on rural livelihoods.

### **5.13. Sociocultural risk factors**

Domestic violence was revealed as one of the major contributors to spread of HIV infection, (N=156, 85.7%), as supported from findings by (Kacanek D. et al. 2013), who outlined that domestic violence in most cases increases women's risk of HIV acquisition through forced sex, coercive sexual practices, and limiting women's ability to negotiate safe sex practices (such as condom use).

Among the sexual rituals, wife inheritance (N=51, 98.1%) was seen to be the mostly practiced ritual as compared to widow cleansing, though didn't correlate with spread of HIV infection. Agot et al. (2010) findings disagree with the above by revealing that widow inheritance is still a widespread cultural practice in sub Saharan Africa that has been postulated as contributing to the risk of HIV transmission. Shisanya A. et al. (2007) further disagrees with the above findings by revealing that ever since, the practice of widow inheritance has persisted among the Luo community, and it has led to spread of HIV infection in Kenya despite its emergence in 1984.

### **5.14. Behavioral risk factors**

According to the study findings refusal to use condom (N=52, 100%), and forceful sex (N=51, 98.1%) correlated with mother's post HIV test. These were major contributors to spread of the HIV infection. This agrees with findings from UNAIDS (2012), that revealed that women's inability to negotiate safe sex and refuse unwanted sex was linked to the high prevalence of HIV/AIDS. Forced sex and even rape therefore results in a higher risk of abrasion and bleeding and easier transmission of the virus. Erulkar et al

(2007), further supports this fact by explained that some of the studies in Kenya which have identified some traditional practices to be the main factor behind this low usage of condoms for example wife inheritance domestic violence and widow cleansing.

The results further revealed that having multiple sexual partners, (3-4partners or more tested HIV positive, n=46, 88.5%) contributed majorly to the spread of HIV infection. These findings, according to the preliminary findings of the 2008/2009 Kenya Demographic and Health Survey, only 32 percent of women who reported having multiple sexual partners admitted that they used a condom during their last sexual encounter. Tanser F. et. al (2011) agrees to this study finding by reporting, that Kenyan women continue to have unprotected sex with multiple partners - despite numerous national media campaigns aimed at sensitizing the public to the dangers of sex without a condom and multiple partners.

The results further revealed that a majority of mothers (N=113,48.3%) resumed sex after 3 – 4 weeks. Gregson et. al. (2010) explained in their research findings that, in Zimbabwe, men cited that postpartum abstinence by their wives was a reason for them having extra-marital relationships. While in the era of HIV/AIDS epidemic, this has posed to be dangerous to both women and men as it attracts HIV infection to the family. Then concluded that it is women opted to reduce the duration of this abstinence, so as to decrease the risks of HIV infection from other women from the extramarital relations.

### **5.15. HIV infection perceptions**

The results of this study revealed that mothers perceived differently the risks that predispose them to HIV infection, majority of the respondents agreed that they would not

get HIV if they used condom (n=171, 73.1%), knew that HIV was transmitted sexually (n=100, 42.7%), understood that low income levels would encourage risky behaviors (n=120, 51.3%) and domestic violence increase risk of HIV (n=131, 56%), the above factors were seen to be part of the major contributors to HIV infection. Snelling et al. (2007) agrees in his report that, HIV/AIDS, is linked to poverty and that the complex relationship between poverty and HIV/AIDS is central to an understanding of the impact of the epidemic on rural livelihoods.

Erulkar et al (2007), further supports this fact by explained that some of the studies in Kenya have identified some traditional practices as the main factor causing this low usage of condoms for example wife inheritance domestic violence and widow cleansing. Accordingly, (Kacanek D. et al. 2013) agrees that domestic violence could increase women's risk of HIV acquisition through forced sex, coercive sexual practices, and limiting women's ability to negotiate safer sexual practices (such as condom use). Further reports also suggested that for many females, initiation of coitus involved sexual coercion, physical and sexual violence in childhood is associated with high risk sexual behavior in adolescence or adulthood. Tanser F. et. al (2011) agrees to this study finding by reporting that Kenyan women are continue to have unprotected sex with multiple partners - despite many national media campaigns to educate the public to the dangers of sex without a condom and multiple partners.

## **5.2. Conclusion.**

### **5.21. Introduction**

This section outlines the summary and conclusions of the study, recommendations and suggested areas for further research.

**Summary:** The study was done to determine the HIV infection predisposition among women of reproductive age attending postnatal clinic in Homabay district hospital-Kenya. The need to conduct this study was because risks for HIV infection for women still exist even during the two-year breastfeeding period. Therefore, HIV prevention should be emphasized for women during this period.

**Implication of the study:** Determining HIV risk factors will provide an opportunity for more women to know their HIV status during the postpartum period, facilitating utilization of interventions to minimize HIV transmission to their infants. This will also give direction on how to control and manage the HIV infection and hence succeed in ensuring there is effective Prevention of mother to child transmission of HIV infection.

The results of the study will inform on the types of interventions to be up taken.

The study will help sensitize the infected mothers to realize the need to access HIV-specific care services, treatment and support, early enough.

It will also sensitize the government to involve relevant institutions and bodies to come in strongly in a way to develop strategies that can help educate, especially breastfeeding women, of the risks they are exposed to, for acquiring HIV infection even if they tested HIV negative before delivery.

## **5.22. Conclusion**

1. The two-year postpartum HIV seroconversion rate is at 22% and is highest among younger respondents (19 – 29 years) who were mostly affected (61.2%).
2. Domestic violence (56%) is a major contributor to unprotected sex which therefore escalates the spread of HIV infection. Wife inheritance, as opposed to

widow cleansing is still a major cultural practice in Luo culture which leads to spread of HIV infection

3. Condoms, though largely (99%) acknowledged as a good method of HIV infection prevention, have been poorly up taken. Multiple sexual (88.5%) partnerships contribute to spread of HIV infection. Late sexual resumption (48.3%) is a major risk for spread of HIV infection as it encourages risky sexual behaviors from the partner in the period the mother is breastfeeding.
4. Unemployment (58.3%) encourages risky sexual behaviors which escalates HIV spread. Low education level has minimal contribution to HIV infection spread.
5. The most dominant perceived factors that were seen to contribute to HIV infection spread were, domestic violence (85.7%), unprotected sex (73.1%) and multiple sex partners (88.5%).

### **5.3. Recommendations:**

1. The Ministry of Health should advocate for postpartum HIV testing for the mother of both known or unknown HIV status and offer comprehensive HIV care services to the HIV infected mothers, to include taking antiretroviral medication.
2. MCH departments in hospitals and health centers should encourage women to attend antenatal and postnatal clinics for proper care and management; guidance and counseling, P/EMTCT services. Teach women importance of seeking advice from health care professionals to avoid misunderstandings
3. The Ministry of Health should offer provision to Community Health Workers to educate community members on the dangers of some cultural practices to the health of the mother; i.e. widow inheritance.

4. Ministry of Health should enforce requirement to Hospitals to provide health education on safe sexual practices during the breastfeeding period, to promote health of both mother and baby.
5. Community Health Extension Workers facilitate and guide CHWs to teach community members the need from male involvement in matters concerning reproduction, i.e. importance of supporting the women after they give birth, by avoiding risky sexual practices and domestic violence.

#### **5.4. Further research**

Need for further research to be carried out to determine the uptake of HIV related care services for both pre and postnatal mothers as there is minimal evidence to show that women actually utilize these services, which then becomes a risk to both mothers and their children who eventually become exposed to the virus.

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**APPENDICES:****Appendix 1: MAP OF HOMA BAY TOWN COUNTY**

**Appendix 2:****HIV infection Predisposition among Breastfeeding Mothers in Homabay County.****INFORMED CONSENT**

My name is Roselyne Akinyi, a student at Kenyatta University, conducting a study on, "HIV infection Predisposition among Mothers attending postnatal clinic in Homabay County." The information will be useful for the Ministry of Medical services and Ministry of Public Health and Sanitation to improve access and quality for HIV care services.

**Procedure to be followed**

The procedure of this study will necessitate that I ask you some questions and also screen you for HIV infection, which means that specimen (blood sample), will be taken from you for the test. I will record all the information you give in a questionnaire. Once you decide to have the test, you will first meet a counselor who will provide you with more information about the risks and benefits of the test; they will also explain the meaning of the test results. They will then take about 2mls of blood for the HIV test and give you the results of the HIV test on the same day. When you learn the test results, you will also be counseled to increase your understanding of HIV transmission.

You have a right to refuse participation in this study. You will still receive the same care and medical treatment whether you agree to join the study or not, to mean that your decision will not change the care you get from the clinic today and that you will get from any other clinic at any other time.

Taking part in this study is voluntary. You may ask questions related to the study any time.

You may refuse to answer to any question and you can stop an interview any time. You may also stop being in the study at any time without any consequences to the services you receive from this clinic or any other organization now or in the future.

### **Discomforts and risks.**

Some of the questions are intimate and may be embarrassing or make you uncomfortable. If this happens, you have a choice not to answer these questions. You may also stop the interview at any time. The interview may take up to approximately half an hour to the time you wait before you receive your routine services.

Counseling will be done as learning test results may cause stress, anxiety and depression. You may be tempted to have unsafe sex if you are negative hence increasing your risk of getting AIDS. If results get into the wrong hands you might lose your job, housing or insurance. The needle used to draw blood may cause pain. If you are injured, the study staff will give you immediate treatment, free of charge.

### **Benefits.**

Participating in this study will help us to learn how to provide effective services that can improve the health of women and reduce the risk of HIV transmission during the postpartum period. You will also benefit from being screened for HIV infection and if

you are found to have a problem you will be advised on treatment and possibly referred for comprehensive care.

**Rewards:**

If you agree to participate in the study the study team will facilitate you to get through with the specific services you need for yourself and for the child.

**Confidentiality:**

The interviews will be done in a private setting within the clinic. Your name will not be recorded on the questionnaire. The questionnaires will be kept in a locked cabinet, to ensure confidentiality.

**Contact information:**

In case of any concerns and/or clarifications please do not hesitate to contact:

***Roselyne Akinyi. 0729923185. OR EMAIL: [rodhiambo22@yahoo.com](mailto:rodhiambo22@yahoo.com),***

***[rosimm87@gmail.com](mailto:rosimm87@gmail.com)***

***or***

***Dr. Gaudencia Okumbe on 0733579990***

***or***

***Dr. Orinda George on 0722433529***

***or***

***Kenyatta University Ethics Review Committee secretariat on [secretary.kuerc@ku.ac.ke](mailto:secretary.kuerc@ku.ac.ke),  
[chairman.kuerc@ku.ac.ke](mailto:chairman.kuerc@ku.ac.ke), [ercku@gmail.com](mailto:ercku@gmail.com).***

**Participants statement:**

The above information regarding my participation is clear. I have been allowed to ask questions which have been addressed to my satisfaction. My participation is entirely voluntary. I understand that my records will be confidential and that if I choose, I can leave the study at any time. I understand that I will get the same care and medical treatment whether I decide to leave the study or not and my decision will not change the care I will get from the clinic today or that I will get from any other clinic at any other time.

Signature or thumbprint of participant: \_\_\_\_\_ Date \_\_\_\_\_

**Investigators statement:**

I, the undersigned, have explained to the volunteer in a language he/ she understands, the procedures to be followed in the study and the risks and benefits involved,

Name of interviewer \_\_\_\_\_ Signature of interviewer \_\_\_\_\_ Date \_\_\_\_\_

## Appendix 3

### HIV TEST CONSENT FORM.

#### HIV infection Predisposition among Breastfeeding Mothers in Homabay County.

##### **Introduction.**

The HIV (Human Immunodeficiency Virus) virus causes AIDS (Acquired Immunodeficiency Syndrome). HIV can be spread to through, unsafe sex with infected people, sharing needles from infected persons, receiving blood or blood products or other tissues infected with the virus, from mother to child during pregnancy, delivery or breastfeeding. The test for HIV detects the body's reaction to the virus (antibody). It does not detect the virus itself. Therefore the decision to be tested is voluntary.

The test will be done for the research study. You may ask questions about the test, the risks, the benefits and your rights as a volunteer. Once all the questions have been answered, you can choose if you will have the test or not, this process is called "informed consent".

**What the test means:** If you are POSITIVE, it means you have the virus; and that you can pass it to others. The test doesn't mean that you have AIDS and cannot tell how long you have been infected. If the test is NEGATIVE, you probably don't have the HIV virus. This may mean that you have the virus but your body has not yet made any antibody to fight the virus. It could take up to 6months after infection for the test to turn positive. Unclear or false results are rare. Another blood test is done when the result does not make sense.

**Benefits of being tested:** Benefits are very personal. A negative result might make you feel better and sometimes knowing that the test is POSITIVE can relieve stress. You may need to know your test result before sexual relations with a new partner. The test results may also help diagnose a medical problem or guide your health care. If you are POSITIVE you can be referred for care that can help you live longer.

**Risks of being tested:** Though, there is no program for monetary compensation for such injuries.

**Information about confidentiality:** Your HIV antibody test result will be held with confidence and will not be released to any other person or agency without your specific permission in writing. Nothing will be discussed about you in public.

Do you have any questions?

Do you agree to participate?

Signature of study staff conducting consent \_\_\_\_\_ Date \_\_\_\_\_

Name of study staff conducting consent \_\_\_\_\_ Date \_\_\_\_\_

**Subjects statement.**

The HIV antibody test described above has been explained to me. I agree to volunteer to have the test. I have had a chance ask questions. I shall get a copy of this consent form.

Signature of subject\_\_\_\_\_

Date\_\_\_\_\_

Name of subject\_\_\_\_\_ Date\_\_\_\_\_

Signature of witness\_\_\_\_\_

Name of witness\_\_\_\_\_

**Contact Numbers:**

Roselyne Akinyi

Phone number- 0729923185.

Email address – [rodhiambo22@yahoo.com](mailto:rodhiambo22@yahoo.com)

Contact address – 76484, NAIROBI.

Kenyatta University Ethics Review Committee contacts:

[secretary.kuerc@ku.ac.ke](mailto:secretary.kuerc@ku.ac.ke)

**Appendix 4: APPLICATION LETTER.**

**ROSELYNE AKINYI ODHIAMBO,  
KENYATTA UNIVERSITY,  
P.O BOX, 43844-00100,  
NAIROBI.**

**TO THE MEDICAL SUPERINTENDENT**

.....

**ATTN: HOSPITAL MATRON**

**DATE:**

Dear Sir/ Madam,

**RE: REQUEST FOR PERMISSION TO CARRY OUT A RESEARCH IN YOUR  
FACILITY.**

My name is Roselyne Akinyi, a master's degree student at Kenyatta university.

I wish to carry out an academic research study, "***HIV infection Predisposition among  
Mothers attending postnatal clinic in Homabay County.***"

The major reason for writing this letter is to request for permission to conduct this study in your facility. I hope to hear from you soon.

Thank you in advance.

Yours faithfully,

Roselyne Akinyi.

0729923185

[rodhiambo22@yahoo.com](mailto:rodhiambo22@yahoo.com) [rosimm87@gmail.com](mailto:rosimm87@gmail.com)

**Appendix 5: APPLICATION LETTER.**

**ROSELYNE AKINYI ODHIAMBO,**

**P.O BOX, 76484-00508,**

**NAIROBI.**

**THE CHAIPERSON,**

**KENYATTA UNIVERSITY ETHICS AND RESEARCH COMMITTEE,**

**P.O. BOX, 43844-00100,**

**NAIROBI.**

**DATE:**

Dear Sir/ Madam,

**RE: REQUEST FOR AUTHORIZATION TO CARRY OUT RESEARCH.**

My name is Roselyne Akinyi, a master's degree student at Kenyatta University.

I wish to carry out an academic research study, "***HIV infection Predisposition among Breastfeeding Mothers in Homabay County.***"

The major reason for writing this letter is to request for authorization to conduct this study in Homabay County. Your consideration and approval will be highly appreciated.

The research findings will benefit the Homabay residents and the country as a whole.

Thank you in advance.

Yours faithfully,

Roselyne Akinyi. 0729923185

[rodhiambo22@yahoo.com](mailto:rodhiambo22@yahoo.com) [rosimm87@gmail.com](mailto:rosimm87@gmail.com)

**Appendix 6: APPLICATION LETTER.**

**ROSELYNE AKINYI ODHIAMBO,**

**P.O BOX, 76484-00508,**

**NAIROBI.**

**THE DIRECTOR,**

**NATIONAL COUNCIL OF SCIENCE AND TECHNOLOGY,**

**P.O. BOX, 30623-00100,**

**NAIROBI.**

**DATE:**

Dear Sir/ Madam,

**RE: REQUEST FOR AUTHORIZATION TO CARRY OUT RESEARCH.**

My name is Roselyne Akinyi, a master's degree student at Kenyatta University.

I wish to carry out an academic research study, "***HIV infection Predisposition among Breastfeeding Mothers in Homabay County.***"

The major reason for writing this letter is to request for authorization to conduct this study in Homabay County. Your consideration and approval will be highly appreciated.

The research findings will benefit the Homabay residents and the country as a whole.

Thank you in advance.

Yours faithfully,

Roselyne Akinyi. 0729923185

[rodhiambo22@yahoo.com](mailto:rodhiambo22@yahoo.com) [rosimm87@gmail.com](mailto:rosimm87@gmail.com).

**Appendix 7:****Questionnaire****HIV infection Predisposition among Breastfeeding Mothers in Homabay County.”***Serial number* \_\_\_\_*Interviewer number* \_\_\_\_*Name of Clinic:* \_\_\_\_\_**Date of interview (day/month/year)**       /  /  **SOCIODEMOGRAPHIC CHARACTERISTICS.**

1. 1. Date of birth (day/month/year)  
 /  /    
 Don't know
2. Age in years:  
 years
3. Marital status (tick one):  
 Currently married (Monogamous)  
 Divorced/Separated  
 No answer  
 Currently married (Polygamous)  
 Widowed  
 Come we stay  
 Never married
4. What age bracket is your child  
 3-5months  
 6-8months  
 9-11months  
 12-14months  
 15-17months  
 18-20months  
 21-25months
5. What was the date of mothers last HIV test (DD/MM/YYYY)  
 /  /   
  
 Unknown  
 MCH verification

**5a.** What was the mothers HIV test result

- Positive
- Negative

### **SOCIOECONOMIC HIV RISK FACTORS.**

6. What is your level of education?

- < Primary
- >=Primary
- No answer
- Tertiary

7. Employment (tick one):

- Salaried
- Self-employed
- No answer
- Housewife
- Unemployed

8. Is fishing the main economic activity in your community (TICK ONE).

Yes

No

8a. If yes, do you think it leads to the spread of HIV in your community

Yes

No

If Yes, explain.....

.....

.....

9. What sexual behaviors have you adopted to prevent HIV?

- Use condoms
- Abstinence
- Have fewer sexual partners

Other.....  
.....

### **BEHAVIOURAL RISK FACTORS**

10. Have you resumed sexual intercourse since delivery?

Yes

No

11. Estimate week postpartum sex resumed

Weeks

Don't know

12. Are you **currently** using any birth control method?

Yes

No

No Answer

12a. If yes, which of the following birth control methods are you currently using (*tick all that apply*)?

- Condoms
- Injectable contraception (Depo-Provera)
- Oral contraception
- IUD
- Implants
- Diaphragm
- Abstinence
- Natural methods (rhythm, lactation)
- Tubal ligation
- Hysterectomy

Other (specify): \_\_\_\_\_

None

13. Has anyone **ever** talked to you about condom use?

Yes                     No → **go to question 13**

13a. If yes, how long ago was the last discussion about condom use

Months

Years

Don't know

13b. In what settings have anyone talked to you about condom use (*tick all that apply*)?

- Health care setting (Not related to antenatal or postpartum care)
- Antenatal
- Postpartum
- Non-health care setting (Community or religious leader)
- Family Member or Friend
- Other (specify): \_\_\_\_\_

14. Have you ever used condoms to avoid diseases?

- YES
- NO

15. Would you ask a partner to use a condom if you thought  
He has had sex with someone else?

- Yes
- No

16. Would you refuse to have sex if your partner refused to use  
a condom?

- Yes
- No

17. How many sexual partners have you had in your **life**:

- # partners
- Don't remember

18. Has your current partner been tested for HIV?

- Yes
- No
- Don't know
- NA-No Partner→ **go to question 17**

18a . If yes, how long ago?

- Months
- Years
- Don't know

19. Partner's HIV status at last HIV test

- Negative
- Positive
- Don't know

20. Do you currently have any other sexual partners?

- Yes
- No

## SOCIOCULTURAL RISK FACTORS

21. How often has your partner: [If this has never happened, tick Never]

21a. Been violent

- Never
- Rarely
- Sometimes
- Frequently

21b. Refused to use a condom

- Never
- Rarely
- Sometimes
- Frequently

21c. Forced you to have sex

- Never
- Rarely
- Sometimes
- Frequently

22. Do you perform any sexual rituals in your community

- Yes
- No

22a. If yes, which ones

- Widow cleansing
- Wife inheritance

22b. Do you think that the above practices predispose you to HIV infection

- Yes
- No

**23.****L. HIV INFECTION PERCEPTION**

	<b>Strongly agree=1</b>	<b>Agree=2</b>	<b>Disagree=3</b>	<b>Strongly disagree=4</b>
1. I will not get HIV if I use condoms				
2. HIV is transmitted sexually				
3. Wife inheritance puts one at risk for HIV infection				
4. Low income levels encourage risky behaviors that predisposes one to HIV infection				
5. If I have more than one sexual partner, I can get HIV infection.				
6. Domestic violence highly contributes to having unprotected sex hence being a risk for HIV infection				
7. All pregnant women infected with HIV can have babies with HIV when breastfeeding				
8. There is a female condom that can help decrease a woman's chance of getting HIV				
9. Having sex with more than one partner puts a woman at risk for HIV infection				