

**DETERMINANTS OF ART INITIATION AND PERCEPTIONS ON
ANTIRETROVIRAL DRUGS UPTAKE DURING PREGNANCY AND PUERPERIUM
AT HOMA BAY COUNTY REFERRAL HOSPITAL IN HOMA BAY, KENYA**

BY

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DECLARATION

Declaration by the student:

I declare that this thesis is my original work and has not been presented to any other university for the award of any degree.

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DEDICATION

This work is dedicated to my parents; Silvery Ochola Gaa and Mama Beldine Atieno Ochola and my children Khama Daniel Ochola and Caitlyn Atieno Ochola.

ABSTRACT

Use of effective antiretroviral therapy (ART) in Human Immunodeficiency Virus (HIV) positive pregnant women has been proven to be the most effective technique of preventing mother-to-child transmission (PMTCT) of HIV. This strategy has been shown to drastically reduce the incidence of HIV in newborns. It is however noteworthy that this service has not achieved its full potential in terms of utilization in most counties in Kenya as the rates of maternal HIV transmission remains high with the national average at 6.2%. Some of the determinants of ART initiation and perceptions on its use for PMTCT are not fully understood. The objective of the study was to outline the determinants of the timing of initiation and perceptions on uptake of ART by HIV positive pregnant women on PMTCT in Homa Bay County, Kenya. The perceptions of healthcare workers were also determined. Specifically, the study sought to determine the perceptions of HIV positive pregnant women and healthcare workers on the use and barriers to ART for PMTCT services. The study also assessed antenatal attendance for PMTCT and timing of ART initiation. A cross-sectional study design was used and study conducted at Homa Bay County Referral Hospital (HCRF). The study targeted expectant HIV positive women who presented ante-natal, during labor and post-partum at HCRH during clinic. A sample size of 290 HIV positive women as determined by Fisher *et al.*, (1998) formula was used. Data on study participants' socio-demographic status, awareness and perceptions on PMTCT services, antenatal clinic attendance, timing of ART initiation and the proximity to PMTCT services was collected using a pretested interviewer administered questionnaire. Healthcare workers running PMTCT clinics were also interviewed on their experience and barriers to PMTCT services as may have been reported to them by the women. Socio-demographic characteristics of the respondents was expressed using descriptive statistics. The number and timing of antenatal attendance was expressed in percentages. The timing of initiation of ART was expressed in frequencies and percentages and chi square test used to determine the association between income and level of education and the timing of ART initiation. Perceptions on barriers to PMTCT were weighted and expressed in percentages. The timing of Antenatal attendance was categorized and chi square used to compare the time of ANC initiation and the likelihood of facility delivery. The participants' views on the possible things to be improved were coded into thematic areas. The level of training of the PMTCT providers and their views on barriers to PMTCT was expressed in frequency and percentages. Most women's perception on barriers to PMTCT included stigma at 45%, lack of spouse support (23%), lack of knowledge (15%), distance (12%). The women expressed knowledge about PMTCT with 86.6% of them having heard about the services. Other than use of PMTCT for prevention of infections, only 67.2% cited safe delivery as a preventive strategy. 22% of them thought that not breastfeeding would confer additional benefits while safe sexual practices was only mentioned by 18.6 % of the respondents. In the timing of initiation of ART for PMTCT, 55.1% of the respondents started it before being pregnant. This included a small subset (7.2%) of women who were themselves survivors of vertically transmitted infection and had now reached child bearing age. Antenatal visit attendance for PMTCT was mostly initiated late after 3 months into pregnancy by 53.6 % of the respondents. Total attendance of ANC across the continuum of pregnancy was high with 92.4 % of the respondents reporting to have attended at least once. All the respondents indicated having attended ANC at least once. Rate of institutional deliveries was however at 87.4%. Occupation($p=0.011$), level of education ($p=0.000$) and level of income ($p=0.015$) were positively associated with the decision to deliver at home or in the health facility. Health care workers expressed lack of laboratory support, drugs stock outs and clients' refusal to take medication as the challenges they encountered. In addition, they cited stigma, lack of spouse support and attitude of health care workers as some of the barriers women reported to them as they sought PMTCT services.

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LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ANC	Ante-Natal Clinic
ART	Anti-retroviral Therapy
ARV	Anti-retroviral
AZT	Azidothymidine/Zidovudine
CART	Combined antiretroviral therapy
CD4	CD4 Helper T Cells
DHIS	District Health Information Systems
EBF	Exclusive breastfeeding
EMTCT	Elimination of Mother to Child Transmission
ERF	Exclusive Replacement Feeding
G.O. K	Government of Kenya
HAART	Highly Active Antiretroviral Therapy
HCRH	Homa Bay County Referral Hospital
HCWs	Health Care Workers
HIV	Human Immunodeficiency Virus
IVDUs	Intravenous Drug Users
KDHS	Kenya Demographic and Health Survey
M.O.H	Ministry of Health
MDGs	Millennium Development Goals
MTCT	Mother to Child Transmission
NVP	Nevirapine
OI	Opportunistic Infections
PLWHIV	People Living With HIV/AIDS
PMTCT	Prevention of Mother to Child Transmission
STIs	Sexually Transmitted Infections
TBA	Traditional Birth Attendant
VL	Viral Load
WHO	World Health Organization

DEFINITION OF TERMS

Antiretroviral drugs-	These are Antimicrobial agents that act to suppress the replication of the Human Immunodeficiency Virus.
Barriers-	The challenges or problems that may be encountered in accessing care.
PMTCT-	The act of prevention of transmission of HIV from an infected mother to her unborn child during pregnancy, labor, birth process or breastfeeding.
Uptake-	Acceptance/utilization/use of a service.
Awareness-	The knowledge that something exists.
Availability-	Refers to the state of being ready or suitable for use.
Accessibility-	Pertains to the peoples' ability to reach a certain service when it is needed
Community-	A group of people living in the same place or have a common interest.
Perceptions-	Judgement based on awareness and understanding of something.
Puerperium-	Period within six weeks post-delivery.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

1.11 The Global Pandemic

HIV/AIDS has hitherto continued to remain a global pandemic despite concerted efforts to contain it by universal provision of ART to eligible populations as well as measures to prevent vertical transmission through PMTCT(Aizire, G Fowler, & M Coovadia, 2013). This is evidenced by the failure of its eradication and relatively steady prevalence rate for the last two decades(van Lettow et al., 2014). Over 33 million people are estimated to be living with HIV/AIDS worldwide, and about two-thirds or 22.5 million of PLHIV live in sub-Saharan Africa (Organization, 2017). Kenya is one of the countries in this region with about 6.3% or over 1.4 million Kenyan adults living with HIV/AIDS in 2017(Council, 2018). The situation has contributed to the impediments facing such countries in their strides at attaining the MDGs since it has a direct impact on both maternal and child health-MDG 4, 5 and 6 (Prendergast, Essajee, & Penazzato, 2015).

HIV/AIDS mainly affects people of reproductive age especially women, who account for approximately 69% of new infections in sub-Saharan Africa (Aizire et al., 2013). Biological and socio-economic factors have since been studied for this apparent vulnerability status (Gumbo et al., 2010). Most children born with HIV die before they reach their fifth birthday, with 50% not surviving beyond two years(Dillabaugh et al., 2012). The high rates of MTCT in developing countries, compared to much lower rates in richer countries, illustrate growing disparities in global health. In the wealthy countries, the rate of MTCT is less than 2% because of widespread access to anti-retroviral therapy (ART), planned caesarean deliveries where applicable, the means to safely practice replacement feeding, and access to quality medical services(Gumbo et al., 2010).

Of significance is that developing countries continue to bear the greatest burden of the HIV epidemic. This is particularly true for most countries in the Sub-Saharan Africa as is exemplified by Kenya(Sollai et al., 2015). Barriers to ART during pregnancy in HIV positive women has been cited as one of the major factors that continues to propagate the trend of new vertical transmissions in Sub Saharan Africa(Katirayi et al., 2016) . For example, in Kenya, counties in

the Nyanza region are the most affected by HIV/AIDS as typified by the perennially high rates of incidence and prevalence. Homa Bay County which falls in this region currently has one of the highest prevalence rates at 26% (Demographic & Macro, 2014).

1.12 Magnitude of HIV in Pregnancy in Kenya

The National AIDS/STI Control Program (NASCO) estimates that there were 1.55 million babies born in 2011 in Kenya and that as many as 6.3% of pregnant women in Kenya were living with HIV/ AIDS (N. AIDS & Programme, 2012).

With an estimated population of 38.6 million in the year 2010, the number of HIV - exposed babies is estimated to be 97,272, and at least 38,900 HIV-positive babies are born, assuming a 40 % transmission without any interventions(N. AIDS & Programme, 2012).

The National AIDS Control Council reported that there were 4,312 AIDS-related deaths among children aged 0-14 years in Kenya which was about 15% of all total AIDS-related deaths in 2017(Council, 2018).

1.13 Risks of transmission of MTCT

ARV prophylaxis during pregnancy, labor and delivery and during breastfeeding period can substantially reduce MTCT. It is therefore critical that prevention strategies be integrated into existing reproductive health and maternal and child health (MCH) services.

In Kenya, an estimated 37,000 to 42,000 infants are infected with HIV annually due to mother-to-child transmission (N. AIDS & Programme, 2012). This can occur in utero, during labor and delivery and through breastfeeding. During pregnancy, about 5 to 8 percent of HIV-exposed babies become infected through transmission across the placenta (Organization, 2010b). Labor and delivery pose the greatest risk for transmission with 10 to 20 percent of exposed infants becoming infected at this time (Hassan et al., 2012).

Breastfeeding also exposes infants to HIV. When mothers breastfeed for 18 to 24 months another 10 to 15 percent of infants become infected. With prolonged breastfeeding, 25 to 45 percent infants will become infected(McKnight & Annette-Carina van der, 2015).

Many factors are known or suspected to increase the risk of an HIV infected mother transmitting the virus to her infant. These factors include the HIV viral load in the mother, as well as other maternal, obstetrical, viral and infant factors.

The most significant risk factor appears to be the maternal HIV viral loads as a measure of viral suppression by ART. Other factors may also contribute to increasing an infant's exposure or susceptibility to acquiring HIV (Ghanotakis, Miller, & Spensley, 2012). Some factors may cause a breakdown in the protection offered to the fetus by the placenta, which in normal circumstances would not allow HIV to cross the placenta from mother to fetus. Transmission during labor and delivery occurs when the infant sucks, imbibes or aspirates maternal blood or cervical secretions that contain HIV, or when it has other mucous membrane exposure (Ambia & Mandala, 2016).

The study aims at ascertaining some of the barriers to access of effective ART for prevention of vertical transmission in spite of the efforts geared at halting the same. The study is stirred by the observation of new cases of infections despite optimization of care through partnerships between G.O.K and other stakeholders involved in healthcare provision.

1.2 Statement of the Problem

Significant number of expectant women with confirmed HIV diagnosis are not on ART as late as during third trimester ANC visits or during labor (Kohler et al., 2014). This is as opposed to clearly stipulated guidelines of having all expectant HIV positive women on HAART; gestation and CD4/VL notwithstanding (Organization, 2016). For instance, by 2012, the 21 Global Plan for Elimination of Pediatric HIV priority countries reported only about 64% coverage for PMTCT services in low- and middle-income countries(Drake, Wagner, Richardson, & John-Stewart, 2014). Despite the fact that the Kenya Ministry of Health has made great strides to increase PMTCT coverage, provision of ARVs to HIV-infected pregnant women has increased to 69%, well below the anticipated target of having all of the eligible women on ART(N. AIDS & Programme, 2012). A myriad of factors has been implicated for this perceived trend of not having all eligible expectant women on treatment; barriers to accessing ART during pregnancy has been highlighted as an important tenet in the propagation of new infections(Onono et al., 2015).

Optimization of PMTCT has been identified as one of the key ways in which the hitherto uncontained scenario of having eligible pregnant women not on care can be improved.

If HIV care is enhanced among the pregnant women and those within the puerperium, it is anticipated that the current observation of new infections among newborn children can be

significantly reduced. This is what has informed the resounding campaign towards elimination of new vertical infections, EMTCT(M. S. Cohen et al., 2016).

WHO has set up standards and guidelines for replication by all the countries within its jurisdiction geared towards achieving these goals especially fostering universal access of ART to all pregnant HIV positive women(Organization, 2016). Despite the fact that there are clearly stipulated guidelines by the GOK/MOH on PMTCT, it is still conceivable that there are HIV positive women who are pregnant or in puerperium and are not on ART(Ngemu et al., 2014). In addition, the fact that there are still new recordings of mother to child transmissions is concerning and raises the need to determine why gaps exist in care during pregnancy and puerperium.

1.3 Justification of the Study

It is estimated that up to 33 million people worldwide are living with HIV/AIDS today(NASCP, 2016). Kenya currently has an estimated prevalence of 6%. Out of this proportion, the vast majority are children and women of child bearing age of fifteen to forty-five years (Ackers et al., 2014).

The prevalence in Homa Bay County is estimated to be approximately 26 % (Demographic & Macro, 2014). A significant proportion of these are women of childbearing age and children (Kimanga et al., 2014). HIV/AIDS contributes to disease burden by direct mortality and morbidity within these special groups (Maman et al., 2015).

Despite the great strides of PMTCT it's still not an unusual to encounter scenarios where expectant women or women presenting in labor are not on HAART or prophylaxis of any sorts (Nduati et al., 2015).

The ANC attendance is still yet to be embraced in some settings as well as facility deliveries. Surveys have shown that on average Kenyan women start attending ANC at about 20 weeks gestation and some do not attend at all, missing crucial opportunities for implementation of PMTCT programs (Onono et al., 2015). Some HIV positive pregnant women present to the healthcare facility for the first-time during delivery (Vrazo et al., 2018). The rate of non-institutional deliveries is still estimated to be above 50% in some areas and TBAs who continue

to play a crucial role in maternal health are rarely incorporated in control strategies (Kawakatsu et al., 2014).

Advocacy for exclusive replacement feeding (ERF) as a way of PMTCT is still unsustainable in many resource limited settings, EBF being the championed mode of feeding and thus still posing a significant risk of transmission through breast milk (Rollins & Coovadia, 2013). In addition infant and young children feeding practices which advocates for ERF during the first six months of life is compounded by mixed feeding habits and malnutrition which further escalate the risk of transmission through breast milk (Flax et al., 2016).

There is a need to continuously identify the deterrents to prevention of vertical transmission of HIV and find plausible solutions to them. One important way is to isolate the perceptions on barriers to the access of anti-retroviral therapy during pregnancy and postnatal period and to try to address them in entirety if the efforts at eliminating new vertical transmissions as is envisioned are to be achieved.

1.4 Study Question

1. What are the perceptions of HIV positive pregnant women and those within the puerperium of the use of ART for PMTCT?
2. What is the timing of initiation of ART for PMTCT among HIV positive pregnant women and those within the puerperium?
3. What is the level of ante natal visit attendance and eventual facility delivery among HIV positive women and those within the puerperium?
4. What are the perceptions of the healthcare workers involved in HIV care provision on the barriers to ART as faced by pregnant HIV positive women and those within the puerperium?

1.5 Broad objective

To investigate the determinants and perceptions on antiretroviral drugs uptake during pregnancy and puerperium at Homa Bay county referral hospital in Homa Bay, Kenya.

1.5.1 Specific objective

1. To determine the perceptions of HIV positive pregnant women and those within the puerperium on ART for PMTCT.

2. To determine the timing of initiation of ART for PMTCT among HIV positive pregnant women and those within the puerperium.
3. To assess for ante natal visit attendance for PMTCT among HIV positive pregnant women and eventual facility delivery.
4. To determine the perceptions of health care workers working in the HIV clinics on barriers to ART as reported to them by pregnant HIV positive women and those in puerperium.

1.6 Scope and Limitations of the Study

The study sought to probe HIV positive women along the continuum of pregnancy to delivery and post-delivery to unravel some of their perceptions in utilizing PMTCT services for prevention of vertical transmission of HIV. It highlighted some of the factors that determined the initiation of ART for PMTCT as well as investigating the perceptions on PMTCT. The study however was plagued by instances of recall bias on the part of the study participants. Some of the participants could not recall the values of previous laboratory tests done to them and this therefore hampered efforts at making statistical inferences or associations. Since the study mostly focused on the participants who visited the hospital to seek care, it is difficult to generalize the level of uptake of the whole population as some expectant women delivered at home without necessarily visiting the health facility for follow up visits. Taking cognizant of the fact that the participants in the study were mostly those seen within the health facility, the perceptions of the women who did not attend the health facilities was not interrogated as this might provide invaluable information on health seeking in general and PMTCT in particular. In addition, the reasons for opting for home delivery was not interrogated as this might provide an opportunity on getting additional insight into the barriers of embracing skilled birth attendance as a way of mitigating vertical transmissions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Impact of Mother-to-Child Transmission of HIV

It is estimated that globally, of the 33 million PLWHIV, about 12 million are women above age 15 years and above live in the sub-Saharan Africa (Katz, Ehrenkranz, & El-Sadr, 2018). Around 90% of 330,000 new infections in children less than 15 years reported globally in 2011 were in the sub-Saharan Africa (Abdool Karim, 2014). This is worrying especially given that in low- and middle-income countries, only 35% of pregnant women received HIV testing, and less than half of HIV infected women tested accessed anti-retroviral drugs (ARVs) for PMTCT (Organization & Unicef, 2011).

PMTCT is based on a four-pronged approach viz;

1. Primary prevention of HIV in women of child bearing age (15-49 years).
2. Prevention of unintended pregnancies among HIV-infected women.
3. Prevention of transmission from HIV-infected women to their unborn and lactating children.
4. Care, treatment, and support to women living with HIV, their children and their families infected and affected by HIV (The PMTCT-plus)

In Kenya, annual new infections in children 15 years and below is estimated about 12,940 (Waruiru, Kim, & Kimanga, 2014). Most of these new infections totaling to approximately 75%, occurred in children within 5 of the 47 counties including Homa Bay, Siaya, Kisumu, Migori, Kisii. Of the 1.5 million PLWHIV in Kenya, about 12% of them are estimated to be children below 15 years of age (N. AIDS & Programme, 2014). Approximately 58% of PLWHIV aged 15 years and above are women. Approximately 44% of all adults LWHIV are in five counties namely Homa Bay, Nairobi, Kisumu, Siaya, Migori (N. AIDS & Programme, 2014).

As a result of scaled-up HIV prevention services, the annual number of newly infected children in 2012 was approximately 260 000 in low- and middle-income countries, 35% lower than in 2009 (N. AIDS & Programme, 2014). From 2001 to 2012, there was a 52% decline in new HIV infections among children (Slogrove, Mahy, Armstrong, & Davies, 2017). Expanded access to services to prevent mother-to-child transmission prevented more than 670 000 children from acquiring HIV from 2009 to 2012. To reach the global target of reducing by at least 90% the

number of new infections among children by 2015 (using a 2009 baseline), PMTCT program expansion will need to accelerate (J. U. N. P. o. H. A. J. Aids, 2013).

2.2 History of Prevention of mother-to-child transmission of HIV

Provision of ART for PMTCT is currently a well-researched area as it forms the basis for ‘prong 3’ that seeks to address the provision of effective ART for curtailing vertical transmission of HIV (Kiragu, Collins, Von Zinkernagel, & Mushavi, 2017). The risk of vertical transmission of HIV without any intervention is approximately 15-45% (Wang et al., 2016). Provision of effective ART reduces this risk to less than 5% (Finocchiaro-Kessler et al., 2016).

The use of ARVs for PMTCT has evolved over the decades since its advent in the new millennium. The continuum of changes has largely been due to emerging scientific facts that have sought to address the changing dynamics of the disease epidemiology (Waruru et al., 2018).

A 1991 study completed in Kigali, Rwanda, found that PMTCT might be more viable than had previously thought (Van de Perre et al., 1991). The study found that infants were becoming infected with HIV after birth when the mothers breastfed them. An article published in *The Lancet* that year reported a major contribution to PMTCT that was discovered in a large European study. Researchers found that when HIV-positive pregnant women had cesarean sections (C-sections) the infection rate decreased by half (Nestler, 2011). Another study, also from 1994, ACTG076, found that giving pregnant women AZT reduces MTCT by two-thirds (A Decade of HAART: The Development and Global Impact of Highly Active Antiretroviral Therapy, 2008).

The FDA officially approved NVP in 1996 as a reverse transcriptase inhibitor (Fowler et al., 2016). Evidence from 1997 showed that overall AIDS deaths as well as the number of infected infants decreased, mostly due to the introduction of and access to NVP (M. S. P. Cohen et al., 2013). Another study by Kennedy and others found that MTCT could be reduced to less than 1% with AZT during C-sections (Kennedy, Yeh, Pandey, Betran, & Narasimhan, 2017). In 1998 the UN disseminated new recommendations on infant feeding practices because of some PMTCT studies. It recommended that women should decide how to feed their babies, even though the recommendations seemed to push for formula feeding among HIV-positive mothers, while pilot studies in 11 developing countries pushed more for PMTCT (Bispo, Chikhungu, Rollins, Siegfried, & Newell, 2017).

By the end of the twentieth century a myth about transmission spread throughout the Sub-Saharan African region. The myth was that men who were HIV-positive could cure the infections if they had sex with a virgin (S. Cohen, 2013). Reported data show that 2000 was the first time in history that HIV-positive women living in Africa outnumbered their male counterparts (Altman, 1999). Furthermore, at the end of the century, the UK began offering HIV tests to all pregnant women in order to prevent MTCT (Raffe et al., 2017). The year 2000 saw the inception of provision of short course prophylaxis starting late in pregnancy or during labor including single dose NVP for the mother and infant (Gumede-Moyo, Filteau, Munthali, Todd, & Musonda, 2017).

In December 2001 the South African government agreed to provide free NVP to all HIV-positive pregnant women (Ashraf, 2001). By the end of 2002 women accounted for 58% of the HIV population in Africa, and 50% of all HIV-positive cases worldwide were women (Hargreaves et al., 2016).

The Institute of Medicine (IOM) published findings in 2005 from various studies stating that NVP was a safe and effective treatment for MTCT (Westreich et al., 2011). By 2009 Sub-Saharan Africa reports stated that only 45% of HIV-positive pregnant women were receiving ARVs (Granich et al., 2010). Even though researchers had discovered that antiretroviral treatment during and after pregnancy during breastfeeding was significantly associated with lower transmission rates of HIV between mother and child, there was not full uptake of ARVs in order to prevent MTCT of HIV (Kurth, Celum, Baeten, Vermund, & Wasserheit, 2011). Without interventions and prophylaxis treatment, MTCT rate occurs at an average of 20% (Trials, 2011). When mothers are on treatment, the rates of transmission are almost nonexistent (M. S. Cohen et al., 2016).

There had also been a raging debate about the role and risk associated with breastfeeding with regard to MTCT. In developing countries, much like Western parts of Kenya, breastfeeding increases the rate of transmission of HIV (Little et al., 2012). In 2009 the WHO breastfeeding recommendations, “Guidelines on HIV and infant feeding, 2010,” were made more comprehensive regarding breastfeeding among women who are HIV positive and their babies’ status is either negative or unknown (Organization, 2010a).

A revision in 2004 was done to aid in the standardization and simplification of the regimens, i.e. provision of cART for those with CD4 counts of less than 200, AZT prophylaxis from 28 weeks of pregnancy, single dose NVP during labor and delivery as well as infant prophylaxis for one week postpartum (Badri et al., 2004). The year 2010 saw the introduction of options A, B, and B+ for PMTCT, with option B+ expected to be universally adopted and implemented from 2013 onwards (Walensky et al., 2010). This has since been revised with the issuance of the 2014 Rapid advice, which seeks to have all pregnant HIV positive women on HAART during pregnancy and to continue on it for life (Organization, 2014). This approach was noted to confer the additional benefit especially in sero-discordant unions where one partner is HIV negative (Nosyk et al., 2013).

It is estimated that only 47% of pregnant women and 65% of infants in sub-Saharan Africa in need of ARVs for PMTCT are not on it (Tenthani et al., 2014). This glaring gap reflects what must be addressed with zeal by countries in the sub-Saharan region and inculcated in their preventive strategies otherwise the elimination of MTCT shall continue to remain elusive.

2.3 The Kenyan Context

The Kenyan context with regard to implementation of PMTCT as well as the challenges encountered on the same has been studied (du Plessis et al., 2014). Counties within the Western region are largely under-researched and various reasons fronted include proximity to the lake among others. These studies, besides being few, have failed to address the diverse distinct unique characteristics of these populations independently (Azcoaga-Lorenzo et al., 2011).

HIV care is very dynamic and continues to evolve with advancing knowledge and technology. Similarly, the population socioeconomic dynamics that impact on transmission and uptake of treatment continue to change (Henry & Koopman, 2015). It's therefore noteworthy that most of the studies and the findings are based on variables in the different eras of PMTCT approach (Dillabaugh et al., 2012). This therefore insinuates that perceptions to barriers to ART in eligible populations are bound to be things that change over time rather than static issues that can be dealt with as a one off. This calls for constant research in order to address issues that continue to emerge. Among the studies that have been done to identify the barriers, most of them can be defined within the socio-ecologic model as seen in Figure 1 (Golden & Earp, 2012).

2.4 The Social Ecologic Model

The social ecological model recognizes that whereas individuals are responsible for instituting and maintaining lifestyle changes necessary to reduce risk and improve health, individual behavior is influenced by factors at different levels within their social environment (Sallis, Owen, Fisher, & practice, 2015).

The SEM is an approach used in health behavior models for identifying different factors related to health issues. These different levels can be stratified as individual or intrapersonal, interpersonal, community, institutional, and public policy (McLeroy, Bibeau, Steckler, & Glanz, 1988). One study that sought to determine the timing and predictors of ART initiation in South Africa found that age, gender, income, proximity to health facility were all influential in the initiation of therapy (Larsen et al., 2019). Some of the factors that determine the initiation of ART and retention in a lifelong treatment plan post-partum are not really understood and can be best explained within the social ecological model (Stinson & Myer, 2012)

One study on barriers to PMTCT putting the socioeconomic model in context found out that at the individual level, there seemed to be complex set of mechanisms for decision-making and motivation to initiate antenatal care (ANC), accept the HIV test and continue with care at the facility (Onono et al., 2015).

At the family (interpersonal) level majority of the pregnant women, who were diagnosed with HIV for the first time, struggled with the fear of having discordant results from that of their spouses and the consequences that may be associated with it such as violence and separation (Hatcher et al., 2016).

At the community level, women expressed fear of being identified as being HIV positive. Stigma was cited by some women in the sense that a positive diagnosis would warrant one to be put on medication and this would bring shame to them (Turan & Nyblade, 2013). Perceptions by the community also influenced care for instance some women indicated that they collect their drugs from other clinics far away where they even use bus-fare to reach just to avoid the shame of other people knowing they are on HIV medication (Abrams & Myer, 2013). Some women explained that the frequency of visits one makes to a health facility might make the community label them as HIV-positive. As such there was fear and shame of attending the ANC too

frequently which some were able to overcome (Kwapong, Boateng, Agyei-Baffour, & Addy, 2014).

At the institutional level, issues like negative attitudes by health care providers, long distance to health facilities coupled with lack of money for transport and even user fee charges at the health facilities limited the number of visits to the health facilities (Reddy et al., 2016). Other reasons also cited included staff neglect, harassment and complacency particularly to do with health facility delivery. Congestion at health facilities and laxity in offering services was also mentioned as factors hindering access to care (Onono et al., 2015).

The studies however have not unraveled the magnitude of the contribution of the barriers at the various levels of the socioeconomic model. It therefore leaves a void with regard to the stratification that can inform policy for intervention on the barriers that are perceived to be most implicated in prevention of access to care. This may go a long way in addressing the gap in provision of effective comprehensive care of expectant HIV positive women.

2.5 Theoretical Framework; The Socio-Ecologic model of factors influencing care

The socio-ecologic model defines the factors that affect health seeking habits into various levels that are interrelated. At the lowest end of the spectrum are the factors affecting the individual at a personal level and cascade all the way to policy matters.

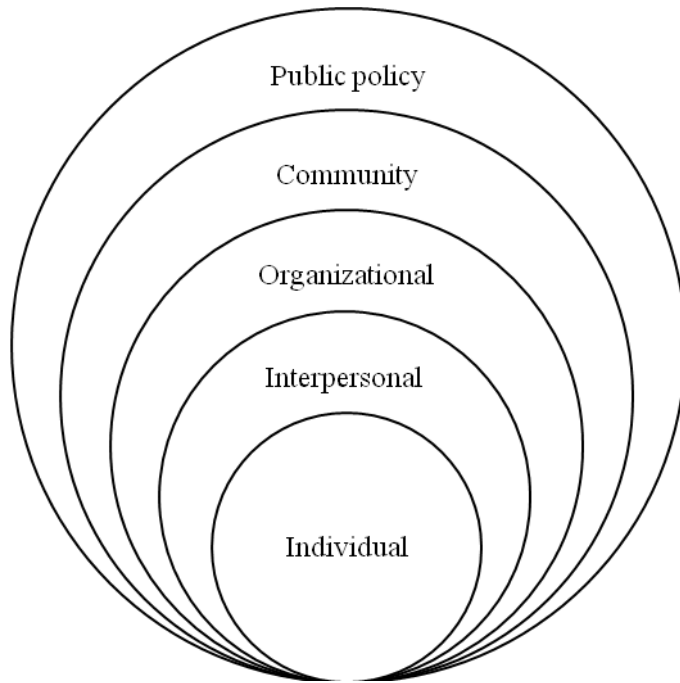


Figure 2.1: The socio-ecologic model

Individual Community

- | | |
|--------------------------------|---------------------------------|
| • Level of knowledge/Education | HIV stigma |
| • Maternal age | Cultural traditions and Beliefs |
| • Religion | Marital status |
| • Ethnicity | |
| • Socio-economic status | |

Organization

- Distance
- Cost
- Shortage of staff
- Staff attitudes
- Poor record keeping
- Late ANC presentation

Public policy

- National protocols

2.6 Conceptual Framework

Uptake of ART (dependent variable) for prevention of vertical transmission of HIV will be dependent upon factors (independent variables) such as distance to the facility, stigma, perceptions regarding the use of the service, awareness of the service and socioeconomic status. In addition, the pursuit of PMTCT services is also influenced by some indirect (intervening factors) such as the role of women in the society, cultural beliefs and community support as shown in Figure 2 below.

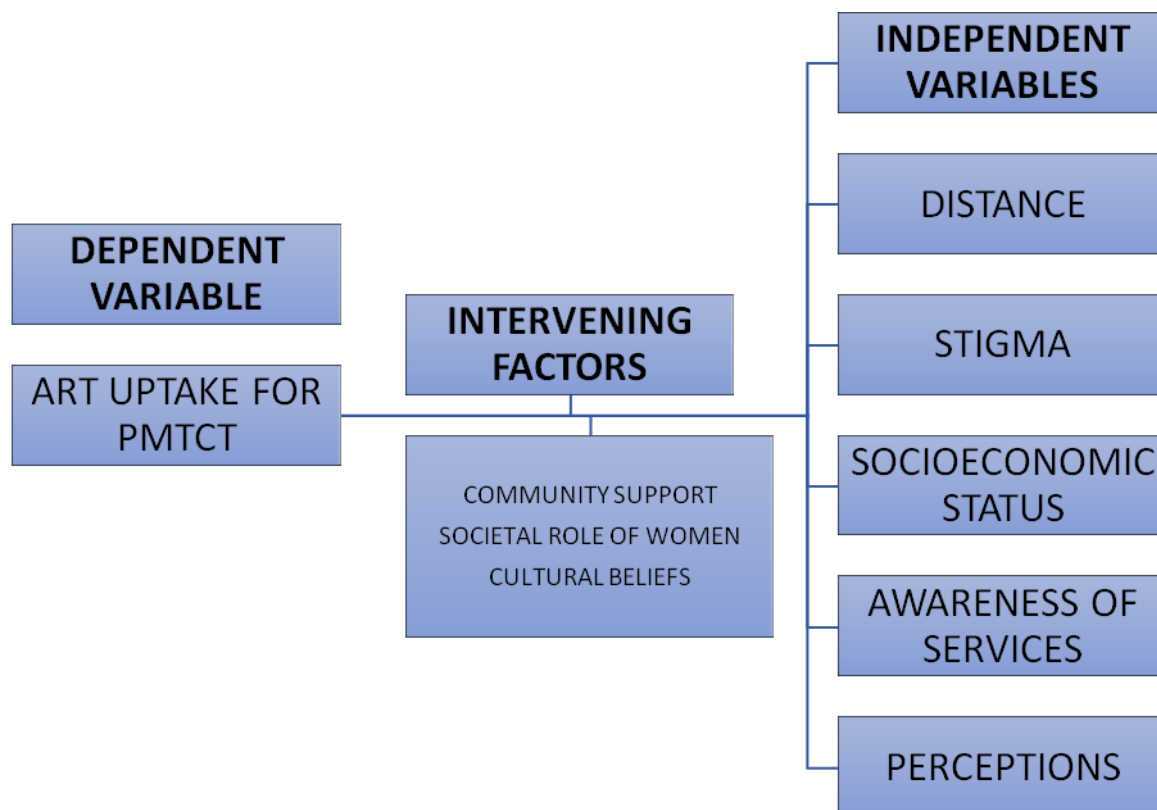


Figure 2.1: Conceptual framework

CHAPTER THREE

METHODOLOGY

3.1 Study Area

The study was carried out in Homa Bay County Referral Hospital located in Homa Bay, Homa Bay County -Kenya. It has a catchment population of 366,620 (Statistics & Calverton, 2010) (KNBS, 2010) and is located in one of the regions in western part of Kenya that has continued to record the highest prevalence rates and incidences of new infections since the emergence of the disease in the mid 80's. It also lies in a region which hosts a significant proportion of organizations mandated with prevention and treatment of HIV.

Homa Bay town is located in the western region of Kenya. It serves as the county headquarters and currently has a population of about 35,816 (Statistics & Calverton, 2010). Homa Bay County has an estimated population of 963,734 (Statistics & Calverton, 2010). Its proximity to the lake makes fishing the main economic activity. Trade and agriculture have also since emerged as major economic activities in the area. Poverty in this region is also rife, a phenomenon attributed partly due to the waning fishing industry and political alienation. The region is mainly inhabited by the Luos and Abasubas although industrialization has seen a recent surge in other ethnic minorities.

The estimated current prevalence rate is 26 % against the national average of 4.8% (Kenya, 2016). This roughly translates to around 140,600 PLWHIV. The number of women and children affected is estimated to be more than 60% of the PLWHIV (N. AIDS & Programme, 2012) (NAS COP, 2012). It is estimated that among those eligible for treatment, those on ART are currently less than 80% (Organization, 2014).

Other than the fact that Homa Bay county faces a huge burden of HIV, it also grapples with another endemic disease, malaria, which is one of the top three causes of mortality and morbidity particularly in children under five years (Organization & Unicef, 2011). This therefore compounds the burden that the county has to deal with in fostering maternal and child health.

3.2 Study Population

The study was carried out at Homa Bay County Referral Hospital. The facility was purposively chosen by the researcher because it is the largest and serves as the main referral hospital of Homa Bay County which has one of the highest national prevalence rates (De Cock, Rutherford,

& Akhwale, 2014). The study population comprised of all HIV positive women attending PMTCT clinic at HBCRH during the antenatal and post-natal period as well as those who were had presented to the facility to deliver and were known or diagnosed with HIV emergingly. The average monthly visits for PMTCT services in HBCRH estimated to be 584 making a total study population of 7,643 (DHIS, 2017).

3.2.1 Inclusion Criteria

Women were included in the study only after meeting the following conditions,

- i. child bearing age group
- ii. Had children less than 6 weeks old
- iii. Aged above 13 years
- iv. Provided informed consent to participate in the study

3.2.2 Exclusion Criteria

Women were excluded from the study if;

- i. Presented with full blown AIDS
- ii. Presented with other complications
- iii. Were admitted to hospital a month before the study or were admitted at the time of study
- iv. Refused to provide informed consent to participate in the study

3.3 Study design

A cross sectional study design was used to conduct the study.

3.4 Sample Size Determination

The procedure for selecting sample size was based on the list of all the women attending antenatal and post-natal clinic compiled and clustered according to their HIV status in relation to access and quality of PMTCT of HIV services. For the respondents, sample size was determined by the formula as used by **Fisher *et al.*, (1998) (Fisher, Laing, Stoeckel, & Townsend, 1998)** and corrected for a finite sample. A confidence level of 95% was assumed.

$$n = z^2 pq/d^2$$

Where: n = the desired sample size.

Z = the standard normal deviate at the required confidence level (risk error 5%... z = 1.96),

p = prevalence of HIV in Homa Bay County = 28% (N. AIDS & Programme, 2014)

d = absolute precision expressed as a fraction of 100 (accuracy level of 5% will be chosen = 0.05)

$$q = 1-p \text{ (that is } 100\% - 28\%) = 72\% \text{ or } 0.72$$

$$n = \frac{(1.96)^2 (0.28 \times 0.72)}{0.05^2} = \text{approximately } \sim 264$$

Correction for a finite sample using the formula for corrections brings the sample to 255

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

Where n = desired sample size

n_0 = Calculated sample size for infinite population of 264

N= The study population size of 7,643

Additional 10% was included to cater for non-responses to make the expected sample size will be = 290.(Patten, 2016)

3.5 Sampling Procedure

A cross sectional design was used and the study conducted at the Homa Bay County Teaching and Referral Hospital. All HIV positive women who presented in labor during the study duration were included. In addition, HIV positive postnatal women within the puerperium attending the PMTC clinic were also included in the study.

The first group of women refers to the expectant women who were known to be HIV positive and had been on follow up as stipulated in the Kenya guidelines that recommend at least four ante-natal visits during pregnancy. This group was then probed on the ART taking status as well as their perceptions regarding the use of ART for PMTCT. They were also probed on what they thought were challenges encountered while following up for HIV clinic and the reasons for opting out of treatment as may have been the case.

The second group diagnosed for the first time was also probed on previous testing during ANC follow up, whether the visits were attended as scheduled and willingness to continue follow up. The subset that revealed that they had known their previous positive statuses and had not been on ART was also queried on the reasons for opting out of treatment.

The third group of women were those who are known to be HIV positive within six weeks post-delivery. They were probed on their previous follow up as well as the challenges they encountered in seeking care.

All women who fit the above criterion and were willing to be studied were considered for inclusion. The women were of the reproductive age and were consented directly. These women were randomly selected by picking every fifth client that was seen during the study period.

All women fitting the criteria but declined to be studied were excluded without undue coercion, canvassing or threats of compromise of care implied. Women who presented in labor ward with obstetric emergencies were excluded and only considered for listing once the emergency was dealt with. Those who were very sick and had an AIDS defining illness were also excluded.

All the health care workers in the PMTCT clinic and the labor ward and MCH clinic were also interviewed to get their insights on the barriers that pregnant HIV women and those that are within the puerperium faced as they sought care.

3.6 Data collection

The respondents were interviewed with a guided questionnaire at the designated points in the PMTCT clinic and the MCH. The health care workers filled in self-administered questionnaires to get their insights at their various points of service provision. Data was therefore collated for mothers and health care workers.

3.6.1 Mothers

Socio-demographic parameters were assessed including the age, number of births, level of education, location with respect to the hospital, income, availability and type of insurance. Their antenatal attendance was also assessed with respect to the number of visits and timing of the first visit. With regard to the HIV, time of diagnosis as well as the use of antiretroviral drugs was equally assessed. With regard to the use of ART, the women were probed on the time of initiation of treatment and the knowledge on the regimen that they were taking. If ART was not started despite a positive diagnosis, reasons for opting was also be explored. The participants' knowledge of PMTCT and awareness of the service was assessed. In addition, the perceived barriers were also highlighted. Some of the potential barriers that were assessed included stock-outs, stigma, partner awareness, denial of diagnosis and lack of community support.

3.6.2 Healthcare Workers

The health care worker's cadre in the healthcare provision was ascertained. Additional training on provision of ART and PTMTCT services was also assessed. All the health care workers involved in the care of the expectant women and those within the puerperium were interviewed. Their perspectives regarding what they thought were the barriers that HIV positive women encountered were outlined.

3.7 Data Collection Tools

Data was collected from the participants using structured questionnaires that were administered under the guidance of the interviewer and those trained by him. The health care workers within the points of care filled their questionnaires individually at their various designated working areas.

3.8 Data Processing, Protection and Analysis

3.8.1 Data Processing and Protection

Data was collected on hard copy questionnaires. No identifiable information of study participants was included on the forms. Once collected, the forms would be checked daily for completeness and any disparities corrected.

Completed questionnaires were transported to the researcher's office and stored in secure lockable cabinets. Keys and access to the forms and data is held by the researcher. Data was then

entered into an excel sheet on a password word protected computer. Electronic data was encrypted and password protected, and is only accessible to the researcher.

3.8.2 Data analysis

Qualitative data on the characteristics of the women was analyzed using descriptive statistics. Chi square test was used to compare the numbers of study participant at different levels of proximity to the facility and the effect of community support on the level of uptake. Chi square test was used to determine the association between community support and uptake of PMTCT services.

3.9 Reliability and Validity

Randomization and correction for a finite sample was used in the selection of the subjects to ensure representativeness. Data collection was strictly done by the researcher and the two assistants thoroughly trained by him beforehand. A trial run of the questionnaire was done by interviewing 30 HIV expectant women at Rachuonyo Sub County Hospital and then retesting them after a duration of six weeks to test the reliability of the data collection instrument. This represented about ten percent of the sample size. Rachuonyo Sub County Hospital was chosen since it serves a similar cosmopolitan setting like Homa Bay County Hospital. It is located in Rachuonyo south sub county, Homa Bay County where the prevalence of HIV is similar. In addition, the questionnaire was subjected to stakeholders in Maternal and Newborn Health to assess for face validity. Cronbach's alpha correlation was used to measure the reliability of data collection instrument.

3.10 Ethical Considerations

3.10.1 Consent

Ethical approval of the study was sought from Maseno University Ethical Review Committee (MUERC). Consent was sought from the study participants prior to conducting the interviews. Since the study aimed at investigating the barriers to uptake of ART during pregnancy and puerperium, the study included "mature minors" and they were therefore consented directly. In Kenya, a person under 18 years of age who is pregnant, married or a parent, is considered a "mature minor" and is able to consent for themselves. Each potential participant was read the consent form that addressed their rights and welfare as a participant in the study and given time to ask questions. If they agreed to participate in the study, the participant would indicate consent

by either a signature or a finger print. Participants would be informed before the start of the interview that if they were uncomfortable, they could stop the interview at any time. All information collected during the study would be kept confidential. Interviewers will be trained in research ethics and the protection of human subjects. Consents were sought after written and verbal information about the purpose and procedures of the study was given in English and the local languages as appropriate. In addition, participants were informed that participation was voluntary and they could decline participation at any stage.

3.10.2 Confidentiality

Codes and not names were used to protect the identity of the study participants. The information obtained was treated as confidential material only accessible to the researcher who safeguarded it in a de-identified electronic database that is password-protected and to which only authorized study personnel (Principal and Co-investigators) have access.

3.10.3 Risk to Participants

No major direct risks were involved other than the inconvenience involved in taking the time to obtain consent to participate in the study. To protect the participants, the interviews were conducted in private at a designated room with the door closed. This happened at the nursing station and clinician's room where typically all patients are seen regardless of HIV status. In addition, interview to expectant woman in labour was deferred until such a time when successful delivery had taken place either naturally or via caesarean section. Only the principal investigator and trained research assistants were involved in the collection of data to ensure the integrity of the participants was enforced.

3.10.4 Benefits to the Participants

There were no direct benefits envisioned to the participants during the time of the study. The ultimate benefit would be to identify potential barriers to access of care and provide solutions that create a more enabling environment. Further, the risk of potential loss of privacy associated with screening and enrollment in this study were no greater than the risks encountered by any other persons seeking routine medical care.

3.10.5 Expected Application of Results

This study identifies determinants and perceptions to the uptake of ART during pregnancy and within six weeks after delivery in the prevention of vertical transmission of HIV. These results

will be used to outline how various factors affect the utility of HIV care for expectant women and those within the puerperium. The findings of this study will be shared with study participants, members of the local community, as well as presented at professional conferences, and in peer-reviewed journals. Publication of the results of this study will be governed by Maseno University research policies. It is envisioned that this will help in addressing the pertinent issues on provision of HIV care to pregnant HIV positive women and align with the goal of elimination of new infections in newborns.

3.10.6 Vulnerable Populations: Pregnant Women, HIV Positive, Unborn Fetuses.

Pregnant women were included in the study because they form the core of the study participants since mother to child transmission of HIV occurs during pregnancy, delivery and post-delivery through breast feeding. Inclusion of 'mature minors' stemmed from the fact that they are faced with similar circumstances as the adults during pregnancy, delivery and within the post-partum period. Participation in the study by pregnant women would not pose any direct threat to the health of the mothers or the unborn babies since no invasive procedures were performed during data collection. The risk of loss of privacy and disclosure of HIV status for the study participants would not differ from that of the general population seeking services since the interviews were conducted in a private clinician's/ nurse's station as is consistent with history taking for all patients seeking care. Neonates were not enrolled in the study.

CHAPTER FOUR

RESULTS

This chapter presents the results of the study. It is divided into sections where in the results of the study participants as well as the health care workers are discussed. The descriptive results will be discussed followed by the inferential statistics of chi square analyses.

4.1 HIV Positive Pregnant Women

4.1.1 Descriptive Data on the Participants

4.1.1.1 Socio-demographic Factors

4.1.1.1.1 Age of the Participants

This study enrolled 290 participants who were HIV positive women who were either pregnant or within six weeks of delivery. The women were within the reproductive age group of which the majority were aged between 30 to 34 years (28.6%). Both the median age and the average age was 30 years. The youngest mother was 16 years while the eldest was 43 years. Teenage mothers constituted 4.1% of all the study participants. Figure 4.1 below shows the age distribution of the participants.

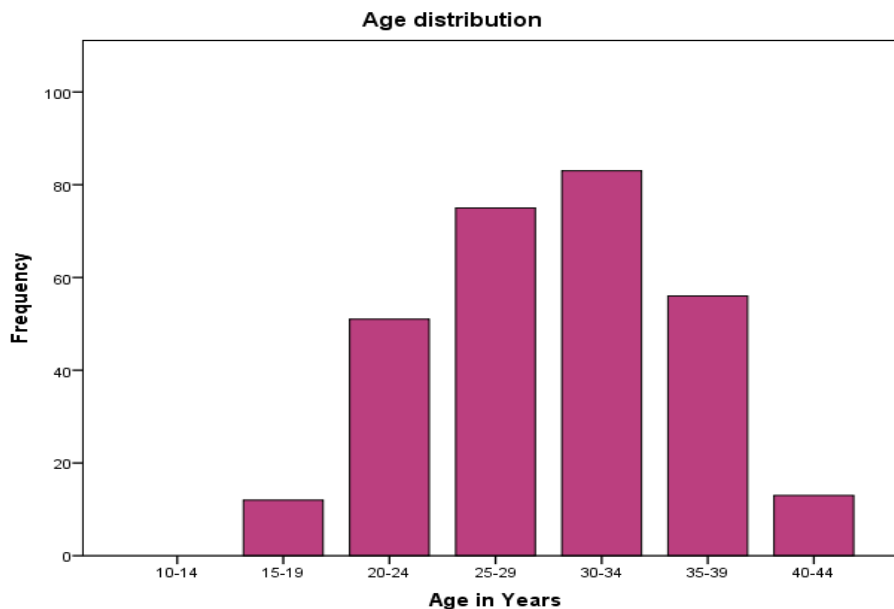


Figure 4.1: Bar chart showing the age distribution of the participants

4.1.1.1.2 Marital Status

Most of the respondents totaling to about 76.2%(N=221) reported that they were married while the rest of them reported that they were either single, widowed, or divorced corresponding to 13.1%, 9.3% and 1.4 % respectively. Table 4.1 and figure 4.2 below shows the marital status of the women respondents.

Table 4.1: Marital status

	Frequency	Percentage
Married	221	76.2
Single	38	13.1
Widowed	27	9.3
Divorced	4	1.4

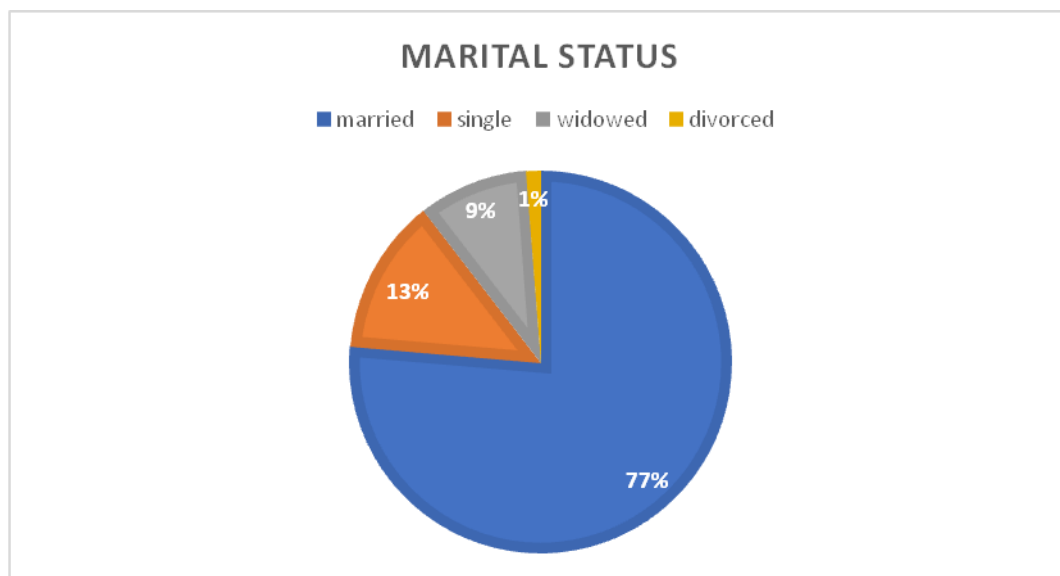


Figure 4.2: Marital status of the respondents

4.1.1.1.3 Proximity to PMTCT services

The residences of the respondents were categorized as either urban or rural on the basis of the proximity to the PMTCT services as shown in table 4.1 and 4.3 below. 60.3 % (N=175) of the respondents reported to be from a rural setting as opposed to 39.7% (115) that reported an urban residence.

Table 4.2: Summary of the socio-demographic factors

	Percentage	Frequency
Marital status		
Single	13.1%	38 (N=290)
Married	76.2%	221 (N=290)
Divorced	1.4%	4 (N=290)
Widowed	9.3%	27 (N=290)
Proximity to PMTCT services		
Rural	60.3%	175 (N=290)
Urban	39.7%	115 (N=290)
Level of education		
Primary	51%	148 (N=290)
Secondary	30%	87 (N=290)
Tertiary college	14.8%	43 (N=290)
University	4.1%	12 (N=290)
Average monthly income		
Less than KShs 10,000	72.1%	209 (N=290)
KShs 10,000-20,000	16.9%	49 (N=290)
More than KShs 20,000	11.0%	32 (N=290)
Occupation		
Formal employment	13.8%	40 (N=290)
Small scale business	51.0%	148 (N=290)
Housewife	20.7%	60 (N=290)
Others	14.5%	42 (N=290)

Table 4.3: Summary of socio-demographic factors in clusters

	Cluster	Frequency
Age	<30	138 (47.6%)
	>=30	152 (52.4%)
Residence	Urban	175 (60.3%)
	Rural	115 (39.7%)
Marital status	Married	218 (75.2%)
	Not Married	72 (24.8%)
Occupation	Formal	40 (13.8%)
	Informal	250 (86.2%)
Education level	Primary level	148 (51.0%)
	Higher level	142 (49.0%)
Income	<10,000 KShs	209 (72.1%)
	> 10,000 KShs	81 (27.9%)

4.1.1.1.4 Level of education

Majority of the respondents had primary and secondary education as the highest level of education corresponding to 81% of the respondents. Only a small subset corresponding to 18.9% had higher than secondary education as shown in the clustered table below. Table 4.3 and figure 4.3 illustrates the education status of the study participants.

Table 4.4: Level of education

Level of education		
Primary	51%	148 (N=290)
Secondary	30%	87 (N=290)
Tertiary college	14.8%	43 (N=290)
University	4.1%	12 (N=290)

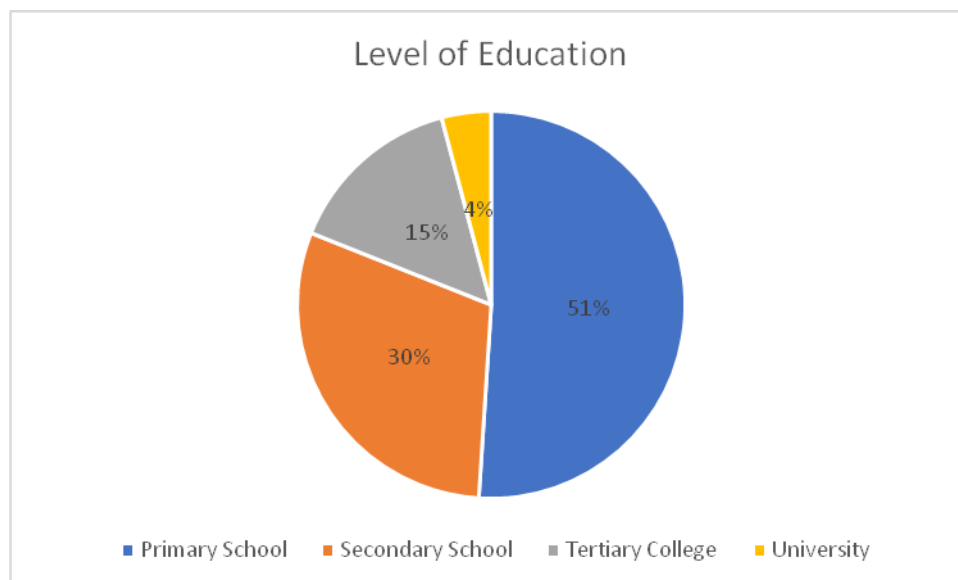


Figure 4.3: Level of education

4.1.1.1.5 Income bracket

Most respondents at 72.1% reported an average monthly income of less than KShs10,000 with only 11.1 % reporting monthly income of above KShs 20,000. The total number of participants with an income level higher than KShs 10,000 was 27.9% as shown in table 4.5 and figure 4.4 below.

Table 1.5: Average monthly income

Average monthly income		
Less than KShs 10,000	72.1%	209 (N=290)
KShs 10,000-20,000	16.9%	49 (N=290)
More than KShs 20,000	11.0%	32 (N=290)

4.1.1.1.6 Occupation

Most of the participants reported that they engaged in small scale business as their primary economic activity. Only a small proportion (13.8%) reported formal employment as shown in table 4.2 and table 4.3 above. The other 86.2% corresponding to 208 respondents, which formed the bulk of the number were either informally employed or had no job at all.

4.1.1.1.7 Number of Living Children

There was some disparity among the participants in terms of the number of times they had given birth and the number of living children that someone had had. 65 of the 290 women, which translates to around 22% of participants had a discrepancy in terms of the number of times they had given birth versus the number of living children that they had had.

4.1.1.2 Perceptions of HIV Positive Women

The women were probed on various aspects regarding their views on the use of PMTCT for prevention of infection to their children. This entailed getting their views on whether they thought PMTCT was a useful intervention and some of the perceived barriers to the access of this care. The results of this will be discussed under the following subheadings.

4.1.1.2.1 Perceptions on barriers to PMTCT

The number of responses for this question was 465, which was more than the number of respondents (290). This shows that respondents cited more than one type of perceived barrier, that is, the question was a multiple response type. The results indicated that the most significant barrier was stigma (45% of the 465 responses), followed by lack of spousal support (23% of the responses), lack of knowledge (15% of the responses), and distance (12%). Only 5% of the responses felt that health care workers' attitude was important. Findings are as shown in table 6 and figure 4.4 below. The percentage of total of cases (167.3%) was roughly almost twice that of responses (100%), suggesting that most respondents cited two perceived barriers (167.3/100).

Table 4.6: Perceived barriers to PMTCT

Perceived barriers	Responses	
	N	Percent
Stigma	207	44.4%
Distance	57	12.3%
Health care workers' attitude	22	4.7%
Lack of spouse support	109	23.4%
Lack of knowledge	70	15.1%
Total	465	100.0%

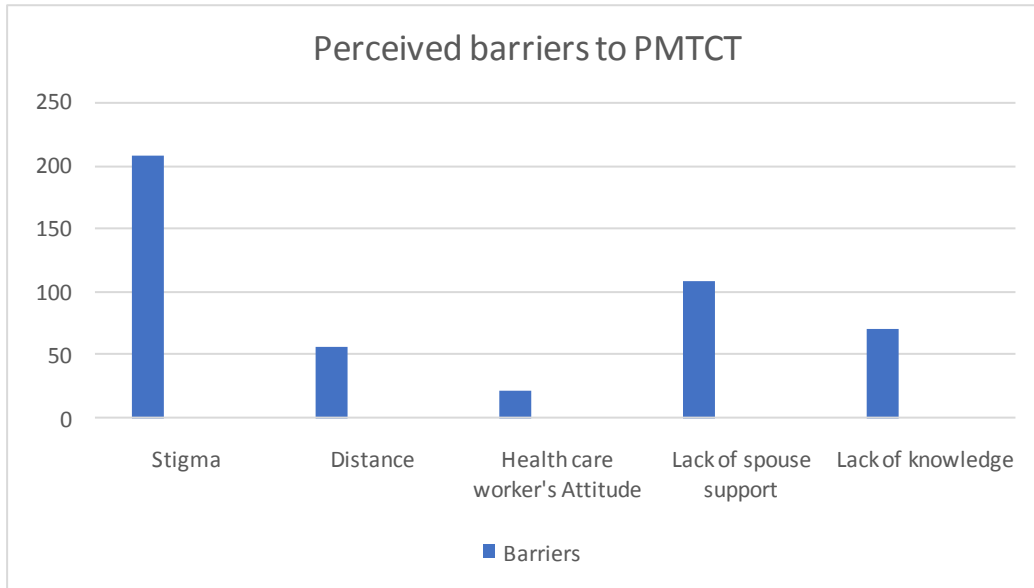


Figure 4.4: Perceived barriers to PMTCT

4.1.1.2.2 Perception on knowledge on Prevention of mother to child transmission (PMTCT)

When probed on the knowledge regarding the transmission of the virus in pregnancy, delivery as well during of breastfeeding, the respondents gave variable opinions on the awareness of the various modes of transmission. About 251 of the 290 which translates to 86.6% indicated that they knew about transmission during pregnancy. More than 90% of the respondents indicated that they were aware about the possibility of virus transmission during the process of labor and breastfeeding as shown in table 4.7 below.

Of note is that when asked on other methods of prevention of transmission of the virus other than use of ART, 67.2 % of the respondents cited safe delivery as a preventive strategy. Only 22.8% of them thought that not breastfeeding could confer additional prevention while the practice of safe sex was only cited by 18.6 % of the respondents as shown in table 4.7.

Table 4.7: Perception on knowledge on PMTCT

Knowledge on PMTCT	Yes
Transmission during Pregnancy	251 (86.6%)
Transmission during labor	280 (94.5%)
Transmission during breastfeeding	275 (94.8%)
Awareness of PMCTC	282 (97.2%)
Other preventive measures	Yes
Safe Delivery	195 (67.2%)
Not Breastfeeding	86 (22.8%)
Safe sex	54 (18.6%)

4.1.1.2.3 Perceptions on Improvement of PMTCT Services

A small proportion of the respondents translating to about 26.9 % thought that there were certain aspects of PMTCT that could be improved in the provision of these services. About 204 of the respondents corresponding to 73.1% did not think that there were any elements that could be improved in offering the already existent PMTCT services as depicted in table 4.8 below.

Table 4.8: Perception on improvement of PMTCT services

	Frequency	percent
NO	204	73.1
YES	75	26.9
TOTAL	279	100

The respondents who thought that there were elements to be improved in the provision of PMTCT services during the spectrum of pregnancy through to delivery and puerperium gave varied responses. A thematic analysis of the answers was done and the key areas that needed improvement were tabulated as shown in table 4.9 and figure 4.5 below. Most of the things that they thought needed improvement centered around strengthening of adherence and punctuality by health care workers at the points of service provision.

Table 4.9: Elements to be improved in PMTCT

Elements to be improved	Frequency	Percent
Adherence support	15	35.71
Time keeping	14	33.33
Counselling	4	9.52
Health education	3	7.14
Partner involvement	3	7.14
Safe delivery	2	4.76
Small-sized tablets	3	7.14
ARV injection	1	2.38
Balanced diet	1	2.38
Breastfeeding	1	2.38
Changing HCW attitudes	1	2.38
Community mobilization	1	2.38
Continuous medical education	1	2.38
Facility delivery	1	2.38
Government support	1	2.38
Total	42	100.00

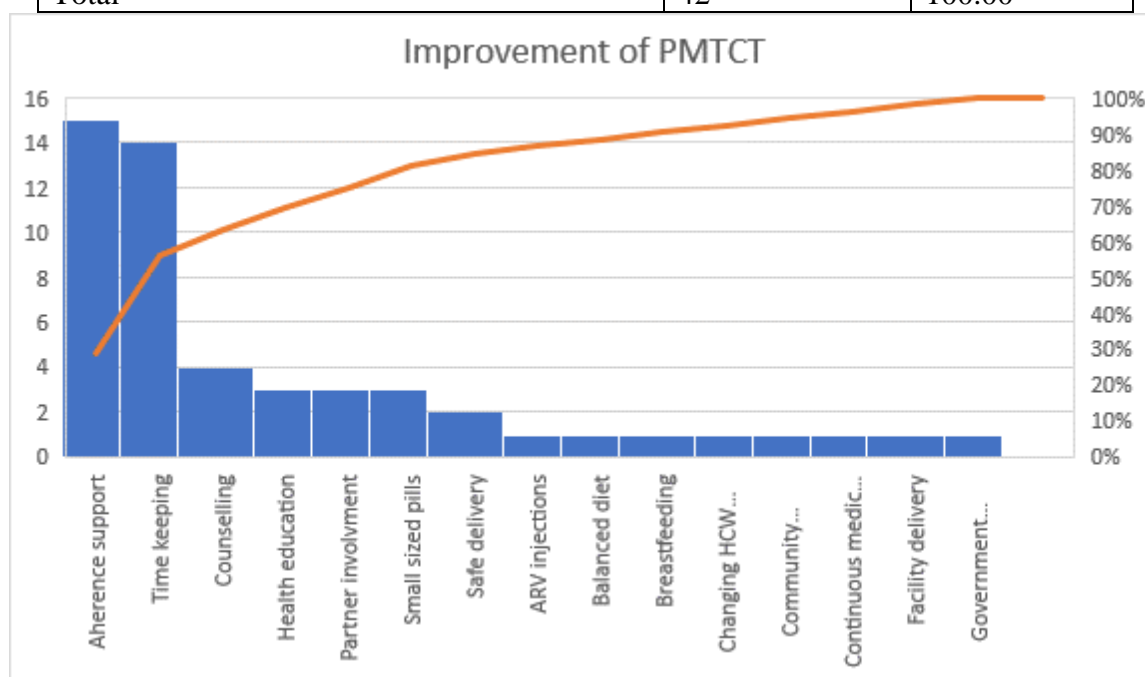


Figure 4.5: Elements to be improved in PMTCT

4.1.1.3 Timing of ART for PMTCT

Most of the women who were interviewed and were on ART reported to have started it before pregnancy. This translated to about 55.1 % of the respondents as shown in table 4.10 below. Out of this, a subset of them equivalent to about 7.2% were women who were themselves survivors

of vertically transmitted infection and had now reached child bearing age. 44.8 % of the respondents reported to have started ART during the current pregnancy that they were carrying at the time of the study. The table below shows the percentages and the corresponding numerical values.

Table 4.10: Time of ART initiation

Time of ART initiation		
Before pregnancy	47.9%	139 (N=290)
During pregnancy	44.8%	130 (N=290)
Since childhood(vertical)	7.2%	21 N=290)

4.1.1.4 Ante natal visit attendance for PMTCT

4.1.1.4.1 Gestation at the first ANC visit

Table 4.11 below represents descriptive response of respondents on the aspect of gestation at the first ANC visit.

Table 4.11: Gestation at first ANC

	Frequency	Percent
1-3 months	134	46.2
More than 3 months	156	53.8
TOTAL	290	100

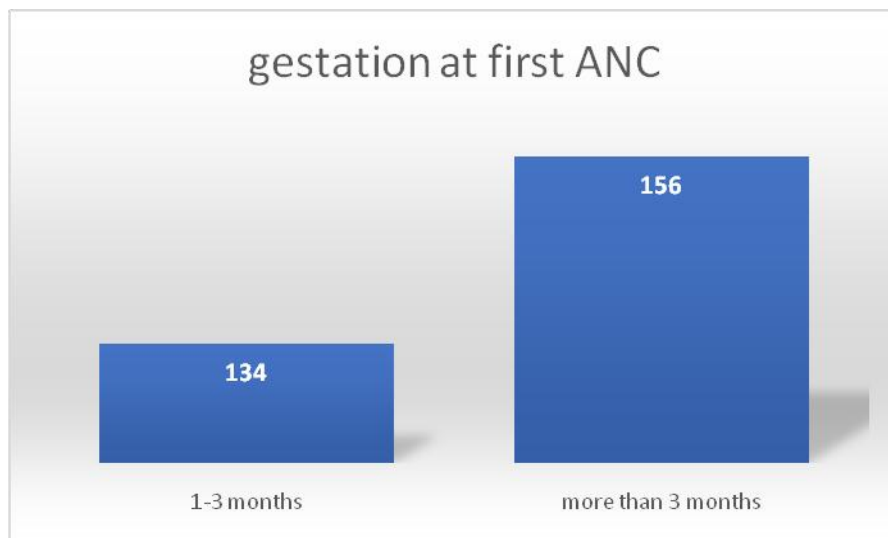


Figure 4.6: Gestation at first ANC

From table 4.11 and figure 4.6 above, it was evident that most respondents had their first antenatal visit after a period of more than 3 months. This corresponds to 156 women which translated to 53.8% of the total sample population. The total number of respondents who had their first antenatal visit within the gestation visit of 1-3 months totaled 134 which translated to 42.6% of the study sample size.

4.1.1.4.2 Number of ANC visit for Prevention of Mother to Child Transmission (PMTCT)

The participants who were the HIV positive women were also interviewed on the number of ANC visit they had for prevention of mother to child transmission. Most of the respondents about 268 which translated to 92.4 % of the respondents said that they had an ANC visit of at least twice while less than a quarter of the respondents that was about 22 (7.6%) had an ANC visit of one time as in table 4.12 and figure 4.7 below.

Table 4.12: Number of ANC visits in current/last pregnancy

Number of visits	Frequency	Percent
One	22	7.6
Two or more	268	92.4
TOTAL	290	100

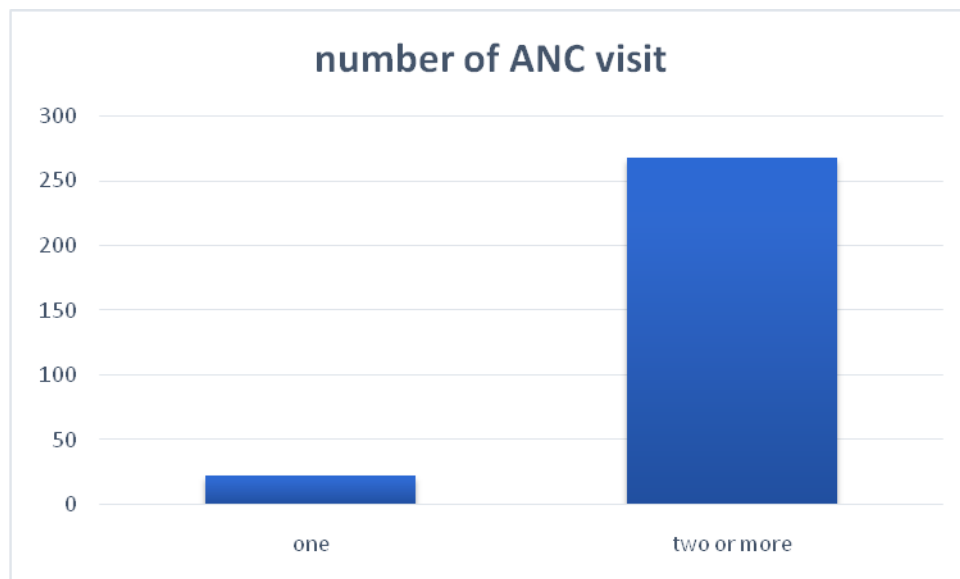


Figure 4.7: Number of ANC visits made

4.1.1.5 Place of delivery

On analysis of the participants' response on the place of delivery, the findings show that most respondents (249 which translates to 87.4%) had their delivery at the Health Institution while about 36 (12.6%) had their delivery at home as in table 4.13 and figure 4.8 below. This implies that despite most respondents' awareness and utility of health services at some stage of gestation during the pregnancy, some still opted to deliver at home.

Table 4.13: Place of delivery

	Frequency	Percent
Home	36	12.6
Health Institution	249	87.4
TOTAL	285	100

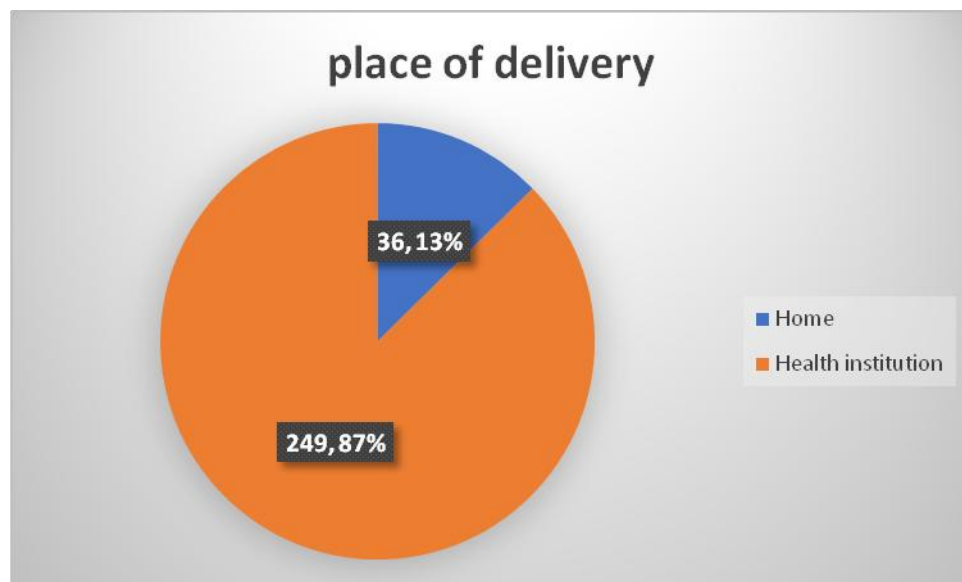


Figure 4.8: Place of delivery

4.1.1.6 Awareness of CD4/VL Levels

Most respondents about 143 that translated to 78.1% of the study sample could not recall the figure while a significant number that is 40 (21.9%) could quantify the figure as in figure 4.9 and table 4.14 below

Table 4.14: Awareness of CD4/VL levels

Status	Frequency	Percentage
Cannot Recall figure	143	78.1
Can Quantify figure	40	21.9
TOTAL	183	100

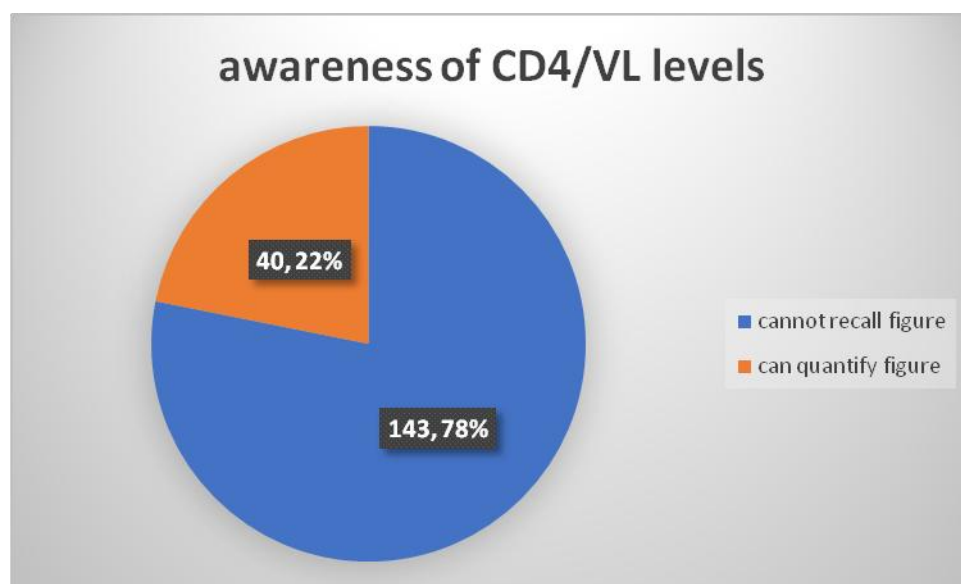


Figure 4.9: Awareness of actual CD4/VL levels

4.1.1.6.1 Knowledge of viral loads/CD4 were done and recollection of the actual values

Upon enquiry only 39 % (n=113) of the respondents admitted to have either the viral loads or CD4 counts done during the duration of the pregnancy with 61 % (n=177) reporting that neither the CD4 nor the viral loads were done during the pregnancy. Among the respondents who had either the viral loads or the CD4 counts done, a significant majority (78.1 %; n=143) could not

recall the actual values of the either the CD4 or the viral loads that were done during the pregnancy.

4.1.2 Inferential tests

4.1.2.1 Gestation at the first ANC visit and socio-demographic factors

For purposes of getting insights into the relationship between some of the sociodemographic factors with the gestation at the first attendance of ANC for PMTCT, some of the sociodemographic factors were analyzed against the time of the first ANC visit and tabulated as shown in table 15 below. The level of income stuck out as one of the factors that influenced the timing of initiation of ANC for PMTCT. It showed that the level of income was positively associated with the timing of initiation of ante-natal attendance ($X^2=5.065$, p value=0.024) as shown in table 4.15 below. Though not statistically significant, Primary level of education was also associated with the timing of initiation of ANC for PMTCT ($X^2=3.029$, $p=0.089$)

Table 4.15: Demographics vs Gestation at first ANC

		Gestation at first ANC Visit		Total	X ² (1)Value	P
		<3 Months	>3 Months			
Age	<30 years	66 / 22.8%	72 / 24.8%	138 / 47.6%	.278	.598
	>30 years	68 / 23.4%	84 / 29.0%	152 / 52.4%		
Residency	Urban	79 / 27.2%	96 / 33.1%	175 / 60.3%	.201	.654
	Rural	55 / 19.0%	60 / 20.7%	115 / 39.7%		
Marital status	Married	95 / 32.8%	123 / 42.4%	218 / 75.2%	2.441	.118
	Not Married	39 / 13.4%	33 / 11.4%	72 / 24.8%		
Employment	Formal Employment	23 / 7.9%	17 / 5.9%	40 / 13.8%	2.381	.123
	Informal Employment	111 / 38.3%	139 / 47.9%	250 / 86.2%		
Income	<10,000 ksh.	88 / 30.3%	121 / 41.7%	209 / 72.1%	5.065	.024
	>10,000 ksh.	46 / 15.9%	35 / 12.1%	81 / 27.9%		
Education Level	Primary level	61 / 21.0%	87 / 30.0%	148 / 51.0%	3.029	.082
	Higher level	73 / 25.2%	69 / 23.8%	142 / 49.0%		

Crosstab

			Gestation at first ANC visit		Total
			<3 Months	>3 Months	
Income of participants	<10,000	Count	88	121	209
		% of Total	30.3%	41.7%	72.1%
	>10,000	Count	46	35	81
		% of Total	15.9%	12.1%	27.9%
Total		Count	134	156	290
		% of Total	46.2%	53.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.065 ^a	1	.024		
Continuity Correction ^b	4.491	1	.034		
Likelihood Ratio	5.060	1	.024		
Fisher's Exact Test				.026	.017
Linear-by-Linear Association	5.047	1	.025		
N of Valid Cases	290				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 37.43.

b. Computed only for a 2x2 table

4.1.2.1.1 Number of ANC visits made for PMTCT and gestation at first ANC visit

Upon evaluation of the timing of the first visit with regard to the total number of visits made during a pregnancy, there was no statistically significant association found $\chi^2(1) = 1.590$, $p=0.207$

The $\chi^2(1) = 1.590$, $p=0.207$ was not significant, suggesting no relationship between the variables. Thus, starting early does not necessarily translate to more visits during the pregnancy.

4.1.2.2 Place of delivery and ANC

A significant proportion (12.4%) of women still delivered at home despite having attended antenatal clinic at least once. This translates to about 36 of the respondents. The percentage of institutional deliveries among the respondents was 87.4 % equivalent to 249 respondents as shown in table 4.16.

An analysis of the gestation at the various times of initiation of ANC for PMTCT was also done as previously depicted in the table 11 above.

A cross tabulation was then done to assess determine the relationship between time of initiation of ANC for PMTCT and the likelihood of eventual facility delivery as shown in table 16 below. The chi square test was then done was $\chi^2(1) = 7.53, p=0.006$ was significant. This shows that among mothers who deliver at home, 75% of them start ANC after three months compared to only 25% of them who start in less than three months. This asserts that mothers who start early tend to deliver in health facilities. The following two tables, 4.16 and 4.17 show the cross tabulations for the two variables and the chi-square cross tabulation computation.

Table 4.16: Place of delivery and the gestation at the first ANC

Place of delivery	Gestation at first ANC		TOTAL
	1-3 months	More than three months	
Home	9 25.0 %	27 75 %	36 100 %
Health Institution	123 49.4 %	126 50.6 %	249 100 %
TOTAL	132 46.3 %	153 57.3 %	285 100 %

Table 4.17: Chi square test of analysis of gestation of ANC and place of delivery

	Value	Df	Asymptotic Significance (2 sided)	Exact Sig. (2 sided)	Exact Sig. (1 sided)
Pearson Chi square	7.530 ^a	1	.006		
Continuity Correction	6.580	1	.010		
Likelihood ratio	7.906	1	.005		
Fisher's Exact test				.007	.004
Linear-by -Linear Association	7.503	1	.006		
N of Valid cases	258				

4.1.2.3 Socio-demographic factors and place of delivery

When the socio-demographic factors were put into consideration and analyzed against the eventual place of delivery, it was apparent that informal employment, primary level of education as well as income were key influencers in the choice of the place of delivery. Being in informal employment was positively associated with the choice of the place of delivery ($\chi^2=6.56$, $p=0.011$). Having an income of less KShs 10,000 was also associated with the choice of the place to deliver among the participants ($\chi^2=5.869$, $p=0.015$). Primary level of education was also positively associated the choice of either institutional or home delivery ($\chi^2=13.853$, $p=0.000$) as shown in table 4.18 below.

Table 4.18: Demographics versus place of delivery

		Place of Delivery			X ² (1)Value	P
		Home	Health Institution	Total		
Age	<30 years	19 / 6.7%	114 / 40.0%	133 / 46.7%	.618	.432
	>30 years	17 / 6.0%	135 / 47.4%	152 / 53.3%		
Residency	Urban	21 / 7.4%	151 / 53.0%	172 / 60.4%	.070	.791
	Rural	15 / 5.3%	98 / 34.4%	113 / 39.6%		
Marital status	Married	28 / 9.8%	189 / 66.3%	217 / 76.1%	.061	.805
	Not Married	8 / 2.8%	60 / 21.1%	68 / 23.9%		
Occupation	Formal Employment	0 / 0%	39 / 13.7%	39 / 13.7%	6.532	0.011
	Informal Employment	36 / 12.6%	210 / 73.7%	246 / 86.3%		
Income	<10,000 ksh.	32 / 11.2%	173 / 60.7%	205 / 71.9%	5.869	0.015
	>10,000 ksh.	4 / 1.4%	76 / 26.7%	80 / 28.1%		
Education Level	Primary level	29 / 10.2%	118 / 41.4%	147 / 51%	13.853	0.000
	Higher level	7 / 2.5%	131 / 46.6%	138 / 48.4%		

4.2 Health care workers

4.2.1 Sociodemographic characteristics

A total of 20 health care workers who are responsible for the provision of PMTCT services were interviewed to get their insights during the study. 9 of them were male and 11 were female. Highest level of education attained was Bachelor's degree for three of them while the remaining 17 were diploma degree holders.

In term of professional qualification, 3 were pharmacists, 8 were clinical officers, 2 were bachelor's degree nurses and two were diploma degree nurses.

Upon consideration of the number of years worked in provision of PMTCT services, majority (55%, n=11) had worked for less than 5 years while only 9 of them reported to have worked for

more than 5 years in the provision of PMTCT services. Table 4.19 below provides a summary of the sociodemographic characteristics of the health care workers.

Table 4.19: Sociodemographic characteristics

Sex	Male	9 (45.0%)
	Female	11 (55.0%)
Education	Diploma	17 (85.0%)
	Bachelor	3 (15.0%)
Profession	Reg Nurse	7 (35.0%)
	Bach. Nurse	2 (10.0%)
	Clinical Officer	8 (40.0%)
	Pharmacist	3 (15.0%)
Years of experience	< 5 years	11 (55.0%)
	> 5 years	9 (45.0%)

4.2.2 Challenges encountered

A majority of the health care workers reported lack of lab support as the single most important challenge they encountered in the line of PMTCT service provision (85.5%, n=17). The second most important set back mentioned was stock out of drugs (75%, n=15) while client's refusal to take medication for the prevention of infection transmission was the least encountered problem (25%, n=5). Summary is as depicted in table 4.20.

Table 4.20: Challenges encountered by health care workers

Stock outs	15 (75.0%)
Lack of lab	17 (85.0%)
Clients Refusing	5 (25.0%)

4.2.3 Concerns expressed by the women

As part of the study, the health care workers were asked to state some of the concerns that the women usually highlight to them during the process of seeking PMTCT services for the

prevention of mother to child transmission. A majority of them reported health care workers attitude and lack of access to services as the main challenges that the women frequently report. Lack of spouse support, stigma, and poverty also stood out as issues that the women have to contend with during health care seeking for PMTCT. A summary of the responses is shown in table 4.21 below.

Table 4.21: Concerns expressed by women

Lack of support	6
Poverty	5
Access	17
Stigma	8
Attitude	15

4.2.4 Women's trust

In an attempt to assess the level of the confidence that the women bestowed in their services, the health care workers were asked whether they thought the women who sought PMTCT services trusted their services. A large majority (n=17) reported that the women who were on follow up did not trust their competence in discharging their duties as shown in the table 4.22 below.

Table 4.22: Women's trust in the health care workers' competence

TRUST	FREQUENCY	PERCENTAGE
YES	17	85.0
NO	3	15.0
TOTAL	20	100.0

4.3 Preliminary analysis of reliability test

The result of reliability test Cronbach's Alpha as shown in table 4.23 below shows an alpha of more than 0.6. This indicates that there is a high level of internal consistency for every set of variables. Thirty-(30) respondents were chosen for the test retest survey. The response offered by the 30 respondents (pregnant women) was used to carry out the reliability test of the variables. The reliability of the variable as tested by Cronbach Alpha and almost all variables had an alpha

greater than 0.6, which implies the minimal acceptable level of intra-class coefficients of the test retest variables. Variables 2, 10, 13, 14, 18 and 22 had an alpha value more than 0.9 indicating an excellent agreement between the two raters for test retest. This is not perfect but is very much high indicating that there is no a lot of variability between the two raters hence they seem to relative to one another. All the variables except variable 19 had a significant p value of less than 0.05 meaning they had a significant internal variation.

Table 4.23: Preliminary test of reliability

Variables	Cronbach's Alpha	Significance
1. Marital status	0.835	0.000
2. Occupation	0.932	0.000
3. Highest level of education attained	0.801	0.000
4. Number of deliveries ever had	0.712	0.001
5. Number of living children	0.649	0.003
6. Place of delivery of your last child?	0.780	0.000
7. If health institution, what level of care?	0.652	0.005
8. How many months' pregnant were you at the time of your first ANC visit		
9. Family income per month	0.763	0.000
10. Awareness and Perception on MTCT/PMTCT	0.769	0.000
11. Where did you get the information	0.932	0.000
12. When did you hear about the information on prevention of mother to child transmission	0.794	0.000
13. Do you think a woman with HIV can infect their un-born babies with HIV during pregnancy	0.875	0.000
14. Do you think a woman with HIV can infect their babies with HIV during labor and delivery	0.915	0.000
15. Do you think a woman with HIV can infect their babies with HIV through breastfeeding		0.000
16. Do you think there are medicines which infected mothers can take for preventing infection to their unborn children	0.982	0.000
17. Are you currently on any Medication for preventing infection to your baby	0.794	0.000
18. If on Anti-retroviral drugs, when was it started	0.794	
19. Would you know the specific combination of antiretroviral drugs that you are taking	0.659	0.003
20. What was the CD4 and/or viral load	0.930	0.000
21. What in your opinion is the most important factor that can prevent you from taking antiretroviral drugs for PMTCT	0.000	0.500
22. Have you ever used ARVs for prevention of HIV for previous pregnancies	0.788	0.000
23. Are you willing to use ARVs for prevention of HIV for future pregnancies	0.740	0.000
	0.930	0.004
	0.634	

CHAPTER FIVE

DISCUSSION

5.1 Chapter Overview

This chapter presents discussion of the results and findings from chapter 4 above. It also expounds more on how the findings in chapter 4 are in support to the literature presented in chapter two. The first subsection delves into the sociodemographic factors in the context of utilization of PMTCT services. The ensuing subsections have subheadings as envisaged in the objectives.

5.2 Discussion of findings on HIV positive mothers

5.2.1 Description of HIV positive pregnant mothers

The study enrolled 290 participants of which the majority that is 28.6% were aged between 30-34 years. Median and average age was 30. Youngest and eldest mothers captured were 16 years and 43 years respectively. Teenage mothers constituted 4.1% of the study sample. Most of the respondents totaling to about 76.2% (N=221) reported that they were married while the rest of them reported that they were either single, widowed, or divorced corresponding to 13.1%, 9.3% and 1.4 % respectively.

The residences of the respondents were categorized as either urban or rural based on the proximity to the PMTCT services. 60.3 % (N=175) of the respondents reported to be from a rural setting as opposed to 39.7% (115) that reported an urban residence. Majority of the respondents had primary and secondary education as the highest level of education corresponding to 81% of the respondents. Only a small subset corresponding to 18.9% had higher than secondary education. Most respondents at 72.1% reported an average monthly income of less than KShs10,000 with only 11.1 % reporting monthly income of above KShs 20,000. The total number of participants with an income level higher than KShs 10,000 was 27.9%. Most of the participants reported that they engaged in small scale business as their primary economic activity. Only a small proportion (13.8%) reported formal employment as shown in table one and two. The other 86.2%, which formed the bulk of the number were either informally employed or had no job at all. There was a huge disparity among the participants in terms of the number of times they had given birth and the number of living children that someone had. Sixty-five (65) of

the 290 women, which translated to around 22% of participants, had a discrepancy in terms of the number of times they had given birth versus the number of living children that they had had.

5.2.1.1 Age

Teenage pregnancy among the respondents was 4 %. This subset of the participants had to contend with the double concern of teenage pregnancy and being HIV positive. This was lower than Homa Bay County's rate of teenage pregnancy which stands at 33% and is the second highest in the country (Demographic & Macro, 2014; Undie, Birungi, Odwe, & Obare, 2015). In one cross sectional study by Ronen and others on the gaps in adolescent engagement in ANC and PMTCT, the percentage of adolescent mothers was 12.8% (Ronen et al., 2017). The adolescents were also less likely than the adults to attend ANC and PMTCT clinics. In addition, they were also less likely than the adult counterparts to be on ART prior to pregnancy and therefore recommended targeted interventions for this vulnerable group (Ronen et al., 2017). In another cross sectional study on comparative analysis of teenagers and older patients by Amoran and others on the uptake of PMTCT concluded that teenage pregnant women who were more vulnerable to HIV/AIDS infection did not utilize PMTCT services as much as the older pregnant women and therefore deserved special consideration in the scale up of PMTCT services (Amoran, Salami, & Oluwole, 2012)

5.2.1.2 Level of education

The number of respondents who had secondary education or higher was approximately 18.9%. A similar cross-sectional study done in Ethiopia showed that 35.7 % of respondents could not read and write and only about 8.4% had high school education and above (Akal & Afework, 2018). In the study by Akal and others on the status of PMTCT showed that there is a statistical association between the education and income level of the women who attended ANC and those who took up PMTCT services, the relationship being inversely proportional (Akal & Afework, 2018). Another survey on integration of ANC and PMTCT services also highlighted lack of education as a contributing factor to the uptake of PMTCT services (Sibanda, Bernays, Weller, Hakim, & Cowan, 2018). A study on ANC and uptake of HIV testing among pregnant women in Sub Saharan Africa indicated that HIV testing was lower among the least educated and the poorest in the Society (Gunn et al., 2016). One facility based cross sectional study to ascertain factors associated with barriers to PMTCT in a private hospital revealed that there was a

statistically significant association between barriers and the level of education and parity (Kate et al., 2019)

5.2.1.3 Income

The majority of the participants corresponding to 72.1% had an average monthly income of less than KShs 10,000. Findings by Wambugu and others on income inequality and poverty in Kenya showed that most households in Kenya had an average income of less than fifteen thousand shillings and this therefore relegated the resources set aside for seeking health care to a bare minimum (Wambugu, Bigsten, Mwabu, & Manda, 2016). In another study, it was found that poverty and extreme poverty as defined by the world bank metrics was a significant contributor to the progression of HIV disease (Gitahi-Kamau et al., 2015). A similar cross-sectional study done in Ethiopia showed that there was positive association between the monthly income and the likelihood of uptake of PMTCT (Akal & Afework, 2018)

5.2.1.4 Occupation

Only 13.8% of the respondents reported to have formal employment. Some studies on facilitators of PMTCT uptake have found formal employment as a facilitator to the uptake of PMTCT services. In one cross sectional study to evaluate community based uptake of PMTCT in Nyanza region on Kenya, it was found that uptake was associated with employment and higher socioeconomic status(Kohler et al., 2014). A study by Thomson and others on navigation of the risks to PMTCT in Kibera, Kenya indicated that economic empowerment was a big determinant of the uptake and retention in a PMTCT program(Thomson et al., 2018).

5.2.1.5 Number of living children

There was a perceived trend of a proportion of the study participants having less children than the number of times they had delivered. Although this could not be directly attributed to perinatal losses due to lack of viral suppression, it may connote a high infant mortality rate and by extension a surrogate of viral suppression in the mothers(Kuhn et al., 2005). Studies have shown that most children who acquire HIV from their mothers and have no interventions do not live to one year(Evans, Jones, & Prendergast, 2016). In addition just by virtue of HIV exposure status, most infants born to HIV positive mother are at increased risk of mortality and morbidity than their HIV unexposed counterparts regardless of their HIV infection status (Brennan et al., 2016). Bender et al reported that HIV infection is associated with changes in the microbiome of HIV

exposed, uninfected infants. The disruption of the HIV exposed infants' microbiome is what has been postulated to escalate their risk of mortality and morbidity even when infection has not occurred (Bender et al., 2016). One study by Kate and others also showed that there was a statistically significant association between experience of barriers to PMTCT and parity (Kate et al., 2019).

5.2.2 Perception of pregnant women and those within the puerperium on use of ART for PMTCT

Pregnant women were probed on various aspects regarding their views on the use of PMTCT for prevention of infection to their children. This entailed getting their views on whether they thought PMTCT was a viable intervention and some of the perceived barriers to the access of this care. The results of this was discussed under the following subheadings.

5.2.2.1 Perceptions on barriers to PMTCT

It was observed from table 2.1 and bar chart figure 2.1 in chapter 4 above that, the most significant barrier was stigma (45% of the 465 responses), followed by lack of spousal support (23% of the responses), lack of knowledge (15% of the responses), and distance (12%). Only 5% of the responders felt that health care workers' attitude was important. These findings were much in alignment with literature as captured in the review. A study on barriers to PMTCT putting the socioeconomic model in context found out that at the individual level, there seemed to be complex set of mechanisms for decision-making and motivation to initiate antenatal care (ANC), accept the HIV test and continue with care at the facility (Onono et al., 2015). At the family (interpersonal) level majority of the pregnant women, who were diagnosed with HIV for the first time, struggled with the fear of having discordant results from that of their spouses and the consequences that may be associated with it such as violence and separation (Hatcher et al., 2016). At the community level, women expressed fear of being identified as being HIV positive. Some women cited stigma in the sense that a positive diagnosis would warrant one to be put on medication and this would bring shame to them (Turan & Nyblade, 2013). Perceptions by the community also influenced care for instance some women indicated that they collect their drugs from other clinics far away where they even use bus-fare to reach just to avoid the shame of other people knowing they are on HIV medication (Abrams & Myer, 2013). Some women explained that the frequency of visits one makes to a health facility might make the community label them as HIV-positive. As such there was fear and shame of attending the ANC too

frequently which some were able to overcome (Kwapong et al., 2014). At the institutional level, issues like negative attitudes by health care providers, long distance to health facilities coupled with lack of money for transport and even user fee charges at the health facilities limited the number of visits to the health facilities (Reddy et al., 2016). Other reasons also cited included staff neglect, harassment and complacency particularly to do with health facility delivery. Congestion at health facilities and laxity in offering services was also mentioned as factors hindering access to care (Onono et al., 2015).

The percentage of total of cases (167.3%) was roughly almost twice that of responses (100%), suggesting that most respondents cited two or more factors that they perceived as barriers (167.3/100). The number of responses for the question on perceived barriers was 465, which was more than the number of respondents (290). This shows that respondents cited more than one type of perceived barrier, that is, the question was a multiple response type.

5.2.2.2 Stigma

HIV related stigma still sticks out as one of the most conspicuous barriers to the utilization of PMTCT programs in the prevention of vertical transmission of HIV. In this study, it accounted for nearly half (45%) of the responses as a barrier that was cited. In one study to understand why women disengaged from HIV care during pregnancy and after delivery, stigma was cited as the main reason for the withdrawal from streamlined care (McMahon et al., 2017). Another qualitative study regarding barriers and facilitators to adherence to Option B plus, which entails putting HIV positive pregnant women on lifelong ART found that stigma still remained a huge concern in the implementation of the program (Elwell, 2016). In one study that sought to investigate community perceptions in engaging in PMTCT, as high as 89% of women reported blame or judgment of people living with HIV as a deterrent to engaging in care (Kohler et al., 2014). One study to investigate the proximate context of stigma and used of skilled birth attendance revealed that elimination of stigma would confer double benefits of reducing maternal mortality and prevention of mother-to-child transmission of HIV (Ng, Tsai, & Behavior, 2017). In a comprehensive review of studies on barriers and promoters of PMTCT, up to 30% of the studies indicated stigma as a potential barrier that must be dealt with if the elimination of vertical transmissions is to be achieved (Schuster, McMahon, & Young, 2016).

5.2.2.3 Lack of spouse support

Around 23 % of the responses on perceptions to barriers on ART initiation was attributed to lack of support from the spouse. This featured as the second only to stigma. Lack of support from the spouse can lead to failure of women to reveal their HIV status to their spouses and this can have an impact on compliance to treatment protocols and by extension the rates of vertical transmission. This can be exemplified by one survey that looked at factors that are associated with MTCT and concluded that non-disclosure of status because of lack of support was associated with higher risks of mother-to-child transmission of HIV (McGrath et al., 2018). In another study done in Kibera by Thompson and others to delineate the risks to engaging and remaining in PMTCT services, male partner was found to be a major influence in the risk assessment and therefore it was imperative for them to be involved in the care continuum to ensure success (Thomson et al., 2018)

5.2.2.4 Perception on knowledge on Prevention of mother to child transmission (PMTCT)

The respondents had varied opinions on the awareness of the various modes of transmission when they were probed on the knowledge regarding the transmission of the virus through the duration and the delivery process as well during the process of breastfeeding. It was observed from table 2.2 that about 251 of the 290 respondents, which translated to 86.6%, indicated that they knew about transmission during pregnancy. More than 90% of the respondents indicated that they were aware about the possibility of virus transmission during the process of labor and breastfeeding. These findings are in convergence with similar studies that have continuously demonstrated awareness of women of possibility of transmission during the process of pregnancy through to child birth (Ambia & Mandala, 2016)

Of note is that when asked on other methods of prevention of transmission of the virus other than use of ART, only 67.2 % cited safe delivery as a preventive strategy. Only 22.8% thought that not breastfeeding could confer additional preventive avenue while the practice of safe sex was only cited by 18.6 % of the respondents. This was aligned to the previous literature that expanded access to services would prevent mother-to-child transmission and therefore PMTCT program expansion will need to accelerate (Slogrove et al., 2017).

5.2.2.5 Improvement of PMTCT Services

It was observed from table 9 that a significant proportion of the respondents translating to about 26.9 % thought that there were things that could be improved in the provision of the PMTCT services. About 204 of the respondents corresponding to 73.1% did not think that there were any things that could be improved. The respondents who thought that there were elements to be improved in the provision of PMTCT services during the spectrum of pregnancy through to delivery and puerperium gave varied responses. A thematic analysis of the answers was done and the key areas that needed improvement were tabulated in table 9 and figure 7. Most of the things that they thought needed improvement were strengthening of adherence and punctuality at the points of service provision corresponding to 15 (35.71%) and 14 (33.33%) respectively. This was align to the previous literature that, social ecological model recognizes that whereas individuals are responsible for instituting and maintaining lifestyle changes necessary to reduce risk and improve health, individual behavior is influenced by factors at different levels within their social environment (Sallis et al., 2015). These factors may affect punctuality or adherences and so many other aspects that may need to be improved on.

5.1.2 Timing of ART for PMTCT

It was observed from table 10 that most of the women who were interviewed and were on ART reported to have started it before pregnancy. This translated to about 55.1 % of the respondents. Out of this, a subset of them equivalent to about 7.2% were women who were themselves survivors of vertically transmitted infection and had now reached child bearing age. 44.8 % of the respondents reported to have started ART during the current pregnancy that they were carrying at the time of the study. Table 5.1 below shows the percentages and the corresponding numerical values.

Table 5.1: Findings on timing of initiation of ART for PMTCT

Time of ART initiation		
Before pregnancy	47.9%	139 (N=290)
During pregnancy	44.8%	130 (N=290)
Since childhood(vertical)	7.2%	21 N=290)

This findings were much supportive to the previous literature that when mothers are on treatment, the rates of transmission are almost nonexistent (M. S. Cohen et al., 2016). However, It is estimated that only 47% of pregnant women and 65% of infants in sub-Saharan Africa in need of ARVs for PMTCT are not on it (Tenthani et al., 2014). This glaring gap reflects what must be addressed with zeal by countries in the sub-Saharan region and inculcated in their preventive strategies otherwise the elimination of MTCT shall continue to remain elusive.

5.1.3 Ante natal visit attendance for PMTCT

5.1.3.0 Gestation at the first ANC visit

It was observed from table 11 and figure 8 in chapter 4 above that, most respondents had their first antenatal visit after more than 3 months of being pregnant. The respondents who had their first antenatal attendance after more than 3 months constituted 156, which translated to 53.8% of the total sample population while those that had their first antenatal visit between 1-3 months of pregnancy were 134, which translated to 42.6% of the study sample size. This is in convergence with the finding by Tomedi and others that among pregnant women who attended ANC, only 46.3% of them attended the first visit within the first three month with the majority of them attending the first visit after the third month of the pregnancy(Tomedi et al., 2015).

5.1.3.1 Number of ANC visit for Prevention of Mother to Child Transmission (PMTCT)

The participants who were the HIV positive pregnant women were also interviewed on the number of ANC visit they had had for prevention of mother to child transmission. Most of the respondents totaling 268, which translated to 92.4 % of the respondents indicated that they had at least two or more ANC visits during their pregnancy. Less than quarter of the respondents corresponding to about 22 (7.6%) had ANC visit for PMTCT only once during the pregnancy as depicted in table 12 and figure 9 in chapter 4 above. Comparable findings by the Kenya Health and Demographic Survey that showed that over 92 % of Kenya women are seen at least once at an ANC(Tomedi et al., 2015)

5.1.3.2 Antenatal visit attendance and place of delivery

Upon enquiry on the place of delivery, the findings showed that most respondents, 249 which translates to 87.4%, had their delivery at the Health Institution while about 36 of them (12.6%) had their delivery at home as in table 13 and figure 10 in chapter 4 above. This is slightly higher

than the national average for institutional deliveries which stands at 61% according to the Kenya National Demographic and Health survey (Calhoun, Speizer, Guilkey, Bukusi, & journal, 2018)

From the results it is apparent that despite all the respondents attending ANC at least once for PMTCT, eventual facility delivery was not 100%. This is comparable to findings by Mwangi and others that determined that the uptake of skilled attendance declined along the continuum from antenatal through to delivery and postnatally (Mwangi et al., 2018).

Skilled birth attendance offers opportunities for interventions that can help in reducing the risk of mother to child transmission. Some of the services that can be rendered include skilled delivery, diagnosis of HIV, initiation of ART, infant prophylaxis, counselling and linkage to treatment. Women who deliver at home miss out on all these avenues designed to reduce the rates of HIV transmission (Ambia & Mandala, 2016)

5.2 Health care workers' perceptions as reported by women seeking PMTCT services

The study also sought to determine the perceptions of the health care workers that regularly take care of the pregnant women and those within the puerperium regarding their insights into what the women thought about the preventive services that they rendered. A total of 20 health care workers were interviewed and they included pharmacists, clinical officers and nurses with variable professional qualifications.

They indicated that among the challenges that they faced; lack of laboratory support was cited as the most prevalent at around 85.5%. Stock out of medication and clients' refusal to take medication was mentioned by 75% and 25 % of the health care workers respectively. Lack of laboratory support still remains a recognized barrier in offering HIV care and this may sometimes warrant discretion based on health care worker's experience to ensure provision of care (Organization, 2017).

The health care workers were also probed on the some of the perceptions of the pregnant women as they would report to them during the routine visits in seeking care. Majority of the women indicated that the attitude of providers, lack of spouse support, poverty and accessibility to the services were potential deterrents in their efforts to utilize the PMTCT services for prevention of vertically transmitted infections. This is in convergence with a study in Tanzania that investigated the implementation of HIV guidelines and the barriers to PMTCT (Mwangome et al., 2017).

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The overall objective of the study was to investigate the determinants and perceptions on antiretroviral drugs uptake during pregnancy and puerperium at Homa Bay County Referral Hospital in Homa Bay, Kenya. The study had four objectives. The first was to determine the perceptions of HIV positive pregnant women and those within the puerperium on ART for PMTCT. Secondly, it examined the timing of initiation of ART for PMTCT among HIV positive pregnant women and those within the puerperium. Thirdly, the study assessed for ante natal visit attendance for PMTCT among HIV positive pregnant women and eventual facility delivery. Fourthly, the study determined the perception of health care workers working in the HIV clinics on barriers to ART as reported to them by pregnant HIV positive women and those in puerperium.

The researcher employed descriptive research design that involved quantitative methods. Random sampling was applied to enroll 290 participants of which the majority that is 28.6% were aged between 30-34 years. In addition, 20 health care workers who regularly rendered PMTCT services to the women were also interviewed to get their insights into what the expectant women reported as they sought care. Data was analyzed using descriptive statistics as well as use of chi squares to determine associations among variables.

Regarding the perceptions of the women on the use of ART for PMTCT, the women were probed on what they perceived as barriers to access of the care. In addition, they were probed on their awareness of PMTCT services and if they thought it was a useful intervention. Further, they were also asked if they thought there were any components of the PMTCT services that could be improved. Stigma was cited as key barrier to the access of care as it was mentioned by around 45% of the respondents. The others included lack of spouse support (23%), lack of knowledge (15%), distance (12%) and health care workers' attitude (5%). Most of the women (86% of the respondents) demonstrated good awareness of possibility of transmission of virus to their babies during pregnancy and potential benefits conferred by the use of ART for PMTCT. Upon enquiry if they knew other methods of prevention of infection transmission to their unborn babies, 67.7% cited safe delivery, 22.8% stated that not breastfeeding could offer additional benefit while only 18.6 % thought safe sexual practices was a preventive strategy. 26.9 % of the respondents

thought that there were certain things that could be improved in the provision of PMTCT services with most indicating punctuality and adherence reinforcement.

On the timing of the initiation of ART for PMTCT, most of the respondents corresponding to 55.1% reported to have started the use of ART prior to becoming pregnant while 44.8% were initiated on ART during pregnancy. Out of the sub set that had been on medication prior to conception, a small proportion corresponding to 7.2 % of the respondents were actually survivors of vertically transmitted infection who had now reached child bearing age

The antenatal visit attendance for PMTCT was also determined. Most of the women, about 53.8% of them, had their maiden ANC visit after the third month of pregnancy. 46.2% of them had their first visit within the first three months. All the women attended ANC at least once during the pregnancy with 92.4 % of the respondents having had at least two visits during pregnancy. Only 7.6 % of them attended ANC only once during the entire pregnancy. Despite having attended ANC at least once during the pregnancy, eventual delivery in a health facility was reported by 87.4 % of the respondents with at least 12.6 % of the women delivering at home. A chi square analysis of association between socio-demographic factors and ANC attendance showed that amount of income was positively associated with the time of initiation of ante-natal attendance for PMTCT ($p=0.024$, $\chi^2=5.065$). Level of education was also associated with the choice of place for delivery ($p=0.000$, $\chi^2 =13.85$). In addition, employment status was also positively associated with the decision on place of place of delivery ($p=0.011$, $\chi^2=6.532$).

The health care workers who attend to the HIV positive women were also interviewed to get their insights into the women's perceptions as they would report to them as they sought care. They were also probed on the challenges they encountered as they discharged their duties. Lack of lab support was cited by 85.5%, stock out of medication at 75% while clients' refusal to take medication mentioned by 25% of the health care workers. On probing of the women's perception of challenges encountered; stigma, lack of spouse support, health care workers' attitude, poverty and lack of distance were some of the factors that women mostly mentioned during their routine care.

6.1 Conclusions and Recommendations

In conclusion, it is apparent that most HIV positive women becoming continually aware of availability of PMTC services that can be exploited to prevent the chances of transmitting the virus to their babies. Despite the scaling up of the services, it emerged that the women seeking this care continue to face challenges that may provide a hindrance in the ultimate vision of elimination of new infections in the newborns. Stigma in particular stands out a barrier to the access of care and therefore strategies must be rethought from merely providing services but mechanisms designed into how to make it acceptable and appealing to the would be intended users.

It is also apparent that most pregnant women start ANC late and might therefore miss out on the opportunities to implement measures of mitigating mother to child infections. Antenatal services for PMTCT should therefore be scaled up and at best prenatal assessment to determine status and therefore optimize the care offered.

With the advent of HAART, more survivors of vertically transmitted infections are living into adulthood and the desire to start families and have children cannot be underscored. This specialized population's needs must be factored especially the adolescent HIV positive pregnant women in order to prevent the chances of transmission of the virus to their children.

Despite the increased use of ANC during pregnancy, some women still drop out of the continuum of care and eventually opt to deliver at home. This denies them the chance to have lifesaving interventions that can help in the prevention of vertical transmissions. Robust campaigns on institutional delivery campaigns must continue and this needs to be emphasized to the women throughout the pregnancy during ante natal care.

The gaps in provision of PMTCT services as highlighted by the health care workers who take care of the women during PMTCT should be addressed whenever possible. Most existent programs on PMTCT are program funded and driven but local collaborators must echo the emerging gaps with a view to deliberate on them. These include empowering laboratory support, sealing lapses in stock outs and generally educating the providers on the importance of patient centered approach as envisioned in the WHO tenets on patient centered model of care. This may eventually synergize with the efforts geared at elimination of all vertically acquired HIV infections.

6.2 Future Research Prospects

This study as it was configured mainly captured respondents who had already been enrolled for follow up or those that presented to the hospital for delivery and post-natal care. This therefore fell short of meeting the dynamics of the general population that would enable determination of the uptake of PMTCT services for the population as there was little chance of interviewing respondents who did not go the hospital. This provides an opportunity for future population-based studies that would endeavor to sample participants from the community and in essence make inferences on them.

The study as it was configured revealed that some socio-demographic factors like income and level of education were associated with timing of initiation of therapy and the choice of the place of delivery. Future study prospects may include conducting of longitudinal studies to determine the extent to which the various socio-demographic factors impact the utility of PMTCT services for averting vertically transmitted infections.

During the execution of the study, it was noted that that was a discrepancy in terms of the number of times most mothers had delivered and the number of living children that they had. This reason for perinatal mortality could not be directly attributed to viral suppression in the mother taking cognizant of way the study was configured. This provides an opportunity for future research in determining the level of viral suppression and impact on perinatal mortality among this population of pregnant women.

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APPENDICES

APPENDIX 1: MAP OF STUDY AREA



Figure 12: Map of Homa Bay County

APPENDIX 2: RESPONDENT'S QUESTIONNAIRE

BARRIERS TO ANTIRETROVIRAL DRUGS UPTAKE DURING PREGNANCY AND PUERPERIUM AT HOMA BAY COUNTY REFERRAL HOSPITAL IN HOMA BAY, KENYA

Objective: To investigate the barriers to antiretroviral drugs uptake during pregnancy and puerperium at Homa Bay county referral hospital in Homa Bay, Kenya.

Demographic and Obstetric characteristics

1. Age.....

2. Residence.....

3. Marital status

Single Divorced

Married Widowed

4. Occupation

Formal employment Small scale business

Housewife Others specify.....

5. Highest level of education attained

Primary School Secondary School

Tertiary College University

6. Highest level of education attained by partner/spouse

Primary School Secondary School

Tertiary College University N/A

7. Family income per month

Less than KShs 10,000

KShs 10,000-20,000

More than KShs 20,000

8. Number of deliveries ever had.....

9. Number of living children.....

10. Place of delivery of your last child?

Health institution Home

11. If health institution, what level of care?

Dispensary

Health Centre

Sub County Hospital

County Referral Hospital

12. How many months' pregnant were you at the time of your first ANC visit?.....

1-3 months More than 3 months

13. How many antenatal visits have you had for this pregnancy/ Last delivery?

None One Two or more

Awareness and Perception on MTCT/PMTCT

14. Have you heard about the Prevention of Mother to Child Transmission of HIV (PMTCT)?

YES NO

15. Where did you get the information?

Friends

Health institution

Media (TV, Radio, Newspaper, Journals or any other print media)

Others, specify.....

16. When did you hear about the information on prevention of mother to child transmission?

During this pregnancy

Before this pregnancy

17. Do you think a woman with HIV can infect their un-born babies with HIV during pregnancy?

Yes No Unsure

18. Do you think a woman with HIV can infect their babies with HIV during labor and delivery?

Yes No Unsure

19. Do you think a woman with HIV can infect their babies with HIV through breastfeeding?

Yes No Unsure

20. Do you think there are medicines which infected mothers can take for preventing infection to their unborn children?

Yes No Unsure

21. Are you currently on any Medication for preventing infection to your baby?

Yes No Unsure

22. If yes, which ones?

Septrin

Antiretroviral drugs (ARVs)

Combination of Anti-retroviral drugs (ARVs) and Septrin

23. If on Anti-retroviral drugs, when was it started? (*If not on Antiretroviral drugs, skip to question 28*)

Before pregnancy

During pregnancy

Since childhood (vertically acquired)

24. Would you know the specific combination of antiretroviral drugs that you are taking?

Yes No

25. If Yes, which regimen are you currently on?

- AZT/3TC/NVP
- TDF/3TC/EFV
- DTG/3TC/EFV
- Any other, specify.....

26. Was a viral load or CD4 count done before starting the Antiretroviral drugs?

- Yes
- No

27. If Yes, what was the CD4 and/or viral load

- Can recall figure
- Cannot recall figure

28. What in your opinion is the most important factor that can prevent you from taking antiretroviral drugs for PMTCT?

- Fear of being known to be HIV positive
- Long Distance from the health facility
- Negative attitude of health care workers
- Lack of support from the husband
- Lack of knowledge on use of ARVs for prevention of HIV

29. What other preventive measures for prevention of HIV to the baby do you know other than taking Medicines?

- Safe delivery
- Not Breastfeeding
- Safe sex
- I don't know
- It is impossible to prevent
- Others, specify.....

30. Have you ever used ARVs for prevention of HIV for previous pregnancies?

- YES NO

31. Are you willing to use ARVs for prevention of HIV for future pregnancies?

- Yes
 No, why.....

32. If No, why?

- Fear of being known to be HIV positive
- Long Distance from the health facility
- Negative attitude of health care workers
- Lack of support from the husband
- Lack of knowledge on use of ARVs for prevention of HIV

33. Do you think there are things to be improved in the provision of ARVs for preventing HIV from the mother to the baby?

- Yes No

34. If yes, please specify.....

APPENDIX 3: HEALTH CARE WORKERS' QUESTIONNAIRE

BARRIERS TO ANTIRETROVIRAL DRUGS UPTAKE DURING PREGNANCY AND PUERPERIUM AT HOMA BAY COUNTY REFERRAL HOSPITAL IN HOMA BAY, KENYA

Objective: To investigate the barriers to antiretroviral drugs uptake during pregnancy and puerperium at Homa Bay county referral hospital in Homa Bay, Kenya.

Age.....

Sex.....

Education.....

Professional background

- Registered Community Nurse BSc Nurse
 Clinical Officer Pharmacist Medical Officer

PMTCT training Yes No

Years of experience in HIV care.....

1. Do you ever experience any challenges while offering ARVs for PMTCT?
 Yes No

2. Have you ever experienced any of the following during provision of ARVs for PMTCT?
 Stock outs
 Lack of Laboratory support
 Clients refusing to take ARVs

3. What are the major concerns that women express to you during use of ARVs for PMTCT?
 Lack of partner support
 Poverty
 Access- Long Distance to health institutions
 Social Stigma
 Negative attitude of health care worker

4. Would you say women trust in PMTCT in general and the use of ARVs in particular?

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

5. Have you ever experienced that women do not trust you or that they doubt your competence/confidentiality?

- Yes
- No

6. Have you ever experienced situations where women decline to take ART for PMTCT?

- No
- Yes

7. What in your experience would you say are the reasons why some HIV positive pregnant women may not be on ART despite being eligible?

- a. Ignorance on PMTCT
- b. Lack of partner support
- c. Poverty
- d. Access- Long Distance to health institutions
- e. Social Stigma
- f. Negative attitude of health care worker

APPENDIX 4: RESPONDENT CONSENT FORM: ENGLISH

Who are we?

My name is CHARLES OLELO OCHOLA a Graduate student at the school of medicine in MASENO UNIVERSITY. I am carrying out a research on the BARRIERS TO ANTIRETROVIRAL DRUGS UPTAKE IN HOMA BAY COUNTY REFERRAL HOSPITAL. My co-investigators are Dr Walter Otieno and Dr Jackton Omoto both lecturers at the school of medicine, Maseno university.

What is the study about?

The purpose of the study is to investigate some of the challenges that HIV positive pregnant women and those who have delivered face as they seek medication that prevents them from transmitting HIV to their unborn or breastfeeding children. The study seeks to get their thoughts on what they think some of these challenges are. We shall ask them about their location relative to the hospital, availability of medication where they are enrolled, as well as whether they get support in seeking treatment.

Who will participate in the study?

Women who are pregnant and are HIV positive will be eligible to participate. In addition, those who are HIV positive and have delivered and their children are below six weeks shall also be eligible to participate. However, those who are very sick during the duration of the study shall be exempted from participating.

Where will the study be conducted?

The Study will be conducted at the Homa Bay County Teaching and Referral Hospital in Homa Bay Town, Homa Bay County.

Is the study important?

The purpose of this study is to determine the challenges that HIV positive pregnant women and those within six weeks of delivery face as they seek medication for prevention of infection to their unborn and breastfeeding children in Homa Bay County Teaching and Referral Hospital. It is hoped that the findings obtained from this study will inform development of strategies and

plausible solutions to address these challenges and thereby improve the quality of care for these group of women.

How will the study be conducted?

The study involves filling out a questionnaire at the point of service delivery which will take about 15 minutes to complete. The study will not alter the usual service delivered at the unit and is a one- off exercise which does not require you to follow up. In addition, no specimen will be collected from you. We would be glad to answer any concerns regarding the study from you and commit to update you should any changes arise during the study period.

Can I stop or withdraw from the study?

You can voluntarily participate or withdraw at any time without penalties. We do not anticipate any harm or risk to arise from the study. The study is beneficial as it will identify gaps in care and inform need for interventions to improve care to patients in future.

Will the information I share with you be protected

All information received will be Confidential and confidentiality will be observed throughout the study, the information given will be used specifically for the study. We will not require your names nor expose the source of information to third parties without your approval.

You will be required to give informed consent before we begin the interview. For patients who are minors or unstable assent will be sort from the caretakers/parents/guardians and will answer questionnaire.

If I have any questions or concerns, who do I contact?

For any questions or concerns about the study or in the event of a study-related incidence, contact person is CHARLES OLELO OCHOLA Mobile phone no +254720581336 at any time day or night, physical address Maseno university School of medicine private bag Maseno.

For any questions pertaining to rights as a research participant, contact person is: The Secretary, Maseno University Ethics Review Committee, Private Bag, Maseno; Telephone number +25457351662 EXT 3050; Email address: muerc-secretariate@maseno.ac.ke; muerc-secretariate@gmail.com.

I invite you to participate in this study by signing below

**Having read/ been read to and understood the above information that the study, I hereby
freely give my consent to take part in this research study.**

PARTICIPANTS SIGNATURE..... DATE.....

INVESTIGATORS

SIGNATURE..... DATE.....

WITNESS

SIGNATURE..... DATE.....

KIBALI CHA HIARI

Jina langu ni CHARLES OLELO OCHOLA, Mwanafunzi anayesomea shahada ya uzamili kwenye shule ya matibabu, chuo Kikuu cha Maseno. Kwa sasa ninafanya utafiti kuhusu changamoto ambazo akina mama ambao wana viini vya Ukimwi na ni wajawazito ama waliojifungua wanakabiliana nayo katika harakati za kupata huduma za kupata dawa za virusi. Utafiti huu utafanywa katika hospitali kuu ya Kaunti ya Homa Bay, Kenya. Watafiti wenzangu ni Daktari Walter Otieno na Daktari Jacktone Omoto wote waadhiri katika shule ya masomo ya matibabu kwenye chuo kikuu cha Maseno.

Utafiti huu unafanyika kwenye idara zinazohusika na huuduma kwa akina mama na Watoto ikiwemo vyumba vya kujifungua na pia wadi na kliniki za Watoto na akina mama kwenye hospitali kuu ya Homa Bay. Utafiti huu unalenga kufahamu changamoto ambazo akina mama walio na virusi vya ukimwi wanakabiliana nazo wanapotafuta huduma za kupata dawa za virusi vya ukimwi zinazotumika kukinga ugonjwa kwa watoto wakiwa tumboni na wanaponyonya. Ni tamanio letu kwamba utafiti huu utasababisha kupatikana kwa suluhu kwa yale mambo ambayo yanawakumba akina mama wanapotafuta huduma. Pia twatarajia kwamba utaonyesha utepetefu katika huduma ambayo itarekebisha.

Hitaji letu kwako ni kujibu maswali na kutufuatilia kwa kujaza fomu kwa dakika kama robo saa ukielekezwa na mtafiti. Utafiti huu hautadhuru upokeaji wa huduma katika idara hii. Inahitaji tu kujibu maswali haya kwa safari moja pekee na hakuna damu/kinyesi ama chochote kitachukuliwa kwako. Twajitolea kujibu maswali yoyote utakayokuwa nayo na kukujulisha mabadiliko yatokeyayo wakati wowote wa utafiti.

Uko na uhuru wa kuamua kushiriki au kutoshiriki na Pia waweza kujiondoa wakati wowote. Hakuna madhara yanayotarajiwa kuasilia kwa sababu ya utafiti huu. Twatazamia kuwa uzuri wa utafiti huu itakuwa kutambua ulegevu uliopo katika huduma, kuirekebisha ili tuwe na mbinu bora za kutoa huduma.

Kuna hakikisho la usiri kuwekwa wakati wowote, na maelezo tutakayo yapata kwako yatumika tu kwa ajili ya utafiti huu. Hatutahitaji majina yako na pia hatutatoa ujumbe uliotupa bila idhini yako.

Utahitajika kupeana idhini kuwa umeelewa kwa kuweka sahihi ya hiari yakukubali kabla ya utafiti kuanza. Kwa watoto chini ya miaka kumi na minane na wagonjwa waliomahututi, tutapata idhini ya hiari na kuelewa kutoka kwa walinzi au wazazi wao ambao pia watasaidia kujibu maswali.

Ikiwa utakuwa na swali lolote kuhusiana na utafiti huu ama pengine kukiwa na madhara kwa sababu ya utafiti , mtafute CHARLES OLELO OCHOLA, simu ya rununu +254721517633 wakati wowote iwe usiku au mchana.Waweza pia kumpata katika Shule ya masomo ya matibabu , chuo kikuu cha Maseno. Sanduku la posta private bag Maseno.

Kwa maswali kuhusu haki za Yule amekubali kushiriki utafiti uliza katibu wa kamati ya ukaguzi wa maadili ya utafiti, chuo kikuu cha Maseno. Mtafute : katibu nambari ya simu: +25457351662 EXT 3050 ; barua pepe: muerc-secretariate@maseno.ac.ke; muerc-secretariate@gmail.com.

Nakukaribisha ushiriki utafiti huu kwa kutia sahihi.

Baada ya maelezo haya, nimeelewa niliyo yasoma au kusomewa . Nakubali kushiriki utafiti huu.

SAHIHI YA MSHIRIKI..... TAREHE.....

SAHIHI YA MTAFITI.....TAREHE.....

SAHIHI YA SHAHIDI.....TAREHE.....

APPENDIX 5: ANTIRETROVIRAL DRUGS TREATMENT GUIDELINES

	Option A	Option B	Option B+
Mother (CD4 \leq 350 cells/mm ³)	Triple ARVs, starting from diagnosis and continued for life	Triple ARVs, starting from diagnosis and continued for life	Triple ARVs regardless of CD4 count, starting from diagnosis and continued for life
Mother (CD4 $>$ 350 cells/mm ³)	Prophylaxis: <i>Ante partum</i> : AZT from 14 weeks gestation <i>Intrapartum</i> :sd NVP at onset of labour and AZT/3TC <i>Postpartum</i> : AZT/3TC for seven days	Prophylaxis: Triple ARVs from 14 weeks gestation until one week after exposure to breast milk has ended	
Infant	NVP (daily) from birth until one week after cessation of breastfeeding, or until age four to six weeks if replacement feeding	NVP or AZT (daily) from birth until age four to six weeks (regardless of infant feeding method)	NVP or AZT (daily) from birth until age four to six weeks (regardless of infant feeding method)

APPENDIX 7: MASENO UNIVERSITY ETHICS REVIEW COMMITTEE APPROVAL



MASENO UNIVERSITY ETHICS REVIEW COMMITTEE

Tel: +254 057 351 622 Ext: 3050
Fax: +254 057 351 221

Private Bag – 40105, Maseno, Kenya
Email: muerc-secretariate@maseno.ac.ke

FROM: Secretary - MUERC

DATE: 5th February, 2019

TO: Charles Olelo Ochola
PG/MMED/SM/00013/2014
Department of Family and Emergency Medicine
School of Medicine, Maseno University
P. O. Box, Private Bag, Maseno, Kenya

REF: MSU/DRPI/MUERC/00661/19

RE: Barriers to Anti-Retroviral Drugs Uptake during Pregnancy and Puerperium in Homabay, Kenya. Proposal Reference Number MSU/DRPI/MUERC/00661/19

This is to inform you that the Maseno University Ethics Review Committee (MUERC) determined that the ethics issues raised at the initial review were adequately addressed in the revised proposal. Consequently, the study is granted approval for implementation effective this 5th day of February, 2019 for a period of one (1) year. This is subject to getting approvals from NACOSTI and other relevant authorities.

Please note that authorization to conduct this study will automatically expire on 4th February, 2020. If you plan to continue with the study beyond this date, please submit an application for continuation approval to the MUERC Secretariat by 15th January, 2020.

Approval for continuation of the study will be subject to successful submission of an annual progress report that is to reach the MUERC Secretariat by 15th January, 2020.

Please note that any unanticipated problems resulting from the conduct of this study must be reported to MUERC. You are required to submit any proposed changes to this study to MUERC for review and approval prior to initiation. Please advise MUERC when the study is completed or discontinued.

Thank you.

A handwritten signature in blue ink, appearing to read 'Bernard Guyah'.

Dr. Bernard Guyah
Ag. Secretary,
Maseno University Ethics Review Committee.



Cc: Chairman,
Maseno University Ethics Review Committee.

MASENO UNIVERSITY IS ISO 9001:2008 CERTIFIED

