FACTORS INFLUENCING PREGNANCY-PREPAREDNESS BY HIV POSITIVE WOMEN IN SEME SUB-COUNTY, KENYA

BY

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A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER IN PUBLIC HEALTH

SCHOOL OF PUBLIC HEALTH AND COMMUNITY DEVELOPMENT

MASENO UNIVERSITY

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DECLARATION

This research thesis is my original work and has not been presented for any award in any other university or college.

STEPHEN OTIENO OYULE  Signature ______________  Date____________
MPH/PH/00125/13

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ACKNOWLEDGEMENT
I would like to thank the Almighty God for giving me the strength and ability to undertake this research thesis. I also want to pass my heartfelt gratitude to my supervisors Dr. Louisa Ndunyu and Prof David Sang for guidance and taking me through the whole process of this proposal. Thank you for igniting the love for research. To my lovely family: I would not have done this without your support and love. Indeed, you endured my absence while away in school sessions. To my professional colleagues: thank you again - for walking with me through this journey. Finally, to all my friends and respondents: you were the pillar of this research without whom no success would have been realized. Thank you very much.
DEDICATION

This research thesis is dedicated to my family members and professional colleagues
ABSTRACT

Pregnancy preparedness is a precautionary measure for readiness to conceive. It encompasses readiness of a health provider and HIV positive women to contain possible risk factors for mother-to-child HIV transmission. It also includes assessment of pregnancy status, pregnancy intentions, contraceptive status and a suppressed viral load for HIV positive women. Despite the high prevalence of pregnant HIV positive women in Seme Sub-County, the factors influencing pregnancy-preparedness had not been determined. The purpose of this study was to assess factors affecting pregnancy preparedness among HIV positive women in Seme Sub-County. Specifically to determine the level of preparedness, establish demographic factors, identify partner characteristics and to determine health facility-factors influencing pregnancy preparedness among HIV positive women in Seme Sub-County. A cross sectional study was conducted in 24 public health facilities in Seme Sub-County using a sample size of 132 from a target population of 200. Data was collected using questionnaires, while 10 clinicians were utilized as key informants. Frequency and percentages were used to determine the level, assess demographic factors, identify partner characteristics and assess health facility factors. Bivariate logistic regression analyses were used to test the association between demographic factors, partner characteristics and health facility factors and pregnancy preparedness. The study found that 60(45.5%) of the respondents were prepared while 72(54.5%) were unprepared. Women aged 25-34 and 35-44 years were more likely to be prepared for their pregnancies (OR=1.189, 95%CI=1.08–1.7 and OR=1.08, 95%CI=0.064–1.736 respectively), compared to younger women. Women with post-secondary school level of education were more likely to prepare better (OR=11.4; 95%CI =7.72–17.02) than those with lower levels. HIV positive women who had disclosed their HIV status were more likely to be prepared (OR=2.83;95%CI=1.113–5.269). Prior use of contraceptives as part of HIV care was associated with better preparedness compared to non-usage (OR=1.914;95%CI=1.511–4.672). HIV positive pregnant women on and adhering to ART were more likely to be prepared (OR=2.97;95%CI =1.245–4.669) compared to those who did not initiate and adhere to ART. There is need for health care facility providers to pay more attention to young HIV positive women in terms of pregnancy preparedness. National and county government should emphasize the interventions aimed at reducing intimate partner violence. There is need to promote HIV status disclosure among women living with HIV to promote optimal pregnancy preparedness by HIV positive women. Clinicians and other health care providers should optimize the utilization of the Ministry of Health standard Reproductive Health Screening tool for women on ART as a way of strengthening health facility factors for pregnancy preparedness.
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<tr>
<td>ANC</td>
<td>Antenatal Care</td>
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<tr>
<td>ART</td>
<td>Antiretroviral Therapy</td>
</tr>
<tr>
<td>DATIM</td>
<td>PEPFAR Data for accountability, transparency, impact monitoring</td>
</tr>
<tr>
<td>HCWs</td>
<td>Health Care Workers</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>IPV</td>
<td>Intimate partner violence</td>
</tr>
<tr>
<td>KAIS</td>
<td>Kenya AIDS Indicator Survey</td>
</tr>
<tr>
<td>KDHS</td>
<td>Kenya Demographic Health Survey</td>
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<tr>
<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
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<tr>
<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
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<tr>
<td>MTCT</td>
<td>Mother to Child Transmission</td>
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<tr>
<td>NASCOP</td>
<td>National AIDS and STI's Control Program</td>
</tr>
<tr>
<td>PEPFAR</td>
<td>President’s emergency plans for AIDS Relief</td>
</tr>
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<td>PMTCT</td>
<td>Prevention of Mother to Child Transmission</td>
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<tr>
<td>STI</td>
<td>Sexually Transmitted Infections</td>
</tr>
<tr>
<td>UNAIDS</td>
<td>Joint United Nations Programme on HIV/AIDS</td>
</tr>
<tr>
<td>UNGASS</td>
<td>United Nations General Assembly Special Session on HIV/AIDS</td>
</tr>
<tr>
<td>VL</td>
<td>Viral Load</td>
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<td>World Health Organization</td>
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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Pregnancy preparedness is a precautionary measure for readiness to conceive. It encompasses readiness of a health provider and HIV positive women to contain possible risk factors based on the available information for mother-to-child HIV transmission (National AIDS & STI Control Program [NASCOP], 2018). At the health facility level, HIV Care providers in Antiretroviral (ART) clinics are to use an assessment tool that encompasses pregnancy status, pregnancy intentions, contraceptive status and a suppressed viral load level as a trigger to preparedness for desired outcome. Currently the total Kenyan fertility rate is 2.8 births per woman, which is higher in rural areas, at 4.5 children, compared with urban women's 2.8 children. In a report (PEPFAR, 2018) based on parity, since the 1970s, a Kenyan woman has had an average of more than eight births, thereby increasing the country’s population steadily every ten years. However, this growing population is threatened by HIV infections especially new infections through mother to child HIV transmissions.

In 2017, an estimated 330,000 children became newly infected with HIV worldwide. Over 90% of these infections were acquired through mother-to-child transmission (MTCT), and more than 90% of these occurred in sub-Saharan Africa. Worldwide, HIV accounts for 1.5% of all deaths in infants younger than 12 months of age and 4.9% of deaths in 1- to 4-year-old children. In Namibia, according to the National Sentinel Serosurvey (2016), the prevalence of HIV among pregnant women has increased from 4.2% in 1992 to 19.9% in 2016. The estimated number of pregnant women in 2006 was 64,134. Given the ANC HIV prevalence rate of (19.9%), an estimated 12,634 pregnant women were therefore infected with HIV. Without any intervention, it is estimated that about a third, or 4,211 babies born to these mothers, would be infected with HIV (UNAIDS, 2016).

In 2015, a Global Plan was launched to minimize cases of new HIV infections through mother-to-child transmission by 99% by 2022. WHO acknowledged 22 countries, with top 10 being Botswana, Angola, Cameroon, Burundi, Côte d’Ivoire, Chad, Democratic Republic of the Congo, Ethiopia, Ghana and India) justifying 75% of the world PMTCT service required. It is approximated that efficient interventions in these countries would avert over 300,000 new cases of infections yearly. Kenya is also one of the 22 countries that jointly justify 90%
of all pregnant mothers living with HIV. The country justifies 4% of all new pediatric HIV cases globally and 7% of all infant deaths, and every year an approximated 13,000 new HIV cases takes place among Kenyan children. Kenya has become part of the *Global Plan towards the Eradication of New HIV Infections among Children by 2020 and Keeping Their Mothers Alive*, which seeks to minimize MTCT to below 5% by 2015 and avert maternal mortality. For these goals to be achieved, over 90% of HIV-infected mothers required to be identified via screening and receiving antiretroviral drugs and other intervention measures for preventing MTCT (KNBS, 2014).

### 1.1.1 Pregnancy Preparedness in the context of Prevention of Mother to Child Transmission, Ministry of health, Kenya

In 2012, Kenya launched a plan for elimination of MTCT which involved the joint United Nations Programme on HIV/AIDS (UNAIDS) four-pronged strategy that included providing HIV prevention services for women of reproductive age with reproductive health services; opt-out HIV testing during pregnancy and for HIV-infected pregnant women, an access to antiretroviral prophylaxis during pregnancy and the immediate postpartum period; safe delivery methods, anti-retroviral prophylaxis for infants during breastfeeding and promotion of exclusive rather than mixed breastfeeding; provision of contraceptives to women living with HIV for family planning and provision of treatment, care and support for women and children living with HIV infection and their families.

Coverage of HIV testing among pregnant women in Kenya is now above 80%. In line with the Global Plan towards the Elimination of New HIV Infections among Children by 2020 and keeping their mothers alive, pregnant women living with HIV must take ARVs, give birth safely in hospitals, ensure appropriate infant feeding, have their children tested within two months of birth and continue with other post-natal healthcare services. Therefore, pregnancy preparedness among HIV positive women is one of the elements of focused ante-natal care, with the aim of reducing or eliminating the HIV incidences in infants attributable to MTCT (World Health Organization; United Nations AIDS; United Nations Children's Fund, 2015).

Current Kenya HIV guidelines (2016) are aimed at Prevention of Mother-to-Child Transmission of HIV (PMTCT) and is offered as part of a comprehensive package of integrated, routine antenatal care interventions. The guidelines recommend that ART should be initiated for all pregnant and breastfeeding women living with HIV, regardless of
gestational age, WHO clinical stage and at any CD4 count, and continued lifelong. ART should be started, ideally, on same day as HIV diagnosis with ongoing enhanced adherence support including community-based case management and support. For pregnant and breastfeeding women newly initiated on ART, a Viral Load (VL) sample is obtained 6 months after initiation, if more than 1,000 copies/ml, intensify adherence and a repeat of VL after 1 month and is advised. If still more than 1,000 copies/ml, ARV regimen is changed to an effective regimen. If less than 1,000 copies/ml, repeat viral load every 6 months until end of breastfeeding then follow-up as for general population, annually (PEPFAR, 2018). For HIV positive women on ART for > 6 months, obtain a VL as soon as pregnancy is confirmed. If the VL is more than 1,000 copies/ml, intensify adherence, repeat the VL after 1 month and if still above 1,000 copies/ml, change to an effective regimen (National AIDS & STI Control Program [NASCOP], 2018). If < 1,000 copies/ml, repeat viral load every 6 months until end of breastfeeding then follow-up as for general population, annually. HIV exposed infant (HEI) should receive 12 weeks of ARVs for infant prophylaxis, consisting of 6 weeks consisting of AZT+ NVP, followed by 6 weeks of daily NVP. Early Infant Diagnosis (EID) is recommended for prompt diagnosis and HAART initiation for infected infants, and discharge from follow-up – of HIV negative infants. This is done through DNA PCR tests by 6 weeks, 6 months and 12 months, with a follow up antibody test at 18 months as per national algorithm for EID (National AIDS & STI Control Program [NASCOP], 2018).

1.1.2 Prevention of Mother to Child Transmission/MOH Program in Kisumu County

In Kisumu County, the HIV prevention, care and treatment program in Seme Sub-County is managed through a hub and spoke model with Kombewa County Hospital as a central site and 23 other satellite clinics feeding into it. There are 24 health facilities all of which are supported by US-PEPFAR HIV program implementation. Operationally, the National AIDS & STI Control Program, Ministry of Health Kenya and implementing supporting partners run the program in line with MOH guidelines, which are reviewed from time to time. Currently, the 2018 edition of the “Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV Infection in Kenya” is being implemented in both ART and PMTCT clinics (PEPFAR, 2018).

The guideline consists of substantial changes and a paradigm shift in the treatment and prevention of HIV infection by recommending ART as prevention, despite level of immunity and recommends same day initiations, especially for pregnant HIV positive females. The HIV
prevalence is 14.9% according to the UNAIDS Estimate for Nyanza, 2016 with an estimated 3,535 expected annual pregnancies in the program site catchment population (National AIDS & STI Control Program [NASCOP], 2018). As a central site, key operational activities for the rest of the clinics are coordinated through Kombewa include personnel deployments, drug and lab reagent central stores, monthly indicator data tracking and liaison / technical staff offices. Additionally, clients are referred for further medical and psychosocial services from the lower level health facilities. In this approach, the quality of care is sustained through staff and client empowerment via continuous training, regular updates and clinical mentorship.

This implies that the care of an HIV-infected pregnant woman is multidisciplinary and involves HIV specialists, obstetricians, and pediatricians, as well as educators and social service providers. Initial assessment of the parturient should include an evaluation of CD4 cell counts, HIV RNA plasma load, determination of the need for prevention of opportunistic infection, and baseline evaluation of general maternal health, including vaccinations, comorbidities, complete blood cell count, and renal and liver function testing (NASCOP, 2018). A history of previous exposure to antiretroviral medications and documented resistance is essential. The women are counseled about the known benefits and the potential risks of antiretroviral therapy. Women with very low or undetectable viral loads are also counseled about the use of antiretroviral therapy, because it has been shown to be efficacious, even among this group of women. According to District Health Information System 2 (DHIS 2, 2019) the prevalence of pregnant HIV positive women in Seme Sub-County is 18%. Kenya Demographic Health Survey (NASCOP, 2014) demonstrates that of the 33% self-reported HIV positive women, 56% of infants born to these women were reported to be HIV-infected.

From latest program-level data, (DATIM, 2018) 7 out of every 10, and 8 out of every 10 women were already diagnosed with HIV prior to ANC visits for the periods October 2016 to September 2017 & Q1FY19 and between October 17 to September 2018, respectively. Table 1.1 shows the summary of the latest program-level data on Prevention of Mother to Child Transmission (PMTCT) status indicator, revealing higher-than national (60%) known-positivity trends of the HIV positive pregnant women.
Table 1.1: The Trend of the HIV Positive Pregnant Women

<table>
<thead>
<tr>
<th>Period</th>
<th>Known positives (KPs)</th>
<th>New positives</th>
<th>Total positives</th>
<th>%age of KPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct 2016 – Sept 2017</td>
<td>546</td>
<td>415</td>
<td>131</td>
<td>76%</td>
</tr>
<tr>
<td>Oct 2017– Sept 2018</td>
<td>672</td>
<td>549</td>
<td>123</td>
<td>81%</td>
</tr>
<tr>
<td>Q1 FY19 -Oct 2018-Dec 2018</td>
<td>129</td>
<td>100</td>
<td>29</td>
<td>78%</td>
</tr>
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</table>

Source: PEPFAR (2018)

Table 1.1 demonstrates that known positives in all the reporting periods are above 70%. This is well above the national-averages of 60%. The current guidelines spell out precautionary and monitoring measures to assist in terms of desired outcomes for prevention of mother to child transmission, especially for reproductive age-group women living with HIV. For women aged 15–49 and not pregnant, these interventions include contraceptives to prevent unintentional pregnancy, pregnancy readiness assessments by health care providers at each HIV clinic visit, assessments of pregnancy intentions and ARV optimizations at clinic level. This is relatively new area as guideline implementation is in the second year. Besides, various studies have only isolated various factors e.g. in women decision making without necessarily the input of providers in PMTCT-targeted manner as well as that of spouses. The present study therefore sought to investigate factors influencing pregnancy preparedness among HIV positive women in Seme Sub-County.

1.2 Statement of the Problem

Pregnancy preparedness is precautionary measures for being ready to conceive and encompasses readiness of a health provider and HIV positive woman to contain possible risk factors based on the available information for mother-to-child HIV transmission. It encompasses assessment pregnancy status, pregnancy intentions, contraceptive status and a suppressed viral load level for HIV positive women of reproductive ages of 14 to 49 years. According to (National AIDS & STI Control Program [NASCOP], 2018), the prevalence of pregnant HIV positive women in Seme Sub-County is 18%. Besides, Seme Sub-County recorded the highest percentages of known positives among pregnant mothers as compared to the neighboring Sub-Counties in Kisumu County (See Table 1.2). (DATIM, 2018)
Table 1.2: Known HIV positive trends among pregnant women in different Sub-Counties in Kisumu County

<table>
<thead>
<tr>
<th>SUBCOUNTY</th>
<th>Total positives</th>
<th>2017</th>
<th>2018</th>
</tr>
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<tbody>
<tr>
<td>Kisumu Central Sub-County</td>
<td>310</td>
<td>231</td>
<td>688</td>
</tr>
<tr>
<td>Kisumu East Sub-County</td>
<td>147</td>
<td>98</td>
<td>245</td>
</tr>
<tr>
<td>Kisumu West Sub-County</td>
<td>153</td>
<td>107</td>
<td>268</td>
</tr>
<tr>
<td>Muhoroni Sub-County</td>
<td>97</td>
<td>73</td>
<td>260</td>
</tr>
<tr>
<td>Nyakach Sub-County</td>
<td>166</td>
<td>137</td>
<td>341</td>
</tr>
<tr>
<td>Nyando Sub-County</td>
<td>148</td>
<td>111</td>
<td>339</td>
</tr>
<tr>
<td>Seme Sub-County</td>
<td>152</td>
<td>127</td>
<td>295</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>KPs</th>
<th>New</th>
<th>%age of KPs</th>
<th>Total positives</th>
<th>KPs</th>
<th>New</th>
<th>%age of KPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>79</td>
<td>74.52%</td>
<td></td>
<td>968</td>
<td>280</td>
<td>71.07%</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>66.67%</td>
<td></td>
<td>355</td>
<td>110</td>
<td>69.01%</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>69.93%</td>
<td></td>
<td>386</td>
<td>118</td>
<td>69.43%</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>75.26%</td>
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Source: DATIM (2018)

Government efforts on pregnancy preparedness have been in place since 1992 through NASCOP strategies. Despite this, 33% of women aged 15-54 years with self-reported HIV positive status who had a live birth between 2012-2016 in Seme Sub-County, had 56% of their infants reported to be HIV-infected. The infections demonstrate possible poor preparedness among these women. Some of the factors influencing pregnancy preparedness are categorized as demographic, partner characteristics and health facility factors.

For instance, as a demographic factor, maternal age on young HIV positive women aged 20-25 years were less likely to adhere to ARV prophylaxis and receive NVP for their infants. Similarly, low maternal education level was associated with poor uptake of ARV prophylaxis and drop out of PMTCT services (Gourlay, Wringe, & Todd, 2015). Similarly, (Gourlay, Wringe, & Todd, 2015) showed that young women aged 20-25 years were less likely to receive or adhere to ARVs, hence poor pregnancy preparedness. Partner characteristics in terms of intimate partner violence, communication skills, HIV spousal disclosure and socioeconomic characteristic among others would also influence level of pregnancy preparedness among the HIV positive women (Bajunirwe & Muzoora, 2015). For instance, Intimate Partner Violence has been shown to have a negative effect on ART adherence among HIV infected women, thus negatively influencing their pregnancy preparedness. Supportive relationship between HIV positive mother and spouse helps the mother to overcome key barriers and nurture good practices for pregnancy preparedness (Christofides & Jewkes, 2010). For health facility factors, the Ministry of Health (MOH) recommends a woman centered approach targeting specific interventions for those with childbearing
potential HIV care visits before and during pregnancy (Wangui, 2016). This is to be implemented through a formal “RH screening tool” that screens for contraceptive use by HIV positive women, pregnancy assessment at every visit to health facility, pregnancy intention in the next 3 months following a current visit and ART initiation and adherence. The present study therefore, sought to investigate demographic factors, partner characteristics and health facility-factors affecting pregnancy preparedness among the HIV positive women in Seme Sub-County.

1.3 Main Objective
To investigate level of pregnancy preparedness, demographic factors, partner characteristics, and health facility factors affecting pregnancy preparedness by HIV positive women in Seme Sub-County.

1.3.1 Specific Objectives
The research was guided by the following specific research objectives;

1. To determine level of pregnancy preparedness by HIV positive women in Seme Sub-County.
2. To investigate demographic factors influencing pregnancy preparedness by HIV positive women in Seme Sub-County.
3. To investigate partner characteristics influencing pregnancy preparedness by HIV positive women in Seme Sub-County.
4. To investigate health facility factors influencing pregnancy preparedness by HIV positive women in Seme Sub-County.

1.3.2 Research Questions
The study sought to answer the following research questions:

i. What is the level of pregnancy preparedness by HIV positive women in Seme Sub-County?
ii. What are demographic factors influencing pregnancy preparedness by HIV positive women in Seme Sub-County?
iii. What are the partner characteristics influencing pregnancy preparedness by HIV positive women in Seme Sub-County?
iv. What are the health facility-factors influencing pregnancy preparedness by HIV positive women in Seme Sub-County?
1.4 Significance of the Study

Understanding pregnancy preparedness among the HIV positive pregnant women would help them and the general public on sustaining optimal sexual reproductive health approaches in bringing forth-future generations through pregnancies. Knowledge of demographic factors influencing pregnancy preparedness among HIV positive women is important in fostering good pregnancy preparedness among all women of reproductive age of 14 to 49 years. The findings of this study will inform local policy implementation for effective healthcare service delivery to this vulnerable group of HIV positive women.

Knowledge on partner characteristics and how it influences pregnancy preparedness by HIV positive women may also help both discordant and HIV positive couples in improving on their perception and knowledge on HIV/AIDS related issues with respect to their sexual reproductive health and gender roles in the society. This study will add to scientific body of knowledge on the extent of pregnancy preparedness among HIV positive women and help sustain critical measures in bringing forth-future generation.

1.5 Scope of the Study

This was a hospital-based study restricted to investigating factors affecting pregnancy preparedness among the HIV positive women in Seme Sub-County. Thematically, it was concerned with demographic factors, partner characteristics and health facility-factors influencing pregnancy preparedness among the HIV positive female clients. The study was only concerned with pregnant women who were HIV positive: with previously known HIV positive status or those newly diagnosed with HIV Virus in pregnancy. Data collection lasted for two months beginning March 2019 and ending April 2019.
1.6 Definition of Key Terms Variables

**Demographic Factors**: Are personal characteristics are used to collect and evaluate data on people in a given population. Typical factors include age, gender, marital status, race, education, income and occupation.

**Health Facility Factors**: Factors associated with health facilities based on service delivery guidelines that have influence on mother’s decision to get pregnant

**HIV positive Women**: Women infected with HIV virus, a retrovirus that causes AIDS and can be transmitted to child perinataly

**Intimate Partner Violence**: Intimate partner violence (IPV) is domestic violence by a current or former spouse or partner in an intimate relationship against the other spouse or partner. IPV can take a number of forms, including physical, verbal, emotional, economic and sexual abuse. The World Health Organization (WHO) defines IPV as "... any behaviour within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship, including acts of physical aggression, sexual coercion, psychological abuse and controlling behaviors.

**Partner characteristics**: Feature or quality attributed typically to a male partner or spouse and which in a relationship has or leads to aspects HIV transmission, care & treatment and prevention outcomes. These include IPV, communication including disclosure and socioeconomic characteristic among others.

**Pregnancy Preparedness**: Pregnancy preparedness is a precautionary measure for readiness to conceive. It encompasses readiness of a health provider and HIV positive women to contain possible risk factors based on the available information for mother-to-child HIV transmission. At the health facility level, HIV Care providers in ART clinics are to use an assessment tool (from 2016) that encompasses pregnancy status, pregnancy intentions, contraceptive status and a suppressed viral load level. All these, as a trigger to preparedness for desired outcome

**Socio-cultural Factors**: Are the larger scale forces within cultures and societies that affect the thoughts, feelings and behaviors. Such factors include attitudes, relationships, beliefs, and child bearing and rearing practices.

**Violent Environment**: This is a situation in an intimate and/or family relationship where partner or spouse assumes a position of power over his HIV positive partner and causes fear in the form of physical, sexual, psychological, emotional or economic.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter contains a review of the literature related to the study. It is guided by the following research questions: what is the level of pregnancy preparedness by HIV positive women in Seme Sub-County? What are the demographic factors influencing pregnancy preparedness among the HIV positive women in Seme Sub-County? What are the partner characteristics influencing pregnancy preparedness among the HIV positive women in Seme Sub-County? What are the health facility-factors influencing pregnancy preparedness among the HIV positive women in Seme Sub-County?

2.2 Interventions to Reduce Pediatric HIV Infections

In September 2015, WHO member states attended a UN summit where members (including Kenya) reaffirmed their commitment to fully implement all goals contained in the 2011 United Nations General Assembly Special Session on HIV/AIDS (UNGASS) Declaration of Commitment, which included reducing the proportion of infants infected with HIV by 50% by 2020.

In developed countries such as United States, combination antiretroviral therapy is considered the standard of care for the prevention of perinatal transmission and is recommended to be administered antepartum and during labor and delivery, regardless of plasma HIV load or CD4 cell count. The US Public Health Service Task Force recommendations for antiretroviral therapy during pregnancy indicate that women who are currently receiving antiretroviral therapy for their own health should continue to receive the treatment regimen if it is effective at suppressing viral replication but that Efavirenz use should be avoided during the first trimester (Asefa & Mitike, 2014). This recommendation is based on the concern that the discontinuation of therapy could result in a rebound of plasma viral load and a risk of a decline in immune status leading to an increased risk of perinatal transmission (Asefa & Mitike, 2014). For women with known HIV positive status who want to become pregnant, the use of antiretroviral prophylaxis during pregnancy can reduce mother-to-child transmission of HIV. They need to get as healthy as possible before becoming pregnant, start HIV treatment before pregnancy if they need it for their own health, or can start treatment during pregnancy to lower the risk of passing HIV to the baby, ensure that the baby is tested for HIV right after birth and initiating prophylactic treatment for the baby (Almutaz, 2012). Afterwards, family
planning services that promote healthy timing and spacing of pregnancies are important to reduce the risk of adverse pregnancy outcomes such as low birth weight, preterm birth and infant mortality.

In December 2005, the Prevention of Mother to Child Transmission (PMTCT) High Level Global Partners Forum in Abuja, Nigeria, issued a Call to Action “Towards an HIV and AIDS Free Generation” (Mills, Nachega, Buchan, & Orbinski, 2006). The Call to Action expresses the political will and commitment of national governments and stakeholders to work together towards the goal of eliminating HIV infection in infants and young children, which will lead to a worldwide HIV/AIDS free generation (Dionne-Odam, 2016). The implication of this commitment was that governments including that of Namibia with support from development partners, must accelerate the provision of PMTCT services, including use of more efficacious regimens for PMTCT, and furthermore, establish efficient monitoring and evaluation systems for tracking progress in the elimination of HIV transmission to infants and young children (MOH, 2008). Based on the most recent PMTCT statistics presented here, it appears that Namibia is still facing some challenges and barriers in achieving the goals and commitments set at UNGASS and the Global Partners Forum in 2005.

Effective PMTCT programmes require women and their infants to have access to and to take up a cascade of interventions including antenatal services and HIV testing during pregnancy; use of ART by pregnant women living with HIV; safe childbirth practices and appropriate infant feeding; uptake of infant HIV testing and other post-natal healthcare services (Spangler, Onono, Bukusi, Cohen, & Turan, 2014). The World Health Organization (WHO) promotes a comprehensive approach to PMTCT programmes which includes, preventing new HIV infections among women of childbearing age, preventing unintended pregnancies among women living with HIV, preventing HIV transmission from a woman living with HIV to her baby and providing appropriate treatment, care and support to mothers living with HIV and their children and families (Peltzier, Chao, & Dana, 2009). WHO’s 2013 guidelines recommended that a woman living with HIV only continue on ART after breastfeeding if it would benefit her own health (World Health Organization; United Nations AIDS; United Nations Children's Fund, 2015). However, in September 2015 the WHO released new guidelines recommending that all pregnant women living with HIV be immediately provided with lifelong treatment, regardless of CD4 count (which indicates the level of HIV in the body) or clinical staging. This approach was also called option B+. By 2015, the
implementation of Option B+ had resulted in 91% of the 1.1 million women receiving ARVs as part of PMTCT services being offered lifelong ART (Dionne-Odam, 2016). In resource-poor settings such as Kenya, when formula feeding is not a viable option, the WHO advises women living with HIV to exclusively breastfeed (rather than mixed feeding), providing that they are on ART (Haeri, et al., 2014). This is because, while formula feeding offers the safest option for postnatal HIV prevention, in resource poor settings it is not always easy for families to afford formula or access things such as clean water which are needed for it use.

2.3 Pregnancy Preparedness among HIV Positive Women

Supporting women living with HIV (WLWH) to plan for desired pregnancy and good pregnancy outcome is a critical component of comprehensive women-centred HIV care and central to women’s sexual and reproductive health and rights and HIV prevention efforts (Carter et al, 2013). Pregnancy incidence rates among women living with HIV (WLWH) have increased over time due to optimal preparedness, longer life expectancy, improved health status, and improved access to and HIV prevention benefits of combination antiretroviral therapy (cART) (Cooper, Charurat, Mofenson, Hanson, Pitt, & Diaz, 2012).

A previous study (Chou, Ariel, Smits, & Korthuis, 2015) looked at the benefits of pregnancy screening among HIV positive women as a measure of pregnancy preparedness. The objective of the study was to synthesize the evidence on risks and benefits of screening HIV infection in pregnant women. Using descriptive study design and semi-structured questionnaires, the study found that benefits from combination antiretrovirals appear to greatly outweigh the risk of short-term complications. In settings with a maternal prevalence of 0.15%, the estimated number needed to screen to prevent one case of maternal-to-child transmission using conservative estimates of intervention effectiveness ranged from 3,500 to 12,170, and in settings with a maternal prevalence of 5%, ranged from 105 to 365 (Chou, Ariel, Smits, & Korthuis, 2015).

In a previous study (Salters, et al., 2017), retrospective data from Canadian HIV Women’s Sexual and Reproductive Health Cohort Study (CHIWOS) was analyzed. Kaplan-Meier methods and GEE Poisson models were used to measure cumulative incidence and incidence rate of pregnancy after HIV diagnosis overall, and by pregnancy intention. The study used multivariable logistic regression models to examine independent correlates of unintended pregnancy among the most recent/current pregnancy. The study found that nearly one-quarter
of women reported pregnancy after HIV diagnosis, with 61% of all pregnancies reported as unintended. The study also found that adequate preparations among these mothers involved adherence to ARVs, pregnancy screening, contraceptive usage to optimize pregnancy planning and outcomes and to prevent unintended pregnancy.

Although AIDS-related deaths among U.S. women have decreased, the number of HIV-positive women, especially of reproductive age, has increased. A better understanding of the interaction between HIV and family planning as a measure of preparedness is needed, especially as antiretroviral medications allow HIV-positive women to live longer, healthier lives. In a previous study (Sheri, Kirshenbaum, Elizabeth, & Jacqueline, 2004) on pregnancy decision-Making among HIV-Positive Women in Four U.S. Cities, qualitative methods were used to examine pregnancy decision-making among 56 HIV-positive women in four U.S. cities. Biomedical, individual and socio-cultural themes were analyzed in groups of women, categorized by their pregnancy experiences and intentions. The study found that regardless of women’s pregnancy experiences or intentions, reproductive decision-making themes included the perceived risk of vertical transmission (which was often overestimated), beliefs about vertical transmission-risk reduction strategies, desire for motherhood, stigma, religious values, attitudes of partners and health care providers and the impact of the mother’s health and longevity on the child (Sheri, Kirshenbaum, Elizabeth, & Jacqueline, 2004). The study also found that those who became pregnant or desired children after their diagnosis seemed more confident in the efficacy of risk reduction strategies and often did not already have children. Although this study (Sheri, Kirshenbaum, Elizabeth, & Jacqueline, 2004) looked at the pregnancy decision-making among the HIV-positive women, it did not bring out clearing on how demographic characteristics, partner characteristics and health facility-factors influence their preparedness for the pregnancy. The present study therefore looked at these three factors to fill the gaps in the reviewed literature.

A previous study (Mills, Nachega, Buchan, & Orbinski, 2006) done in South Africa looked on how well HIV positive mothers implement their ART medication if they become pregnant, as a measure of pregnancy preparedness. Using descriptive study design with both quantitative and qualitative methodologies of collecting data among the 50 HIV positive pregnant mothers, the study found that adherence to ART was an important preparedness step before getting pregnant and during the antenatal period. A Study by Mills, Nachega, Buchan, & Orbinski, (2006) in South Africa also found that taking antiretrovirals consistently as
prescribed was critical determinant in health and pregnancy outcomes for HIV-positive mother. The study also found that pregnancy preparedness through optimal adherence to ART resulted to more than 95% viral suppression, which helps in positive pregnancy outcome among the HIV positive mothers because not only does satisfactory adherence prevent maternal illness, but it will also prevent transmission of HIV to unborn children.

A study (Wangui, 2016) also sought to determine the impact of pre-conception knowledge of positive HIV status on uptake of Prevention of Mother-to-child Transmission interventions and infant HIV free survival at Naivasha District Hospital. The study was a retrospective cohort study targeting mother-infant pairs presenting at Naivasha District Hospital Maternal and Child Health Clinic and the Comprehensive Care Clinic for HIV care. A questionnaire was administered to collect data on socio-demographics characteristics, timing of knowledge of maternal HIV status, uptake of PMTCT interventions and infant HIV status. Moreover, (Wangui, 2016) found that differences in uptake of PMTCT interventions between women with and without preconception knowledge of positive HIV status were not significantly different. Hence, preconception knowledge of positive HIV status is not a factor associated with uptake of PMTCT interventions such as contraception to prevent unintended pregnancy or delay pregnancy if maternal health poor, use of ARVs, facility deliveries, infant feeding choices, infant ARV and co-trimoxazole prophylaxis. It was only positively associated with uptake of CD 4 count testing in HIV positive women in this study. While the reviewed study looked at the pre-conception knowledge among the HIV positive mothers, it did not focus on factors influencing this knowledge and more particularly pregnancy preparedness with respect to contraceptive usage, screening, and assessment and ARV usage.

2.4 Demographic Factors Influencing Pregnancy Preparedness by HIV Positive Women

Previous research in developing countries has suggested several reasons for low utilization of maternal health care which include: problems in access, low educational level and other factors describing socio-demographic background (mostly studied from the female perspective), lack of woman´s autonomy, low quality of services, cultural beliefs and other community members´ influence (Babalola & Fatusi, 2009).

2.4.1 Maternal Age and Pregnancy Preparedness

Age-disaggregated analyses of prevention of mother-to-child transmission (PMTCT) program data to assess pregnancy preparedness by HIV positive pregnant women are limited but critical in understanding the unique needs of this vulnerable high-risk age-band population. A
Two previous studies (Bajunirwe & Muzoora, 2015 and Musarandega, Machekano, Muchuchuti, Mushayi, Mahomva, & Guay, 2017) investigated pregnancy preparedness through PMTCT Service uptake among adult women attending antenatal care in selected health facilities in Zimbabwe. The study analyzed data from 22,215 women aged 12–50 years (22.5% adolescents). It was found that older women of above 35 years, who embraced optimum PMTC services were more prepared for their pregnancies compared to younger pregnant women [adjusted relative risk = 1.34; 95% confidence interval: 1.22 to 1.47] who showed low PMTC uptake. While this study investigated the pregnancy preparedness by women in general, the present study focused on the maternal age as a factor in pregnancy preparedness by HIV positive women in Seme Sub-County.

In a previous study (Asefa & Mitike, 2014) on pregnancy preparedness through assessing uptake of PMTCT services among mothers in Adama town, Ethiopia, younger pregnant women of less than 23 years were less likely to undergo an ANC follow-up session, uptake of optimal PMTC services, and Voluntary HIV Counseling & testing (VCT) services as compared to older pregnant women. While this study investigated pregnancy preparedness that encompassed VCT, the present study focused on HIV positive pregnant women whom did not have to under an HIV test again, as part of pregnancy preparedness.

Similarly, another study (Almutaz, 2012) explored and analyzed the factors influencing access and utilization of PMTCT services by pregnant women (including those in high-risk groups) in Sudan. The Andersen model of health seeking behaviour was adopted and used as a guide for the literature review. The study found that women who were younger, lowly educated, living in rural areas and suffering from gender inequalities were less likely to prepare for their pregnancies as they had also low access and use PMTCT services.

In a study (Mutiso, Kinuthia, & Qureshi, 2008) conducted among HIV pregnant women attending comprehensive care centre at KNH. The study found that pregnant women aged 35 years and above were more likely to accept HIV counseling, pregnancy intention screening, pregnancy assessment than the younger women. Moreover, Gatembura, (2010) investigated uptake of intervention in prevention of mother to child transmission of HIV by mothers delivering at Kenyatta National Hospital. This was a cross sectional study conducted among HIV positive mothers with infants on PMTCT follow up and health care workers over a period of 1 month. The study found that pregnant positive women above 30 years were more
prepared in terms of uptake of VCT services, HTC services, PMTC and ANC services as compared to younger HIV positive women.

2.4.2 Marital Status and Pregnancy Preparedness
In a previous study (Granberg, 2015), women who actually got tested for HIV during ANC were those staying with partners or spouses, and those whose partners or spouses had a higher level of education. It is plausible that women who do not want to be tested for HIV were those whose partners had less knowledge about the consequences of HIV. Another study (Granberg, 2015) showed that higher spousal level of education and belonging to a higher level of wealth quintile were significantly associated with having knowledge about PMTCT. A previous study (Spangler, Onono, Bukusi, Cohen, & Turan, 2014) on the use of PMTCT and maternal health services conducted on women regardless of their HIV status, demonstrated that married HIV positive women that had not disclosed their HIV status to their spouses were less likely to be prepared for their pregnancies. They also had the lowest attendance at PMTCT and Maternity Health Services clinic. Disclosing their HIV status, especially to their spouses were associated with taking ARVs to prevent maternal HIV transmission. These women were also more likely to give birth at a health facility compared to women who had not disclosed their HIV status to anyone.

A previous study (Bajunirwe & Muzoora, 2015) found that married women in rural areas thought they would be better off consulting their husbands before taking an HIV test and could therefore be more likely to get prepared for their pregnancies compared to single women. This means that marital status and spousal involvement is an important consideration in pregnancy preparedness by HIV positive women especially in increasing uptake of PMTCT of HIV. The study also revealed that over half of the married women completed the full antenatal course, perinatal course and postpartum course, compared to single women. Maternal use of ARVs was associated with having a partner who had undergone an HIV test.

2.4.3 Parity and Pregnancy Preparedness
A previous study (Ongaki, Obonyo, Nyanga, & Ransom, 2019) determined factors affecting uptake of Prevention of Mother-to-child transmission (PMTCT) services among HIV-positive pregnant women at Lodwar County Referral Hospital in Turkana County, an arid area in northern Kenya through retrospective review women attending antenatal care (ANC) and accessing PMTCT services between January 2015 and December 2016. A total of 230 participants were included in the study. Bivariate analyses showed maternal prophylaxis odds
ratio $[\text{OR}] = 45.71$; 95% confidence interval [CI]: 10.35-202.00) and having more than one previous birth (>1 para) (OR = 2.64, 95% CI: 1.45-4.81), were significantly associated with uptake of PMTCT. A study by (Jackson, Chopra, & Doherty, 2007) also found that higher number of previous births (high parity) was associated with good PMTC practices, a preparedness factor by HIV positive pregnant women because these women were now experienced and knowledgeable on good health practices in readiness for their pregnancies. Therefore, (Jackson, Chopra, & Doherty, 2007) concluded that HIV positive pregnant women with maternal prophylaxis and more number of successful previous births were more prepared for their subsequent pregnancies.

A previous study (Puchalski, Lettow, & Straus, 2019) reviewed 18 studies on interventions for improving uptake and retention of HIV positive pregnant women in PMTCT programmes. Given the heterogeneity in interventions and outcome measures, only one meta-analysis of two studies and one outcome was conducted; the study found a statistically significant increase in antiretroviral therapy (ART) used during pregnancy for women with more than 1 para, as compared to those with one para. The study also found that uptake was still low among clients with missed appointments, those who failed to disclose their status and those with only 1 para. Pregnant women with more than two para had prior information and knowledge on HIV and hence were more prepared for the subsequent pregnancies.

A previous study (Gourlay, Wringe, & Todd, 2015) on factors associated with uptake of services to prevent mother-to-child transmission of HIV by pregnant women in rural Tanzania found that access to PMTCT services was low in this rural setting but improved markedly over time. In multivariate analyses for 2005–2012, being married, high number of previous births (parity) and increasing duration of infection were associated with access to ARVs and optimal practice of PMTCT among the HIV pregnancy mothers. Therefore, the study concluded that married HIV positive pregnant mothers with more than one para were more prepared than those with ≤ 1 para.

### 2.4.4 Level of Education and Pregnancy Preparedness

Many studies have indicated that socio-demographic elements influence pregnancy preparedness among women. For example, some studies (Adewumi, 2009, Magadi, Madise, & Rodrigues, 2016) indicated that women with high education level encourage good pregnancy preparedness due to their strict adherence to healthcare practices such as effective utilization of maternal health services. Moreover, (Babalola & Fatusi, 2009) found that
educated women are more likely than uneducated women to use ANC services, prepare adequately for their pregnancies, use ANC services early and frequently, and to use trained providers and medical institutions, hence positively associating good education background with safe delivery. Female education was also a strong influence of maternal mortality independent of income per head. In a study from Bangladesh, women with more than primary level education were more likely to prepare adequately for their pregnancies than those with no education. Similarly, a study conducted in Turkey (Celik & Hotchkiss, 2015) on determinants of pregnancy preparedness, women with six or more years of schooling were found to be more likely to use ANC services than women with no schooling. However, these studies targeted pregnant women in general, providing less specific information on HIV positive pregnant women. Given that the studies were conducted in Turkey and Bangladesh, their findings may not be generalized in the Kenyan setting.

Previous studies on education and wealth have found positive associations between these factors and pregnancy preparedness. In a previous study (Babalola & Fatusi, 2009) carried out a systematic review about antenatal care (ANC) utilization in developing countries. This revealed that women’s education was the strongest predictor of ANC visits, a factor for pregnancy preparedness, in sixteen studies out of twenty-eight. Women with better education seemed to be more likely to both receive the recommended number of visits and start the visits earlier than less educated women. In terms of economic status, it is proposed that other factors such as education act as mediators. In other words, economically stable women tend to be also better educated (Myer, Morroni, & Cooper, 2006). In Myer, Morroni, & Cooper, (2006) review, better socio-economic status or standard of living was detected as a positive contributor for ANC service utilization and pregnancy preparedness. However, these studies only looked at how education and wealth influenced ANC service utilization among the women in general, but not on how they influenced HIV positive pregnant mothers on their pregnancy preparedness.

### 2.4.5 Family Income Level and Pregnancy Preparedness

In a study from Nepal, (Haeri, et al., 2014) on household economic status was found to be an important factor associated with pregnancy preparedness. This can be explained by the ability to pay for ANC services by economically stable group. The fact that there was a significant relationship after controlling for other factors such as place of residence suggested that the richer group differ from the poor by more than just dispensable income. According to
(Nguyen, Oosterhoff, Ngoc, Write, & Hardon, 2015) women’s economic opportunity in providing for the family measured by their involvement in gainful or paid employment, type of occupation and status of work also affects their pregnancy preparedness, having increased control over income concerning their ability to healthily give birth. As a result they will have increased health seeking behaviour leading to improved maternal health (Nguyen et al., 2015). However, the reviewed studies (Haeri, et al., 2014) and (Nguyen, Oosterhoff, Ngoc, Write, & Hardon, 2015) looked at the influence of women economic status on pregnancy preparedness among pregnant women in general, but not bringing out how this factor influenced preparedness specifically for the HIV positive women in preparing for their pregnancies.

Place of living is also one of the factors which may influence use of maternal health care services among the pregnant women. Vitalis, (2013) established that women living in rural set up were less likely to embrace ANC services. Through a systematic review of the inequalities in maternal health, service utilization from 23 countries including Ethiopia the study showed that as part of pregnancy preparedness, utilization of maternal health services such as PMTC programs varied with level of income of these mothers. Further, (Vitalis, 2013) found that most of the mothers from affluent society practiced optimal PMTC services because of their ability to access good health care compared to low income mothers. However, this study majorly concerned with the general mothers and their accessibility to healthcare services with respect to their income level and not HIV positive pregnant mothers.

In a previous study conducted in Uganda (Ngoma-Hazemba & Ncama, 2016) on safe service utilization among child bearing aged women, almost half of the respondents at 46% of the women attended ANC at least once in their pregnancy. The study also found that women living in urban areas and receiving ANC services were about three times higher than those living in rural areas. A study by (Dionne-Odam, 2016) also found that economic status of households affected effective utilization of ANC services among woman. However, this study only looked at safe delivery service utilization among women of childbearing age and not on their pregnancy preparedness especially among the women living with HIV. Conversely, economic engagement such as employment may also bring physical exhaustion and in some cases, employed pregnant women may be too busy to go to health services, hence poor use of the ANC services (Lazuriaga & Mofenson, 2016).
2.4.6 Religious Factors and Pregnancy Preparedness

Religion is the other variable that was seen to have some significant relation with appropriate pregnancy preparedness through PMTC cascade and service utilization. In a previous study (Skirton & Barr, 2010), it was noticed that individuals with strict adherence to Muslim, orthodox/catholic and protestant doctrines would encourage PMTC practices than those following traditional beliefs. However, these studies dwelt more on PMTC service utilization at the health facilities and not on how these religious factors would influence their pregnancy preparedness particularly among the women living with HIV.

Another study in Uganda (Bajunirwe & Muzoora, 2015) on barriers to optimal PMTC usage, traditional beliefs had a negative association with PMTC usage among pregnant women. According to Makoni, (2015) pregnant women who believed in Christianity practiced optimum PMTC and were more likely to prepare well for their pregnancies than those of other faith or non-religious women. The present study looked at how religion as a factor influenced Pregnancy Preparedness among the pregnant women living with HIV in Seme Sub-County.

2.5. Partner Characteristics and Pregnancy Preparedness by HIV Positive Women

2.5.1 Intimate Partner Violence and Pregnancy Preparedness

Intimate Partner Violence (IPV) defined as “actual or threatened physical, sexual, psychological and emotional abuse by current or former partner” has become a global public health concern with 25–43% of women affected in their lifetime (Jewkes, Dunkle, Nduna, & Shai, 2010). Like other forms of domestic violence, it is of particular concern when it occurs during pregnancy because of the implications for safe motherhood and child health especially among the HIV positive mothers. There is a persisting feeling among researchers that gender-based violence against women from low-income countries may be under reported (Straten, King, Grinstead, Vittinghoff, Serufilira, & Allen, 2014). Lack of sufficient focus on the problem by researchers and female acquiescence has been blamed. Intimate partner violence may result from maladjustment to stress, such as that arising from pregnancy, resulting in a partner venting his emotional strains on the other partner through different forms of violence (Shamu, Abrahams, Zarowsky, Shefer, & Temmerman, 2013). Intimate partner violence against women in particular may also result from socio-cultural factors that keep women under absolute control by men. The reviewed studies only looked into the consequences of
Intimate Partner Violence on the general women folk and not how this would influence pregnancy preparedness among the HIV positive women.

Intimate Partner Violence during pregnancy is significantly associated with a number of adverse health behaviour during pregnancy, including smoking, alcohol and substance abuse, and delay in prenatal care, even after controlling for other mediating factors. Possible explanations are that women smoke, drink or take drugs for self-medication to cope with the stress, shame and suffering caused by the abuse (Jewkes, Levin, & Penn-Kekana, 2014).

In a study conducted in the United States (Kim, et al., 2016), intimate partner violence was found to have statistically significant negative effect on ART adherence among HIV-infected women. Treatment adherence is critical for suppressing HIV-infected patients’ viral loads, and poor adherence to ART can have a detrimental effect on disease management, causing patients to develop a resistance to medication and eventually result in treatment failure (Christofides & Jewkes, 2010). Violent relationships increase women’s sexual risk taking behaviors and can impede efforts to negotiate safe sex practices, which are known to increase the risk of HIV exposure and infection (Jewkes, Dunkle, Nduna, & Shai, 2010). IPV can be a major barrier to ART adherence, and thus must be addressed in HIV treatment and care programs. Antenatal visits can provide entry point for IPV screening. Efforts to screen women for IPV have been received positively in other settings and should be considered in the context of a maternal-health focused ART treatment programs.

Intimate partner violence has been shown to negatively affect women’s adherence to ART, because of emotional distress, a common consequence of IPV. A meta-analysis of ART adherence during pregnancy revealed that HIV-infected women face a unique set of challenges to ART adherence during pregnancy and postpartum periods, and a pooled analysis revealed that 73.5% of pregnant women had adequate ART adherence. Poor ART adherence can have a number of adverse effects on both mothers and babies, including increased viral load, failure of treatment and MTCT of HIV (Christofides & Jewkes, 2010). Delays in prenatal care might be due to abusive partners preventing women from leaving the house or to abused women missing appointments because of injuries. The present study seek to bring out on how intimate partner violence during pregnancy affects pregnancy preparedness, especially among the HIV positive women in low-resource settings, since evidence from population-based studies from Bangladesh, Kenya, Rwanda, and Zimbabwe
shows that women who ever experienced intimate partner violence are less likely to prepare adequately during their pregnancies.

2.5.2 Partner Communication and Pregnancy Preparedness

A meaningful and supportive relationship between HIV positive woman and spouse helps the woman to overcome significant barriers to antiretroviral therapy adherence and practice good pregnancy preparedness. This relationship plays an important role in improving adherence to prescribed ARV drugs and adequate pregnancy preparedness among this population. It is believed to be a motivating factor for adherence to HAART. Trust and confidence in spouse have been shown to increase the levels of ART adherence (Carter, Bourgeois, O’Brien, Abelsohn, Tharao, & Greene, 2013). Knauth, Barbosa, & Hopkins (2003), demonstrated that good spousal communication and trust of the pregnant woman on the spouse improves good ART adherence ten-fold when compared to those pregnant women who do not communicate or confide in their spouses.

In a previous study (Kaphle, Neupane, Kunwar, & Acharya, 2015) it was found that quality and clarity of communication, compassion shown by the spouse and involvement of the spouse in the treatment decisions were identified as motivators of ART adherence among the HIV pregnant women. However, other factors such as hostile home environment where pregnant women become frustrated by the spouse especially in situations where misunderstandings occur, treatment becomes complex and side effects becomes unmanageable, resulting to non-adherence. Findings of this study correlates with the (World Health Organization; United Nations AIDS; United Nations Children's Fund, 2015) report which showed that when men are involved in the PMTCT programme then the outcomes of such a programme become more favorable. The health care workers can counsel, test and talk to the couples together, and they can subsequently then abide by different ways of protecting their newborn from becoming HIV infected.

According to Bedimo, Clark, Dumestre, Rice, & Kissinger (2005), women who do not communicate, discuss or agree with their partners regarding pregnancy are significantly more likely to report substance use, emotional distress and depression. All of these factors are known to impede ART adherence among pregnant women and are thus a major barrier in optimizing care in this population. According to (Lazuriaga & Mofenson, 2016) low spouse communication is one of the reasons for defaulting the prescribed regimen during pregnancy. Moreover, Simoni, (2016) document that fear of rejection or discrimination may prevent a
pregnant mother from disclosing their HIV status to family members, friends thereby losing
out the social support and therefore, discouraging proper preparedness during pregnancy
period. The findings of this study on the importance of male involvement in the PMTCT
programme correlates with the findings of a study done by Florsheim, Emi, McCann,
Mathew, Ritsuko, & Trina (2013), which showed that infant mortality was reduced by more
than 40% compared to when there had been no involvement by males.

2.5.3 Partner Socio-economic Characteristics and Pregnancy Preparedness

Research that have investigated reasons for low use of PMTCT services and poor pregnancy
preparedness have mainly documented economic and socio cultural factors. A national
evaluation of eighteen PMTCT pilot programs in South Africa, for example, found inability
to pay for transportation costs to health care facilities to be a key impediment to pregnant
mothers making their PMTCT appointments for good pregnancy preparedness (Myer,
Morroni, & Rebe, 2007).

A study (Kaphle, Neupane, Kunwar, & Acharya, 2015) on knowledge of danger signs and
complication readiness among 310 pregnant women in Leknath municipality, Nepal, the
study utilized cluster random sampling techniques in collecting data. The summary statistics
revealed that 34.8%, 59% and 39.7% of respondents respectively had knowledge of danger
signs during pregnancy, delivery and post-partum. Only 33.2% of women interviewed had
knowledge on all five components of Birth preparedness and complication readiness. About
same proportion (34.2%) of women were prepared for all five components of BPCR. The
multinomial logit model revealed that women’s education, antenatal care services and
awareness of obstetric danger signs are significant predictor of BPCR. The study
recommended that efforts be made to improve knowledge of danger signs, encouragement of
antenatal care usage and education of female folk.

A study (Fantahun & Hiley, 2008) was conducted on knowledge and practices with respect to
pregnancy preparedness, complication readiness and factors associated with their practices.
For women who gave birth in the last 12 months preceding the survey in Adigrat town,
Tigray regional state, Ethiopia, a cross sectional and community-based study was conducted
for the period between September and October 2006. A total of 538 women who gave birth in
the last 12 months preceding the survey were randomly selected and data extracted from them
using self- structured questionnaire. Considering preparedness practices such as saving
money, having transport arrangements and deciding on the place of delivery, 22% of the
respondents were considered prepared. The multivariate logistic model revealed that literacy, marital status, parity, knowledge of danger signs and history of complications are all significant predictors of pregnancy preparedness and complication readiness. The study, among other items recommended that educational opportunities should be expanded for all women as a way of improving pregnancy preparedness and complication readiness. In addition, health workers should seize the opportunities of women attending antenatal care services to educate pregnant women on the need for pregnancy preparedness and complication readiness. However, the reviewed studies did not look into the influence of these demographic factors on pregnancy preparedness among the HIV positive women.

In a study (Mitchel & Stephens, 2014) on factors that influence pregnancy preparedness practices and complication readiness among 3,612 pregnant women in Jumma zone, south west Ethiopia from June- September 2012. The researchers obtained the required data through self- structured questionnaire and mixed effects multilevel logistic regression model was used to identify the factors affecting good pregnancy preparedness and complication readiness. Summary statistics show that 23.3% of the interviewees were ready for birth and complications. The multinomial logistic regression shows that geographical location, educational status, husband’s occupation and wealth quintile, attitude and frequency of antenatal care visits and knowledge of danger signs during labour were key predictors of for good pregnancy preparedness and complication readiness. The study concluded that the level of good pregnancy preparedness is low in the studied area. The study therefore recommended that efforts should be made to encourage antenatal care visits, emphasis should be placed on complication signs and promotion of community-based health education. However, the reviewed study did not look into the influence of geographical location, educational status, husband’s occupation and wealth quintile on pregnancy preparedness by the HIV positive women.

In a previous study (Omari, Afrane, & Ouma, 2016) related to pregnancy preparedness and complication readiness among women attending antenatal care at health facilities within Bureti Sub-County, a total of 149 women were sampled, the summary statistics showed that 70.5% (n= 105) were prepared for birth, while 90.6% (n=135) reported readiness for complications. Majority of the respondents 87.9 % (n =131) had identified a place for delivery, 72.5% (n=108) knew the expected date of delivery, only 4.7% had knowledge of danger signs and vaginal bleeding was the most mentioned signs of complications during
pregnancy, delivery and post-partum period. The study revealed that both knowledge of
danger signs and utilization of ANC are significant predictors of pregnancy preparedness.
The authors recommended that the ministry of health should intensify ANC health education
on obstetric danger signs to all women utilizing ANC irrespective of their demographic
characteristics. However, this study did not bring out the level of pregnancy preparation
among the HIV positive women and demographic factors influencing their preparedness.

2.6 Health Facility Factors Influencing Pregnancy Preparedness by HIV Positive
Women

The importance of studying the health facility factors influencing pregnancy preparedness
lies in the fact that it is the site that readily lends itself to interventions. In a study conducted
in Botswana, women receiving treatment and those who declined treatment, community
members and health workers stated that the negative attitude of some health workers posed a
barrier to participation in PMTCT services (Asefa & Mitike, 2014). The two studies
illuminated the ways in which health facility factors’ dynamics shape the uptake of services,
pointing to the need to explicitly examine the structures in which services are provided and
the processes involved in provider-patient interactions, to fully understand the influence of
the service delivery context on women’s uptake of and follow-through with PMTCT services
and pregnancy preparedness. Similarly, (Rujumba, James, Tummine, Stella, & Harald, 2012)
conducted a study in Eastern Uganda aimed at listening to health workers and gaining lessons
for strengthening the programme for the prevention of mother to child transmission of HIV.
They noticed that there was no consistency of drugs supply to the facilities and hence another
challenge for running the PMTCT programme had cropped up. Consequently, some of the
study sites reported running out of test kits and Nevirapine for mothers and babies. Other
sites even decided to refer the needy mothers to the larger centres and hospitals where drugs
were more readily available. Generally, the whole process of going to one clinic and then
being referred to another large centre or hospital became very costly for women and their
families.

Findings from a study done in Eastern Uganda (Rujumba, James, Tummine, Stella, & Harald,
2012) while listening to the health workers on ways of strengthening the PMTCT programme
showed the need of more training on PMTCT to update their own knowledge and skills. The
participants emphasized the importance of continuous skill development and updating of
health workers on the latest developments and knowledge in PMTCT and HIV/AIDS fields
as vital measures for effectively managing PMTCT programmes. The same study indicated the need for adequate numbers of health workers to minimize the ever-expanding heavy load in order to strengthen the PMTCT programme. The study done in South Africa by (Sprague, Mathew, & Black, 2011) investigated if health system weakness constrained access to PMTCT and maternal HIV services. The study findings showed that there was poor data management in PMTCT programmes. Some participating sites where there was no computer the information was recorded manually, and after comparing the recorded indicators and the actual tallied figures the result reflected only a portion of PMTCT and ART activity, and generally the data collected was of poor quality.

One of the objectives of Kenya Government’s *National Reproductive Health Policy 2007* is to contribute to reduction of the HIV and AIDS burden and improve the reproductive health status of the affected and infected persons. It acknowledges that there is an unmet need for reproductive health services among HIV- infected persons especially among the HIV positive pregnant women. The government needs to address stigma, negative attitudes of service providers, knowledge gaps regarding interactions of antiretroviral drugs and contraceptive methods (National AIDS & STI Control Program [NASCOP], 2018). The Division of reproductive health in the year 2016 identified the following weaknesses in Kenya: Inadequate space, insufficient training and inadequate numbers of health workers to cope with the PMTCT workload. A study done by the Ministry of health at one hospital and 4 health centers in Embu, eastern province, Kenya in the year 2006, observed that health care providers’ knowledge on prenatal care was weak in several components of maternal and unborn care and they needed training on a comprehensive package of skills.

In the year 2001, member states of the United Nations set targets as part of the UNGASS declaration to reduce the proportion of infants infected with HIV by 50% by 2010. This was by ensuring that 80% of pregnant women accessing antenatal care have information, counseling and other HIV prevention services available to them. Currently the programme has faced challenges mainly because the services are not enough and existing services do not reach many women in need due to poor resources and infrastructure. In a study (Puchalski, Lettow, & Straus, 2019) conducted in Nairobi Kenya found that only 20% of antenatal mothers had been given single dose Nevirapine at the first clinic visit, 31% receiving contraception counselling while there was high coverage (88%) of PMTCT counselling since the study focused on sending text messages reminding mothers on the same. Improving
efficiency of PMTCT programs means addressing certain issues: Accessibility, clinic resources especially well trained human resource, testing methods, fear and distrust of health workers, disclosure and discrimination, drug effectiveness, treatment of mothers and feasibility of replacement feeding (World Health Organization; United Nations AIDS; United Nations Children's Fund, 2015). At each clinic visit, the health workers are expected to continue with adherence counseling. Adherence counseling should be an ongoing process carried out by all health care workers to reinforce the messages (National AIDS & STI Control Program [NASCOP], 2018).
2.7 Conceptual Framework

Independent Variables

Demographic Factors
- Age
- Marital status
- Parity
- Level of education
- Religious Factors
- Family Income Level

Partner Characteristics

Intimate partner violence
- Wife battering
- Violent environment
- Non-cooperative husband

Partner Communication
- Frequency of communication
- Partner discussions on pregnancy intention
- Disclosure
- RH discussion with others

Socio-economic Characteristics
- Family Income level
- Availability of resources

Health Facility-Factors
- Screened at baseline for contraceptive use
- Pregnancy-status assessed
- On ART, virally Suppressed
- Intentional Pregnancy

Dependent Variables

Pregnancy Preparedness

Figure 2.1: Conceptual Frameworks showing the relationship between the variables
2.8 Measurement of variables

2.8.1 Independent Variables:

In this study, independent variable was measured through demographic factors, partner characteristics and health facility factors.

i. Demographic factors: The indicators of demographic factors in this study were, age, marital status, parity, level of education and income Level of the pregnant HIV positive women.

ii. Partner Characteristics: Measurements of partner characteristics considered in the study were, intimate partner violence (IPV), partner communication and socio-economic status of the partner. For IPV, standard MOH 2016 HIV guidelines tool was used as a basis for screening questions.

iii. Health facility factors: The health facility factors measured in the study were availability of key healthcare services with an impact on pregnancy preparedness using a standard MOH RH screening tool.

2.8.2 Dependent variables

In this study, dependent variables were measured through pregnancy preparedness, in terms of access and use of contraceptive, pregnancy assessment, pregnancy intention and ART optimization.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction
In this chapter, a comprehensive description of how the requisite data was obtained processed, analyzed and interpreted to fulfill the research objectives underscored. The methodology elements described in this chapter include the study design that was applied, the actual study area, target population, the sample size and sampling procedure that was employed, data collection instruments, validity and reliability of the instruments, data collection methods and the data processing and analysis techniques and ethical considerations.

3.2 Research Design
A research design refers to the way or plan to be followed when conducting the study. Given that this study was facility based and retrospective in nature, it adopted a cross sectional descriptive design. A cross-sectional design collects data to make inferences about a population at one point in time. According to (Bryman, 2008) this design is a snapshot of the populations about which they gather data. Cross-sectional studies may be repeated periodically; however, in a repeated cross-sectional descriptive design respondents to the survey at one point in time are not intentionally sampled again, although a respondent to one administration of the survey could be randomly selected for a subsequent one. Therefore, data was collected from the study population at one time to examine factors influencing pregnancy preparedness by HIV positive women in Seme Sub-County. This design was chosen because it is applicable for collecting data on perceptions, attitudes and behavior using questionnaires in studies which involve larger samples.

3.3 Study Area
This study was done in Seme Sub-County within Kisumu County.

3.3.1 Population Characteristics of the Study Area
The region has four administrative divisions namely Upper Kombewa, East Othany, West Othany and Lower Kombewa. Based on gender distribution, the female constitute of 52% of the entire population, while their male counterparts composed of 48% of the population. Most of the households in this Seme Sub-County male-headed (68%) while female-headed households constituted 28% and youth headed households 8%. A typical household in the sub county had an average of six members. Based on education, level of the head of household to
some extent usually influences pregnancy preparedness among the HIV positive women (County Government of Kisumu, 2018). In Seme Sub-County, about 76% of all the household heads had attained upper primary and secondary school level of education. Those who had attained certificate/vocational level of education and above are only 11%. Female adult headed households constituted 18% of all the households interviewed, 25% of whom have no formal education, while 63% had attained upper primary and secondary level of education (County Government of Kisumu, 2018).

3.3.2 Health Status

The national figures show Nyanza has the highest HIV prevalence rates in Kenya at 16.1 per cent compared to the national average of about six per cent. According to (MOH/NASCOP guideline, 2016) nearly 50 percent of all the people living with HIV in the Country live in six counties with the four from the lake region, that is Kisumu, Siaya, Homabay and Migori topping the list and Nairobi and Mombasa clocking the six. In fact, source report revealed that eight women between the age of 15-45 contract HIV every single day in Kisumu a county that has a higher prevalence rate at 25 higher than that of the national estimates which was at six percent (National AIDS & STI Control Program [NASCOP], 2018). Seme Sub-County being one of the sub counties in Kisumu County has also registered high HIV prevalence rate especially among the sexually active and fertile women (PEPFAR, 2018). Therefore, the study was conducted in Seme Sub-County, in health facilities linked to Kombewa County Hospital and targeted HIV positive pregnant women attending ANC in public hospitals in the region. According to data obtained from (DHIS 2, 2019) this region is one of the sub-counties in Kisumu County. The region has 14 dispensaries (Arito Langi, Asat beach, Barkorwa, Kolenyo, Korwenje, Onyinjo, Oseure, Otieno Owalla, Oriang Alwala, Oriang Kanyadweria, Lwala Kadawa, Dago Jonyo, Kuoyo Kaila, Langi Kawino), 8 Health centers (Bodi, Manyuanda, Miranga, Nduru Kadero, Opapla, Ratta, Rodi, Lolwe) and 2 Hospitals: Kombewa County Hospital, MUH (see Appendix VIII). As at March 2018, 10,361 people were reportedly on antiretroviral therapy cumulatively in the health facilities. With the release of current ‘Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV Infection in Kenya, 2018 edition” by NASCOP all health facilities offer ART to HIV positive pregnant women and continuously also implement the reproductive health package in HIV settings for females of reproductive age of 14 to 49 years. Apart from ART and reproductive health packages, the other services offered as MOH policy include Positive health, dignity and prevention, gender based violence, HIV education/counselling. These
encompass disclosure of HIV status; partner/ family testing, condom use, family planning, sexually transmitted infections screening and adherence services. The other packages include screening for and prevention of specific opportunistic infections, non-communicable diseases, mental health, nutrition services and prevention of other infections. Kombewa county hospital is the central site for the rest of the facilities in terms of referrals, technical support, supplies and HIV program data management.

3.3.3 Geographical Description of the Study Area
Seme Sub-County is one of the Sub-Counties in Kisumu County and lies within longitudes 33° 20'E and. 35° 20'E and latitudes 0° 20'South and 0° 50'South. The Sub-County borders Siaya County to the west and Kisumu West Sub-County to the north, Rachuonyo Sub-County to the South and Kisumu Central Sub-County to the east. The Sub-County has one division (Kombewa division). It has a geographical area of 190.20 sq. Km, including water surfaces, and a population of 98805 persons (KNBS, 2010).

3.3.4 Socio-Economic Description of the Study Area
The main economic activities include, small scale fishing, crop farming in the area includes cereals, vegetables, legumes and tuber crops narrowed to maize grains, sorghum, sukuma wiki, groundnuts, and fruits. It has tourist attractions at Ndere Islands, Kit Mikayi volcanic remains. Even though the Kisumu Bondo highway passes through the Sub-County, its road network is not yet fully developed, most roads are weather roads hence some schools, most of which are day schools, are not accessible so the learners have difficulties in reaching their schools in the required time (County Government of Kisumu, 2018).

3.4 Study Population
Population means all elements and people who share one or some common quality in a special geographical scale. In addition, (Babbie, 2003) describe a population as the total collection of elements whereby references have to be made. The study population was HIV positive pregnant women and clinical officers.

This study was conducted among HIV positive pregnant women. According to program level data in the President’s Emergency Plan for AIDS Relief (PEPFAR) porting system for Data for Accountability, Transparency and Impact Monitoring (DATIM) database, there were 200 HIV positive pregnant women in the Sub-County. This was the target population from which the sample size was drawn for the study.
The study also involved fifteen (15) clinical officers working in the HIV program. However, only ten (10) were involved through hands-on technical implementation of ART and PMTCT programming, while five (5) worked in general outpatient and emergency care and were therefore not directly dealing with Maternal and HIV care. The ten were purposively selected, being the expert personnel offering facility interventions related to pregnancy preparedness at HIV clinics. They were the key informant interviewees for more clarification on study research questions.

3.5 Sample Size
The sample size was determined using the (Krejcie & Morgan, 1970) table found in appendix I which allows a sample of 132 to be a representative sample of the targeted 200 accessible population of HIV positive pregnant women and those that delivered, in Seme Sub-County. The sample size was further calculated by the simplified Krejcie and Morgan formula as depicted below;

\[ n = \frac{x^2NP(1-P)}{d^2(N-1) + x^2P(1-P)} \]

Where;
\[ x^2 = \text{table value of chi-square @ d.f =1 for desired confidence level 0.05} \]
\[ N = \text{Population Size} \]
\[ P = \text{Population proportion (assumed to be .50)} \]
\[ d = \text{degree of accuracy (expressed as a proportion 0.05)} \]

This implies that;
\[ n = \frac{3.84 \times 200(.50)(1-.50)}{0.05^2(.50) + 3.84(.50)(1-.50)} \]

\[ n = 132 \]

3.6 Inclusion and Exclusion Criteria
3.6.1 Inclusion Criteria
i. Pregnant HIV positive women attending ANC services at the health facility of Seme Sub-County
ii. Pregnant HIV positive women attending ANC services at the health facility of Seme Sub-County and have consented to the study.
3.6.2 Exclusion Criteria

i. Pregnant HIV positive women who were ill or unwell requiring medical attention at the time of the study.

ii. Pregnant HIV positive women who were not permanent residents of Seme Sub-County

iii. Pregnant HIV positive mothers who attended ANC services outside the 24 study area health facilities but coming for enquiries.

3.7 Sampling Technique

In selecting the public health facilities in Seme Sub-County, the study used census-sampling technique to select all the 24 public health facilities in the sub County. For the respondents (HIV positive women) the study used systematic sampling technique. This is a type of probability sampling method in which sample members from a larger population are selected according to a random starting point and a fixed, periodic interval. This interval, called the sampling interval, is calculated by dividing the population size by the desired sample size. In this study, the sampling started by selecting a respondent from the list of 200 HIV positive pregnant women, at random and then every \( k^{th} \) element in the sampling frame was selected, where \( k \), the sampling interval (sometimes known as the skip): this is calculated as:

\[
K = \frac{N}{n}
\]

where \( n \) is the sample size, and \( N \) is the population size.

From the sampling frame, a starting point was chosen at random, and choices thereafter were at regular intervals. Therefore, in selecting 132 respondents from a sample frame of 200 HIV positive pregnant women, the sampling interval \( k \) was:

\[
K = \frac{200}{132} = 1.5
\]

This implies that in selecting 132 respondents from 200 population, \( 200/132 = 1.5 \), so every second respondent was chosen until 132 respondents was attained. Using this procedure each respondent in the population has a known and equal probability of selection. However, it is not the same as simple random sampling (SRS) because not every possible sample of a certain size has an equal chance of being chosen (e.g. samples with at least two elements
adjacent to each other was never chosen by systematic sampling). It is however, much more efficient (if variance within systematic sample is more than variance of population). This technique is also preferred because the given population is logically homogeneous. In selecting the 10 Clinical Officers, purposive sampling was used due to their desired characteristics of PMTCT knowledge. Participants were contacted during clinic visits and interviewed in private rooms within Maternal and Child Health Clinics.

3.8 Data Collection Instruments

This study applied dual sets of research instruments to obtain the required information. These included questionnaire, which was used to gather quantitative data, as well as in-depth schedules which was used to obtain qualitative data.

3.8.1 Questionnaire

It is an instrument specifically designed to elicit information useful for analysis (Babbie, 2003). This study used semi-structured questionnaires (Appendix III) and was administered to women participants. The questionnaires were divided into four sections i.e., section A giving the demographic information of the respondents, section B assessing demographic factors influencing pregnancy preparedness among the HIV positive clients, section C evaluating partner characteristics influencing pregnancy preparedness among the HIV positive women and section D exploring health facility-factors influencing pregnancy preparedness among the HIV positive women. The questionnaire was written in English and translated to national language (Kiswahili) for easy understanding by the respondents (see appendix IV and V).

3.8.2 Key Informant Interview Guide

In order to solicit detailed information, key informant interview guide was used to gather more information from 10 clinical officers. This gave the researcher an opportunity to meet the clinicians who were expert personnel offering facility interventions at HIV clinics, to seek more clarification on study research questions which were; what is the level of pregnancy preparedness by HIV positive women? What are the demographic factors influencing pregnancy preparedness among the HIV positive clients? How does partner characteristics influence pregnancy preparedness by HIV positive women and what are the health facility-factors influencing pregnancy preparedness by the HIV positive women? A key informant interview schedule is an important tool for gathering data as the interview situation allows much greater depth than other methods of data collection (Cohen & Manion, 2012). Appendix
VI attempts to provide opinions and feelings from key informants who were more informed experts. The researcher used open-ended questions that elicited verbal responses from the respondents.

3.8.3 Pilot Testing
The research instruments were pilot tested to establish their reliability. This was done among the respondents that did not take part in the main study. Simple random sampling was used to generate a sample size of 13 women pregnant women living with, which account for 10% of the sample size 132 respondents. According to (Bryman, 2008), extant literature suggests that a pilot study sample should be 10%-30% of the sample projected for the larger parent study. Questionnaires were administered to the 13 respondents and interpretation of the response alternatives and queries were carried out to form items that bear the same meaning but are not identical. Order of response alternatives was similarly changed for questions with normal scale to assess the validity and reliability. Meanwhile, respondents’ choices were evaluated for appropriateness. The questions were also verified to check if all the respondents understood them the same way. In addition, average time taken to complete the questionnaires were noted and the overall pilot test results were analyzed and adjustments made according to the results of the instruments review and pilot test prior to the production of the final instruments.

3.8.4 Reliability of Instruments
Reliability refers to the extent to which the instrument provided the same results on subsequent administration (Babbie, 2003). In this study, reliability of data was judged by estimating how well the items that reflect the same construct yielded similar results. According to (Bryman, 2008), extant literature suggests that a pilot study sample should be 10%-30% of the sample projected for the larger parent study. Therefore, a pilot sample of 13 HIV positive women were given the questionnaires for pilot testing. After one week, the same questionnaires were again administered to the same group of respondents and the responses scored manually. The study looked at how consistent the results were for different items for the same construct within the measure. N was equal to the number of items and r-bar was the average inter-item correlation among the items. Similarly, (Connelly, 2008) explains that a reliability coefficient of 0.60 or higher is considered as "acceptable" in most Social Science applications. Therefore, to ascertain reliability of the questionnaire, Cronbach Alpha was used as a measure of reliability. Data was analyzed using SPSS v.22 to return
Cronbach Alpha for the number of items in the scale. Reliability coefficients for each of the scales and the overall reliability measure (Table 3.1).

**Table 3.1: Reliability of the Questionnaires**

<table>
<thead>
<tr>
<th>Objectives</th>
<th>N</th>
<th>Items</th>
<th>Items Deleted</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>To determine level of pregnancy preparedness by HIV positive women in Seme Sub-County.</td>
<td>13</td>
<td>7</td>
<td>3</td>
<td>0.742</td>
</tr>
<tr>
<td>To investigate demographic factors influencing pregnancy preparedness by HIV positive women in Seme Sub-County.</td>
<td>13</td>
<td>6</td>
<td>1</td>
<td>0.630</td>
</tr>
<tr>
<td>To investigate partner characteristics influencing pregnancy preparedness by HIV positive women in Seme Sub-County.</td>
<td>13</td>
<td>7</td>
<td>2</td>
<td>0.809</td>
</tr>
<tr>
<td>To investigate health facility factors influencing pregnancy preparedness by HIV positive women in Seme Sub-County.</td>
<td>13</td>
<td>4</td>
<td>5</td>
<td>0.732</td>
</tr>
<tr>
<td><strong>Average Reliability</strong></td>
<td></td>
<td><strong>13</strong></td>
<td></td>
<td><strong>0.728</strong></td>
</tr>
</tbody>
</table>

From the summary table on reliability, the overall reliability coefficient for the items in the questionnaire was $\alpha = 0.728$. Considering the threshold of 0.7 for social sciences (Cohen & Manion, 2012), the questionnaire was thus found to be reliable as $\alpha = 0.727 > 0.7$.

**3.9 Data Collection Procedure**

Data was collected in two stages as follows:

**3.9.1 Stage One: Administration of Questionnaires to pregnant women**

Having received an approvals from the MUERC (see appendix XIII), Ministry of Health (appendix XII) and NACOSTI (appendix XII) the researcher reviewed the central database, noted the bookings of the participants. He then visited the health facilities for familiarization and creating rapport with respondents and Maternal & Child Health Clinic in-charges. The rationale of the study was explained besides creating rapport. The researcher sought their consent through signing of consent forms (attached in appendix II). The questionnaires were administered by the researcher in-person, to the sampled 132 HIV positive pregnant women from the target population of 200, who were on active follow up between March 2019 – April 2019. Data collection lasted for two months in the month of March and April 2019.
3.9.2 Stage Two: Conducting Interviews with the Clinical Officers

The next stage was interviewing of the key informants. These were the clinical officers working in public health facilities in Seme Sub-County. The researcher visited this category of respondents at the agreed times and conducted the interviews in their respective offices. The researcher personally interviewed the respondents for qualitative data. The key informants were given time to respond to the interview questions and each interview session lasted for about 40 minutes.

3.10 Data Analysis Techniques

Given that the data obtained from the study were both quantitative and qualitative, analysis was done as follows:

3.10.1 Quantitative Data Analysis

According to Wolverton (2009) descriptive analysis involves a process of transforming a mass of raw data into tables, charts, with frequency distribution and percentages, which are a vital part of making sense of the data. Data analysis was done using both descriptive and inferential statistics. Descriptive statistics (frequency and percentages) was used to assess demographic factors, identify partner characteristics and assess health facility factors. Inferential statistics (Pearson Correlation Test and Regression analysis) was used to test the relationship between demographic factors, partner characteristics and health facility factors and pregnancy preparedness among the HIV positive mothers. The collected data was entered and analyzed using SPSS version 22. Data was checked for consistency and completeness, and then descriptive and analytic computations were carried out. Bivariate binary logistic regression model was fitted to the data to identify variables associated with the dependent variable, where P≤0.05 were considered statistically significant.
Table 3.2: Data Analysis Matrix

<table>
<thead>
<tr>
<th>Objective</th>
<th>Descriptive Statistics</th>
<th>Inferential Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>To determine level of pregnancy preparedness by HIV positive women in Seme Sub-County</td>
<td>Descriptive Statistics</td>
<td>Bivariate logistic regression to test the relationship between demographic factors and pregnancy preparedness</td>
</tr>
<tr>
<td>To assess demographic factors influencing pregnancy preparedness by HIV positive women in Seme Sub-County</td>
<td>Frequency, Percentages</td>
<td>Bivariate logistic regression to test the relationship between partner characteristics(IPV, Spousal communication and disclosure) and pregnancy preparedness</td>
</tr>
<tr>
<td>To identify partner characteristics influencing pregnancy preparedness by HIV positive women in Seme Sub-County.</td>
<td>Frequency, Percentages</td>
<td>Bivariate logistic regression to test the relationship between health facility factors and pregnancy preparedness</td>
</tr>
<tr>
<td>To assess health facility factors influencing pregnancy preparedness by HIV positive women in Seme Sub-County</td>
<td>Frequency, Percentages</td>
<td></td>
</tr>
</tbody>
</table>

3.10.2 Qualitative Data Analysis

This involved thematically analyzing the interview data derived from the key informants, who were clinical officers in the Sub-County. Thematic analysis is the most common form of analysis in qualitative research (Kombo & Delno, 2009). It emphasizes pinpointing, examining, and recording patterns (or "themes") within data. Themes are patterns across data sets that are important to the description of a phenomenon and are associated to a specific research question (Wolverton, 2009). The analysis process involved first transcribing and organizing all the data, secondly giving the codes to the first set of field notes drawn from the interviews, having noted personal reflections and other comments in the margin, the second stage involved sorting and sifting through the materials to identify similar phrases, relationships between the variables, patterns, themes and common sequences. The third stage was identifying these patterns and processes, commonalities and difference. The fourth process was elaborating a small set of generalizations that covered the consistencies discerned in the database. Finally, there were examining those generalizations made in light of a formalized body of knowledge in the form of constructs or theories.
3.11 Ethical Considerations

This study commenced upon approval by Maseno University Ethics Review Committee (MUERC). Permission to carry out the study was sought from Maseno University School of Graduate Studies (SGS) after which a letter of authorization was sought from the County Director of health, Kisumu County to get a nod to collect data from the health facilities linked to Kombewa County Hospital (appendices X-XIV). The heads of health facilities visited were contacted formally to permit the activities of this study in their facilities. Study participants were taken through a consent form in a language that they understood and requested to participate willingly. No participants were forced to participate in the study, neither were they unduly influenced. The researcher is trained on collaborative Institutional Training Initiative (CITI) ethics program hence is accredited to undertake any human research (see appendix XV)

3.11.1 Care and Protection of Research Participants

The current study was purely an academic research for public health in Maseno University. The research team observed three universal ethical principles, including respect for participants, beneficence and justice.

3.11.1.1 Respect for Participants

In this regard, all participants gave consent after the researcher’s explanation of the purpose of the study, its risks and benefits and that participation was voluntary. The participants were also informed of the right to withdraw consent at any time without any penalty. All information including personal interviews at the ANCs were kept confidential. The researcher also observed respect through asking questions that were not injurious to respondents’ personality and dignity. Data collected was stored in soft copy and password protected in email and cloud for at least 5 years after completion (Wolverton, 2009).

3.11.1.2 Beneficence

The respondents were explained for the purpose of the study and that there would be no direct monetary gain to them, only that the findings would benefit them through sensitization of the health care workers and policymakers on the importance pre-pregnancy care and how it can lead to HIV-free Pediatric population.
3.11.1.3 Justice

Respondents were assured that the information given was only used for research purpose and treated with utmost confidentiality. Further, the respondents were asked not to indicate their names on the questionnaires to ensure the anonymity of their response. The information was sought during clinic visits in one of the client-flow post consultation free rooms at the ANCs. This was a conducive environment.
CHAPTER FOUR
RESULTS

4.1 Introduction
This section underscores the study findings, their interpretations and discussions. The findings of the study are based on the research objectives as provided in chapter one, which were to assess demographic factors influencing pregnancy preparedness among the HIV positive clients, to evaluate the influence of partner characteristics on pregnancy preparedness among the HIV positive clients and to explore health facility-factors influencing pregnancy preparedness among the HIV positive clients. The data was analyzed using descriptive statistics.

4.2 Response Return Rate
The study administered the questionnaires to 132 pregnant women living with HIV. All the respondents who were administered with questionnaires duly filled the questionnaires and returned for analysis. This showed that 132 respondents duly filled the questionnaires for analysis, hence the study achieved 100% response return rate. Upon authorization and facility-level permission to conduct the study, the researcher earmarked respondents’ appointments for data collection and administered the instruments to each respondent in person to ensure that each respondent took part in the study.

4.3 Level of Pregnancy Preparedness
The first study objective sought to determine the level of pregnancy preparedness by HIV positive women in Seme Sub-County. This was determined by how the study participants utilized the various components of preconception care, and up to the time of pregnancy diagnosis. Therefore, to assess the level of preparedness among the HIV positive women, respondents were asked to indicate whether they had undergone or practiced and/or a health care provider offered the parameters of Screening for contraceptive usage, assessed for pregnancy status, pregnancy intention screening, initiated ART once a diagnosis of pregnancy was made or continued with ART with adherence support. For each participant, a “yes” answer for all parameters (coded as “1” at analysis) represents pregnancy preparedness while for each participant, a “no” answer for any of the parameters (coded as “0” at analysis) represented poor pregnancy preparedness. Table 4.1 shows the level of pregnancy preparedness while Table 4.2 shows the computed prevalence.
### Table 4.1: Pregnancy Preparedness Indicators

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening for contraceptive usage at HIV clinics</td>
<td>127</td>
<td>96.2</td>
<td>5</td>
<td>3.8</td>
</tr>
<tr>
<td>Pregnancy-status assessment</td>
<td>121</td>
<td>91.7</td>
<td>11</td>
<td>8.3</td>
</tr>
<tr>
<td>ART usage</td>
<td>129</td>
<td>97.7</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Pregnancy intention screening</td>
<td>60</td>
<td>45.5</td>
<td>72</td>
<td>54.5</td>
</tr>
</tbody>
</table>

The study found that as part of pregnancy preparedness, most of the pregnant women were prepared in terms of voluntary non-contraceptive use at 96.2%, pregnancy status assessment at 91.7% and was on ART (97.7%). However, in terms of “pregnancy intention” component, fewer women at 45.5% were prepared. This shows that the level of pregnancy preparedness was generally at 45.5% as shown (Table 4.2).

### Table 4.2: Computed Prevalence of Pregnancy Preparedness

<table>
<thead>
<tr>
<th>Practices of preparedness</th>
<th>Total</th>
<th>Pregnancy Preparedness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening for contraceptive usage at HIV clinics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy-status assessment</td>
<td></td>
<td>60(45.5%)</td>
</tr>
<tr>
<td>ART usage</td>
<td></td>
<td>72(54.5%)</td>
</tr>
<tr>
<td>Pregnancy intention screening</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The study found that as part of pregnancy preparedness, most of the HIV positive pregnant women were not prepared as shown by 72(54.5%) in Table 4.2 while 60(45.5%) had prepared based on these parameters. Level of preparedness is low among most of the women living with HIV and this could be due to lack of awareness and negative perception on contraceptive screening, ART usage, pregnancy status assessment and pregnancy intention screening at the HIV care clinics during routine consultations.

#### 4.4 Demographic Factors and Pregnancy Preparedness among HIV positive Women

The second study objective sought to investigate the demographic factors influencing pregnancy preparedness among HIV positive clients. Respondents were asked to provide their demographic characteristics, which were their marital status, age, parity, whether they were staying with their partners, level education, family monthly income level and religious affiliation (Table 4.3).
The study found that most of the respondents were married at 70.45%, while only 15.15% were single. This shows that Kenya is a “marrying” society and almost everyone had done so by age 40-44. The also revealed that over three quarters of the respondents at 79.55% had between 25-34 years, 17.42% were between 35-49 years, while 3.03% were between 15-24 years. None of the respondents was above 50 years. This shows that majority of the pregnant mothers were between 25-34 years, which was considered to be fertile period of motherhood. The age cohorts of 15-24, 25-34 and 34-49, clearly indicate the period when most women are sexually active. However, as the age of women increases past the age group 35-49, the fertility rate of women declines. This was attributed to the fact that once women attain 35 years, sexual activities start to decline sharply with most women concentrating on upbringing the children already born. According to KDHS 2015/2016 report, 50 % of young

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Freq</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>20</td>
<td>15.15</td>
</tr>
<tr>
<td>Married</td>
<td>93</td>
<td>70.45</td>
</tr>
<tr>
<td>Divorced/separated</td>
<td>5</td>
<td>3.79</td>
</tr>
<tr>
<td>Widowed</td>
<td>14</td>
<td>10.61</td>
</tr>
<tr>
<td>N</td>
<td>132</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-24 years</td>
<td>4</td>
<td>3.03</td>
</tr>
<tr>
<td>25-34 years</td>
<td>105</td>
<td>79.55</td>
</tr>
<tr>
<td>35-44 years</td>
<td>23</td>
<td>17.42</td>
</tr>
<tr>
<td>Above 45 years</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>N</td>
<td>132</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Parity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>49</td>
<td>37.1</td>
</tr>
<tr>
<td>More than one</td>
<td>83</td>
<td>62.9</td>
</tr>
<tr>
<td>N</td>
<td>132</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Staying with partner</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Live separate from partner</td>
<td>32</td>
<td>34.41</td>
</tr>
<tr>
<td>Live with partner</td>
<td>61</td>
<td>65.59</td>
</tr>
<tr>
<td>N</td>
<td>93</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Level Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>3</td>
<td>2.27</td>
</tr>
<tr>
<td>Primary school</td>
<td>94</td>
<td>71.21</td>
</tr>
<tr>
<td>Secondary school</td>
<td>28</td>
<td>21.21</td>
</tr>
<tr>
<td>Post-secondary school</td>
<td>7</td>
<td>5.30</td>
</tr>
<tr>
<td>N</td>
<td>132</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Monthly Income level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below KES 5,700</td>
<td>57</td>
<td>35.6</td>
</tr>
<tr>
<td>Above KES 5,700</td>
<td>85</td>
<td>64.4</td>
</tr>
<tr>
<td>N</td>
<td>132</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Religious Affiliation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christianity</td>
<td>115</td>
<td>87.12</td>
</tr>
<tr>
<td>Muslim</td>
<td>5</td>
<td>3.79</td>
</tr>
<tr>
<td>Others</td>
<td>12</td>
<td>9.09</td>
</tr>
<tr>
<td>N</td>
<td>132</td>
<td>100.0</td>
</tr>
</tbody>
</table>
adults begin childbearing in Kenya between 25-34 years. When probed on their parity, the study found that most of the respondents 62.9% had more than one birth, while only 37.1% had one birth. This shows that the fertility rate of these women was high and hence high parity.

When asked whether they were staying with their partners, over two thirds of the respondents at 65.59% lived with their partners while 34.41% indicated otherwise. Based on level of education, the study established that majority of the respondents at 71.21% had only basic primary education, 21.21% had secondary education, while only 5.30% had post-secondary education. Most of the respondents had limited education hence could had limited knowledge on pregnancy preparedness. On religious affiliation, the study found that majority of the respondents was Christians at 96.21%, 0.76% were Muslims, while 3.03% were others.

The study also found that more than two thirds of the respondents at 64.4% earned above KES 5700 implying that they lived above 1.90 USD per day. However significant number of the respondents at 35.6% still lives below the poverty line. This is in agreement with the Kenya Integrated Household Budget Survey (KIHBS 2016/17) data, which also found that proportion of Kenyans living on less than the international poverty line (US$1.90 per day in 2017 PPP) has declined from 46.8% in 2005/06 to 36.1% in 2016/17, according to the 17th edition of the Kenya Economic Update.

On religious affiliation, the study found that most of the respondents at 87.12% were Christians, 3.79% proclaimed Muslim faith, while 9.09% either confessed other faiths or were not religious at all.

4.4.1 Bivariate Logistic Regression of the likelihood to be prepared for pregnancy by HIV positive women in Seme Sub-County, with respect to Demographic factors

Bivariate logistic Regression was fitted to the data to identify variables associated with the dependent variable, where P≤0.05 were considered statistically significant. In terms of age, the age group 15 to 24 years was used as the reference group based on the increased HIV infection in that age category, also referred to Adolescent Girls and Young Women (AGYW category). Single women were considered reference group due to absence of partners to influence their pregnancy preparedness. Similarly, women living separately with partners were considered reference group with regard to staying with partner. On education, women with Nil Education were considered reference group since school and tertiary levels of
education come with information that could have influence in their pregnancy preparedness. This was also the case with women who did not indicate religious inclination (Table 4.4).
Table 4.4: Association between Demographic Factors and Pregnancy Preparedness by HIV Positive Women

<table>
<thead>
<tr>
<th>Demographic Factors</th>
<th>Pregnancy Preparedness</th>
<th>OR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total  Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Age of respondents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-24 years</td>
<td>4</td>
<td>1(25%)</td>
<td>3(75%)</td>
</tr>
<tr>
<td>25-34 years</td>
<td>105</td>
<td>40(38.1%)</td>
<td>65(61.9%)</td>
</tr>
<tr>
<td>35-44 years</td>
<td>23</td>
<td>7(30.4%)</td>
<td>16(69.6%)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>93</td>
<td>41(44.1%)</td>
<td>52(55.9%)</td>
</tr>
<tr>
<td>Single</td>
<td>39</td>
<td>16(41.0%)</td>
<td>23(59.0%)</td>
</tr>
<tr>
<td>Parity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>49</td>
<td>18(36.7%)</td>
<td>31(63.3%)</td>
</tr>
<tr>
<td>More than one</td>
<td>83</td>
<td>29(34.9%)</td>
<td>54(65.1%)</td>
</tr>
<tr>
<td>Staying with partner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Live with partner</td>
<td>61</td>
<td>21(34.4%)</td>
<td>40(65.6%)</td>
</tr>
<tr>
<td>Live separately with</td>
<td>32</td>
<td>8(25.0%)</td>
<td>24(75.0%)</td>
</tr>
<tr>
<td>partner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>3</td>
<td>1(33.33%)</td>
<td>2(66.7%)</td>
</tr>
<tr>
<td>Primary school</td>
<td>94</td>
<td>31(33.0%)</td>
<td>63(67.0%)</td>
</tr>
<tr>
<td>Secondary school</td>
<td>26</td>
<td>19(73.1%)</td>
<td>7(26.9%)</td>
</tr>
<tr>
<td>Post-secondary school</td>
<td>7</td>
<td>6(85.7%)</td>
<td>1(14.3%)</td>
</tr>
<tr>
<td>Family Income level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below KES 5,700</td>
<td>57</td>
<td>14(59.7%)</td>
<td>43(40.4%)</td>
</tr>
<tr>
<td>Above KES 5,700</td>
<td>85</td>
<td>66(77.6%)</td>
<td>19(22.4%)</td>
</tr>
<tr>
<td>Religious Affiliations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christianity</td>
<td>115</td>
<td>88(76.5%)</td>
<td>27(23.5%)</td>
</tr>
<tr>
<td>Muslim</td>
<td>5</td>
<td>4(80.0%)</td>
<td>1(20.0%)</td>
</tr>
<tr>
<td>Not religious</td>
<td>12</td>
<td>4(33.3%)</td>
<td>8(66.7%)</td>
</tr>
</tbody>
</table>

Legend: 1=Reference Category; Statistical significance at 95% CI; dependent variable at P≤0.05 considered statistically significant
The binary regression results in Table 4.4 show that Pregnancy Preparedness by HIV positive women had a significant association with age of the women, marital status, level of education and income level (P≤0.05).

Women in the age bands of 25-34 and 35-44 years were more likely to be prepared for their pregnancies (OR=1.189, 95%CI=1.08–1.7 and OR=1.08, 95%CI=0.064–1.736, respectively) compared to those aged 15 – 24 years.

Married HIV positive women were more likely to be prepared as compared to single HIV positive women (OR=7.95; 95% CI = 5.44–8.63). HIV positive women with more than one parity (OR=1.28; 95% CI =1.07–1.69) were more prepared than those with one parity. HIV positive women staying or living with their partners/spouses were more prepared (OR=3.97; 95% CI = 2.65–5.94) compared to those living separately with their partners or spouses. On family income level, those earning above KES 5700 were nine times more likely to be prepared (OR = 9.36; 95% CI = 6.37–13.76) as compared to those earning below KES 5700.

Compared to those without education, HIV positive pregnant women with education were more likely to be prepared (OR=1.65; 95% CI =1.52–3.61, OR=9.17; 95% CI = 3.25–25.89 OR =11.4; 95% CI =7.72 –17.02 for those with primary, secondary and post-secondary school level education respectively). The study also found that HIV positive women affiliated to a religious faith were more prepared than those who were not (OR=2.61; 95%CI =1.88 –3.47 and OR=1.46; 95%CI =1.22 –2.40 for Christianity and Muslim, respectively).

Respondents were probed on their level of agreement with the specific statements related to demographic factors influencing pregnancy preparedness (Table 4.5).
Table 4.5: Demographic Factors and Pregnancy Preparedness

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>NS</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being HIV positive and young influences pregnancy preparedness</td>
<td>45</td>
<td>34</td>
<td>21</td>
<td>22</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>(34.09%)</td>
<td>(25.76%)</td>
<td>(15.91%)</td>
<td>(16.67%)</td>
<td>(7.58%)</td>
</tr>
<tr>
<td>Since am married, am expected to conceive regardless of my HIV status</td>
<td>51</td>
<td>39</td>
<td>17</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>(38.64%)</td>
<td>(29.55%)</td>
<td>(12.88%)</td>
<td>(8.33%)</td>
<td>(10.61%)</td>
</tr>
<tr>
<td>My level of education and knowledge on HIV influenced my current pregnancy</td>
<td>49</td>
<td>41</td>
<td>20</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>(37.12%)</td>
<td>(31.06%)</td>
<td>(15.15%)</td>
<td>(9.09%)</td>
<td>(7.58%)</td>
</tr>
<tr>
<td>Income level influences pregnancy preparedness</td>
<td>50</td>
<td>31</td>
<td>22</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>(37.88%)</td>
<td>(23.48%)</td>
<td>(16.67%)</td>
<td>(10.61%)</td>
<td>(11.36%)</td>
</tr>
</tbody>
</table>

Key: SA=Strongly Agree; A=Agree; NS=Not Sure; D=Disagree; SD=Strongly Disagree

According to the findings in Table 4.5, most of the respondents cumulatively at 59.85% agreed with the statement that being HIV positive and young influenced pregnancy preparedness. Only 24.25% disputed the statement, while 15.91% remained neutral. The study also found that over two thirds of the respondents at 68.19% agreed with the statement that since they were married, they were expected to conceive regardless of their HIV status. Only 18.94% of the respondents disputed the statement. Another 68.18% of the respondents supported the statement that their level of education and knowledge on HIV influenced their current pregnancy, while only 16.67% disputed the statement. It was also found that income level influences pregnancy preparedness, as shown by 61.36% of the respondents. However, 21.97% disagreed with the statement, while 16.67% were not sure about the statement.

4.5 Partner Characteristics and Pregnancy Preparedness by HIV Positive Women

The third study objective sought to investigate influence of partner characteristics on pregnancy preparedness among HIV Positive mothers. The study therefore looked into Intimate partner Violence and spousal communication as Partner Characteristics Influencing Pregnancy Preparedness.
4.5.1 Intimate Partner Violence and Pregnancy Preparedness by HIV Positive Women

Respondents were asked to indicate whether they agreed or disagreed with the following statements adopted from Screening for Gender-Based Violence (GBV)/Intimate-Partner Violence (IPV) tool (Appendix IX). Table 4.6 shows the response.

**Table 4.6: Intimate Partner Violence and pregnancy preparedness by HIV Positive Women**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes Freq (%)</th>
<th>Can’t tell Freq (%)</th>
<th>No Freq (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within the past year, I have been hit, slapped, kicked, or physically hurt by someone in any way</td>
<td>83(62.88%)</td>
<td>31(23.48%)</td>
<td>18(13.64%)</td>
<td>132</td>
</tr>
<tr>
<td>Am in a relationship with a person who physically hurts me</td>
<td>66(50.00%)</td>
<td>21(15.91%)</td>
<td>45(34.09%)</td>
<td>132</td>
</tr>
<tr>
<td>Am in a relationship with a person who threatens, frightens, insults me, or treats me badly</td>
<td>58(43.94%)</td>
<td>27(20.45%)</td>
<td>47(35.61%)</td>
<td>132</td>
</tr>
<tr>
<td>Am in a relationship with a person who forces me to participate in sexual activities that make me feel uncomfortable</td>
<td>34(25.76%)</td>
<td>30(22.73%)</td>
<td>68(51.52%)</td>
<td>132</td>
</tr>
</tbody>
</table>

The study found that slightly over two thirds of the respondents at 62.88% agreed that within the past year, they have been hit, slapped, kicked, or physically hurt by someone in one way or the other by someone who not necessarily were their partners. Only 13.64% refuted this statement while 23.48% remained neutral. It was also noted that half of the respondents at 50% disclosed that they were in a relationship with persons who physically hurts them. Another 43.94% of the respondents also revealed that they were in a relationship with people who threaten, frighten, insult them, or treat them badly. Only 35.61% of the respondents indicated otherwise. As much as most of the respondents revealed that they have been physically hurt or threatened, majority of them at 51.52% disputed that they were in a relationship with people who forced them to participate in sexual activities that make them feels uncomfortable.

4.5.2 Spousal Communication and Pregnancy preparedness by HIV Positive Women

Respondents were probed on spousal HIV disclosure and their relationship with their partners. Results were as shown in subsequent tables and figures.
4.5.2.1 Spousal Disclosure

Respondents were asked to indicate whether they had disclosed their HIV status to their spouses/partners. Figure 4.1 shows the response.

![Spousal Disclosure](image)

Figure 4.1: Spousal Disclosure

The study found that more than two thirds of the respondents at 65.15% revealed that they had disclosed to their HIV status to their husbands or partners. However, significant number at 34.85% confessed that their husbands did not know their HIV status. The lowest rate of disclosure was reported among past partners or current casual partners.

4.5.2.2 Nature of the relationship with the partner, before and during the current pregnancy

Respondents were also requested to describe their relationship with their partners as this would inform their spousal communication and pregnancy preparedness. The results were as shown Figure 4.2.
In describing the type of relationship between pregnant mothers living with HIV and their partners, the study found that most of these mothers at 52% described their relationship with their partner as friendly. However, 23% of the respondents described it as harsh, while 18% indicated warm and loving, as 7% could not describe their relationship. Respondents were asked to indicate their level of agreement with the following statements related to spousal communication and pregnancy preparedness. Table 4.7

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>NS</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spousal communication encourages proper pregnancy preparedness among HIV positive clients</td>
<td>114 (86.36%)</td>
<td>7 (5.30%)</td>
<td>8 (6.06%)</td>
<td>2 (1.52%)</td>
<td>1 (0.76%)</td>
</tr>
<tr>
<td>HIV positive women who do not communicate, discuss or agree with their partners regarding pregnancy hurt their preparedness</td>
<td>117 (88.64%)</td>
<td>7 (5.30%)</td>
<td>4 (3.03%)</td>
<td>2 (1.52%)</td>
<td>2 (1.52%)</td>
</tr>
<tr>
<td>Fear of rejection or discrimination may prevent a pregnant mother from disclosing their HIV status to family members</td>
<td>129 (97.73%)</td>
<td>1 (0.76%)</td>
<td>2 (1.52%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
</tr>
</tbody>
</table>

Key: SA=Strongly Agree; A=Agree; NS=Not Sure; D=Disagree; SD=Strongly Disagree

The study established that majority of the respondents at 86.36% strongly agreed that spousal communication encouraged proper pregnancy preparedness among HIV positive clients, while only 1.52% disagreed with the statement as 6.06% remained neutral. Most of the
respondents at 88.64% strongly supported the statement that HIV positive women who do not communicate, discuss or agree with their partners regarding pregnancy hurt their preparedness. In fact, almost all the respondents at 97.73% strongly agreed with the statement that fear of rejection or discrimination may prevent a pregnant mother from disclosing their HIV status to family members.

4.5.3 Association Analysis of Partner Characteristics and Pregnancy Preparedness by HIV Positive Women

To determine the effect of Partner Characteristics on pregnancy preparedness among HIV positive mothers, bivariate logistic regression analysis was conducted between the indicators of partner characteristics namely intimate partner violence, spousal communication and partner’s socio-economic status as measured by income level and pregnancy preparedness. Data collected was converted to continuous data by summat ing the individual item scores in each of the scale for each respondent. The binary logistic regression output is presented in Table 4.8.

<table>
<thead>
<tr>
<th>Table 4.8: Association between Partner Characteristics and Pregnancy Preparedness by HIV Positive Women</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pregnancy Preparedness</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>Non violent</td>
</tr>
<tr>
<td>Moderately Violent</td>
</tr>
<tr>
<td>Extremely Violent</td>
</tr>
<tr>
<td><strong>Spousal Communication</strong></td>
</tr>
<tr>
<td>Non-Disclosure</td>
</tr>
<tr>
<td>Disclosure</td>
</tr>
<tr>
<td><strong>Partner Income Level</strong></td>
</tr>
<tr>
<td>Below KES 5,700</td>
</tr>
<tr>
<td>Above KES 5,700</td>
</tr>
</tbody>
</table>

Legend: 1=Reference Category; Statistical significance at 95% CI; dependent variable at P≤0.05 were considered statistically significant

Binary regression results in Table 4.8 show that Pregnancy Preparedness by HIV positive women had a significant association with Partner Characteristics: Intimate Partner Violence...
(IPV) and communication (P≤0.05). IPV was measured using a screening tool. The overall scores on the tool for the four items was obtained with scores = 0 being coded as non-violent, scores ranging from 1 – 2 being moderately violent and scores ranging from 3 – 4 being extremely violent. HIV positive women who experience no IPV were more likely to be best prepared as compared to those who underwent IPV of any severity (OR=2.57; 95% CI = 2.042–3.521 and OR = 1.671; 95% CI = 0.789 – 2.719 for No violence and Moderate violence respectively). On spousal communication, HIV positive women who reported disclosure were more likely to be prepared (OR = 2.83; 95% CI=1.113 – 5.269). Considering Partner’s Income, HIV positive women whose partners had income level above KES 5,700 were more likely to be prepared for pregnancy (OR = 4.71; 95% CI = 3.66 – 8.54) compared to those whose partner income were below KES 5,700.

4.6 Health facility factors and Pregnancy Preparedness by HIV positive Women

The forth study objective sought to investigate health facility factors influencing pregnancy preparedness among HIV positive women. To this end, each respondent was probed on whether her “current” pregnancy was planned. Additionally, the researcher utilized the MOH basic RH basic screening tool to establish prior contraceptive usage, pregnancy assessment and ART Initiation/continuation and adherence during pregnancy. Results were as shown in subsequent Tables and figures.

4.6.1 Planned Current Pregnancy

Respondents were also asked to indicate whether their current pregnancies were planned. The results were as shown in Figure 4.3
The study found that out of the 132 respondents that took part in the study, majority of the respondents at 86% revealed that their current pregnancies were not planned, while only 14% indicated otherwise.

**4.6.2 Contraceptive Usage Discussion**

Respondents were asked health care workers discussed contraceptive usage during their routine HIV care clinic appointments. Figure 4.4 shows the response.

The study established that over two thirds of the respondents at 61% disagreed that they had discussed contraceptive usage with their healthcare providers. Only 9% had discussed this issue, while 30.0% remained neutral on the question.

**4.6.3 Contraceptive usage by HIV women at the time of pregnancy diagnosis**
On contraceptive usage, the study found that at the time of pregnancy diagnosis, most of the respondents at 127(96.2%) were not on contraceptives. However, a few women 5(3.8%) were on contraceptives.

![Contraceptive Usual by HIV mothers at the time of pregnancy](image)

**Figure 4.5: Contraceptive usages by HIV women at the time of pregnancy diagnosis**

### 4.6.4 Contraceptive Method used by HIV women at the Time of Pregnancy

Respondents were asked to indicate the type of contraceptive method they used prior to the current pregnancy diagnosis (Figure 4.6).

![Contraceptive Use at the Time of Pregnancy](image)

**Figure 4.6: Contraceptive Usage at the Time of Pregnancy**

The study found that 5(3.8%) of the respondents conceived while on a method, most 3(60%) of whom were on implants (Implanon), 1(20%) using oral contraceptive pills and 1(20%) on injectible contraceptive (Depo).

### 4.6.5 Pregnancy Status Assessment
The study sought to find out whether healthcare providers assessed their pregnancy status and the method used for assessing the pregnancy (Figure 4.7).

![Pregnancy Assessment and Method Used](image)

**Figure 4.7: Pregnancy Assessment**

Majority of the respondents in fact all at 91.37% agreed that health care providers assessed their pregnancy status. Only 8.63% disagreed with statement. On method used, the study found that in most cases, ordered pregnancy tests were used as shown by three quarters of the respondents at 75.81%. Only 19.17% indicated that they were assessed through physical examination, while 5.02% were assessed through history taking (LMP).

### 4.6.6 Pregnancy Intention Screening

As part of pregnancy preparedness, respondents were asked if the clinical officers in the HIV Care Clinics assessed their pregnancy intentions (Table 4.9).

<table>
<thead>
<tr>
<th>Asked about Pregnancy intention (before pregnancy)</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>60</td>
<td>45.5</td>
</tr>
<tr>
<td>No</td>
<td>72</td>
<td>54.5</td>
</tr>
</tbody>
</table>

The study found that most 72 (54.5%) of the respondents were not screened for their future pregnancy intentions, while undergoing HIV care. Sixty respondents (45.5%) indicated that they were screened for their future pregnancy intentions as a way of reproductive health screening in HIV care clinics, before conception and subsequent referral to ANC.
4.6.7 ART Initiation/continuation and Adherence in Pregnancy

Respondents were probed on their knowledge on ART practices and adherence during pregnancies (Table 4.10).

<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCWs discussed ART practice to achieve viral load of &lt;1000</td>
<td>127</td>
<td>5</td>
</tr>
<tr>
<td>Client believe that being on HAART and viral load of &lt;1000 copies/ml reduces HIV transmission</td>
<td>124</td>
<td>8</td>
</tr>
</tbody>
</table>

The study found that most of the respondents at 96.21% confirmed that clinical officers discussed ART Initiation/continuation and adherence to achieve viral load of <1000 copies/ml, while only 3.79% indicated otherwise. Most respondents at 93.94% agreed with the statement that being on HAART and achieving viral load of <1000 copies/ml reduces HIV transmission. Only 6.06% did not agree with the statement.

4.6.8 Uptake of ARVs and Viral Load

Using secondary data from the health facilities in Seme Sub-County, it was found that among the 132 HIV pregnant women, 97.7% were on ARVs, while only 2.30% were not under ARVs (See Figure 4.8).

![Uptake of ARVs and Viral Load](image_url)
On those on ARVs, 98.3% had <1000 copies/ml, while 2% have >1000. However, those who were not on ARVs explained that they are active follow up at the facility.

4.6.9 Association between Health Facility Factors and Pregnancy Preparedness among HIV Positive Women

In order to determine the association between Health Facility Factors and pregnancy-preparedness among HIV positive women, bivariate logistic regression analysis was conducted with indicators of health facility factors as the predictors namely; contraceptive usage, pregnancy assessment, pregnancy intention screening and ART initiation/continuation and adherence and pregnancy preparedness as the outcome variable. Binary logistic regression output (Table 4.11)

Table 4.11: Association between Health Facility Factors and Pregnancy Preparedness

<table>
<thead>
<tr>
<th></th>
<th>Pregnancy Preparedness</th>
<th>OR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Contraceptive Usage</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non usage</td>
<td>127</td>
<td>20(15.7%)</td>
<td>107(84.3%)</td>
</tr>
<tr>
<td>Usage</td>
<td>5</td>
<td>4(80.0%)</td>
<td>1(20.0%)</td>
</tr>
<tr>
<td><strong>Pregnancy Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Assessed</td>
<td>12</td>
<td>2(16.7%)</td>
<td>10(83.3%)</td>
</tr>
<tr>
<td>Assessed</td>
<td>120</td>
<td>107(89.2%)</td>
<td>13(10.8%)</td>
</tr>
<tr>
<td><strong>Pregnancy Intention Screening</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Screened</td>
<td>72</td>
<td>7(9.7%)</td>
<td>65(90.3%)</td>
</tr>
<tr>
<td>Screened</td>
<td>60</td>
<td>55(91.7%)</td>
<td>5(8.3%)</td>
</tr>
<tr>
<td><strong>ART Initiation/continuation and Adherence</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Adherence</td>
<td>3</td>
<td>0(0.0%)</td>
<td>3(100.0%)</td>
</tr>
<tr>
<td>Adherence</td>
<td>129</td>
<td>123(95.3%)</td>
<td>6(4.7%)</td>
</tr>
</tbody>
</table>

*Legend: 1=Reference Category; Statistical significance at 95% CI; dependent variable at P≤0.05 were considered statistically significant*
From the bivariate logistic regression results in Table 4.11, Pregnancy Preparedness by HIV positive women had a significant association with health facility factors: Pre-pregnancy contraceptive usage, pregnancy assessment, pregnancy intention screening and ART initiation/continuation and adherence (P≤0.05). In terms of contraceptive usage, HIV positive women using contraceptives were more likely to be prepared as compared to HIV positive women who did not use (OR=1.914; 95% CI = 1.511–4.672). Women who are underwent Pregnancy assessments during routine ART visits were more likely to be prepared (OR = 2.65; 95% CI=1.117 – 5.578); women whose pregnancy intentions were screened were one and half times more likely to be prepared (OR = 1.562; 95% CI= 0.584 – 4.533) compared to those who were not screened for pregnancy intentions. HIV positive pregnant women initiating / continuing with ART and adhering to the same were more likely to be prepared (OR=2.97; 95% CI = 1.245 – 4.669) compared to those who did not.

4.7 Qualitative Analysis
During the interview sessions with the Key Interview Informants (clinical officers) common themes emerged around positive pregnancy trend, Income level, HIV disclosure, Intimate Partner Violence, Partner communication, Routine Pregnancy assessments and Family planning before conception among HIV positive women (Table 4.12 ).
### Table 4.12: Qualitative Analysis

<table>
<thead>
<tr>
<th>Respondent ID</th>
<th>pregnancy assessments and intention</th>
<th>HIV Disclosure</th>
<th>Contraceptive uptake</th>
</tr>
</thead>
<tbody>
<tr>
<td>KII 1</td>
<td>It is critical to assess for pregnancy at every visit</td>
<td>Full HIV status disclosure gives opportunities for social support and HIV risk reduction with partners</td>
<td>I see a number of HIV positive women preferring a family planning method besides condoms as strategy for HIV and pregnancy control.</td>
</tr>
<tr>
<td>KII 2</td>
<td>Pregnancy testing and intention screening should be routine for women with high Viral loads</td>
<td>Disclosure leads to risk reduction with partners</td>
<td>Majority of women who prepare adequately had been on a method for the duration they did not intend to have a baby</td>
</tr>
<tr>
<td>KII 3</td>
<td>Early knowledge of a women’s pregnancy status prepares them psychologically for follow up</td>
<td>HIV disclosure among partners encourage mutual understanding, love and support for each other</td>
<td>An HIV positive woman is better prepared when she conceives when her viral load is undetectable.</td>
</tr>
<tr>
<td>KII 4</td>
<td>Some HIV positive women do not remember LMPs, so it’s best to do urine PDT</td>
<td>Open communication between partners lead to adequate preparation for a planned pregnancy</td>
<td>Dual method is best for an HIV positive woman.</td>
</tr>
<tr>
<td>KII 5</td>
<td>Assessing Pregnancy status for HIV positive woman helps us plan ART adherence</td>
<td>HIV disclosure encourage open discussions</td>
<td>Contraceptive usage encourage healthy living among the women living with HIV</td>
</tr>
<tr>
<td>KII 6</td>
<td>Assessing Pregnancy status for HIV positive woman helps us plan partner involvement</td>
<td>HIV disclosure discourage stigma and discrimination against people living with HIV</td>
<td>Contraceptive uptake discourage unwanted pregnancies and abortions</td>
</tr>
<tr>
<td>KII 7</td>
<td>Unintended pregnancy before viral suppression can easily lead to vertical transmission of HIV</td>
<td>HIV disclosure among partners encourages adherence to VCT practices</td>
<td>HIV positive Women enrolled into care in our clinic are offered FPs as an opt-out strategy but due to workload, there are missed opportunities</td>
</tr>
<tr>
<td>KII 8</td>
<td>Assessment of pregnancies among women encourage optimal preparations</td>
<td>As health care providers, we need to involve spouses in disclosure processes</td>
<td>Contraceptives lead to proper planning and adherences to the tenets of PMTC practices</td>
</tr>
<tr>
<td>KII 9</td>
<td>Pregnancy assessment also encourage PMTC practices and reduces HIV infections among the new born</td>
<td>disclosure leads to better adherence to treatment</td>
<td>Contraceptive usage help women living with HIV adhere to PMTC practices</td>
</tr>
<tr>
<td>KII 10</td>
<td>Pregnancy preparedness promote healthy living among women</td>
<td>Interventions to reduce the harmful effects of domestic violence on women is critical for preparations for pregnancies</td>
<td>Contraceptive uptake discourage abortions</td>
</tr>
</tbody>
</table>

Table 4.12 above shows major themes from the key informant interviewees. For instance, in Table 4.11, contraceptive usage was found to have high likelihood with pregnancy.
preparedness. Similarly, one of the key informants (KII 2) reiterated that majority of women who prepare adequately had been on a method for the duration they did not intend to have a baby. Table 4.11 also show that there is a high likelihood of pregnancy preparedness for HIV positive women adhering to ART. This was also supported by one of the key informant (KII 3) when he said that an HIV positive woman is better prepared when she conceives when her viral load is undetectable. Generally, the findings from the key informants corroborates the quantitative findings of the questionnaires.

4.7.1 Pregnancy trends among HIV positive women

During the interview session with the clinical officers, it was found that pregnancy preparedness of the HIV positive mothers helped in enhancing optimal pregnancy outcome and HIV negative infants. One of the KI had this to say;

We have noted an increased trend of known positive women getting pregnant compared to new per our last quarters program review data. We suspect this is due to younger women enrolled into HIV care and those virally suppressed too who feel they could have HIV negative babies (KII1, Male Clinical Officer 30/5/2019).

Another clinical officer also had this to input;

For women with known HIV positive status who want to become pregnant, the use of antiretroviral prophylaxis during pregnancy can reduce mother-to-child transmission of HIV. (KII8, Female Clinical Officer 30/5/2019).

These findings concur with that of Ruton, Mugwaneza, Shema, (2012) who also found that knowledge of their HIV status before pregnancy makes them be at the vintage point of making decisions on pre-conception care for HIV infected mothers, which is a priority for women who attend the Comprehensive Care Centre in the hospital. Jackson, Chopra, Doherty (2007) also points out that as part of pre-conception care, mothers should have CD4 counts done, where possible viral load should be included.

4.7.2 Income level

Pregnancy among women living with HIV is a very sensitive period in which unexpected complications such as mother to child transmission may arise as a result of poor preparations among these women. One of the Clinical Officer had this to say:

Poor preparations can be as a result of low level of family income. For instance as a result of poverty the women may lack fare to come for all routine follow up checks (KII8 Female Clinical Officer, 30/5/2019)
4.7.3 HIV disclosure

During the interview session with clinical officer key informant interviewees, it was found that HIV disclosure was not optimum, especially to unsupportive or cooperative partners/spouses. Many women feared disclosing their positive HIV status to their partners because of the negative consequences that comes with it. Here is what one of the clinical officers had to say:

*Full HIV status disclosure gives opportunities for social support and HIV risk reduction with partners*(KII3 Female Clinical Officer, 30/5/2019)

From these sentiments, it can be deduced that although the majority of participants disclosed their HIV status to their husbands/spouses, those that failed to disclose may result in a limited ability to engage in preventive behaviors and to access health support for adequate pregnancy preparedness. These observations were also echoed by the findings of a study by (Makoni, et al., 2016) who also revealed that women who had difficulty accepting their HIV-positive status and displayed signs of internalized stigma, appeared less likely to initiate ART during pregnancy.

4.7.4 Intimate Partner Violence

Many factors influence Pregnancy Preparedness among women living with HIV virus, with consequences for maternal, newborn and child health. Among such factors was found to be Intimate Partner Violence. This is what one of the clinical officers said:

*Interventions to reduce the harmful effects of domestic violence on women is critical for preparations for pregnancies*(Female Clinical Officer, KII10, 30/5/2019)

4.7.5 Partner communication

There is increasing need for involvement of men in health care delivery due to their multiple roles as partners, husbands, fathers or siblings. As such, partner communication is crucial for adequate pregnancy preparations among HIV positive women. One of the clinical officers said:

*High levels of positive communication with the partner will lead to adequate preparations for pregnancies among the HIV positive women, given that the woman will have the backing and support of her partner while practices good maternal practices required by them such as ANC clinic family planning, pregnancy assessment and screening* (Female Clinical Officer, KII9, 30/5/2019)

Another said, “Open communication between partners lead to adequate preparation for a planned pregnancy” (KII4 Male Clinical Officer, 30/5/2019)
4.7.6 Routine Pregnancy assessments
From the interview, it was found that most HIV positive women on care would undergo routine pregnancy assessments through history taking based on “Last Menstrual Period” as part of pre-conception preparation. One of the clinical officers had this to say;

*Pregnancy status for HIV positive women is very important as this helps us plan on the rest of interventions such as ART adherence with partner involvement and future pregnancies as well. Therefore, we ask them of their LMPs, and encourage them to inform us if they suspect that they are pregnant."* (Female Clinical Officer, KII5, 30/5/2019).

Another clinical officer echoed these statements when he said that:

*All HIV positive women should be offered pregnancy testing as part of their routine care at each visit. This should be clinically or by lab tests to avoid the risk of unplanned pregnancy that could lead to mother-to-baby HIV infection* (KII7 Male Clinical Officer, 30/5/2019).

4.7.7 Family planning before conception
Enabling women living with HIV to avoid unintended pregnancies during the postpartum period can reduce vertical transmission and maternal mortality associated with HIV infection. Therefore, family planning (FP) practices was a key element for pregnancy preparedness among the HIV-positive postpartum women in Seme Sub-county, Kenya. An interview with one of the clinical officers revealed that women should be on family planning before conception. The officer said;

*A number of HIV positive woman prefer being on a family planning method besides condoms as strategy for HIV and pregnancy control. They should only have a targeted stop when they intend to have babies. This will allow for immune reconstitution and lower viral load of HIV itself* (KII6 Female Clinical Officer, 30/5/2019)

4.8 Themes and Codes of Thematic Analysis
The themes were based upon the study objectives and illustrated by codes as follows (Table 4.13) demographic factors (KII1); partner characteristics (KII3, KII10, KII4) and health facility factors (KII5, KII7, KII6 and KII2).
Table 4.13: Themes and Codes of Thematic Analysis

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Themes</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>To assess demographic factors influencing pregnancy preparedness among the HIV positive women in Seme Sub-County.</td>
<td>i. Family Income level</td>
<td>KII1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KII 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KII9</td>
</tr>
<tr>
<td>To identify partner characteristics influencing pregnancy preparedness among the HIV positive women in Seme Sub-County.</td>
<td>i. HIV disclosure</td>
<td>KII3</td>
</tr>
<tr>
<td></td>
<td>ii. Intimate partner violence</td>
<td>KII10</td>
</tr>
<tr>
<td></td>
<td>iii. Partner communication</td>
<td>KII4</td>
</tr>
<tr>
<td>To assess health facility factors influencing pregnancy preparedness among the HIV positive women in Seme Sub-County.</td>
<td>i. Routine Pregnancy Assessments</td>
<td>KII7,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KII5</td>
</tr>
<tr>
<td></td>
<td>ii. Family planning before conception</td>
<td>KII6</td>
</tr>
<tr>
<td></td>
<td>iii. Availability of healthcare providers and services</td>
<td>KII2</td>
</tr>
</tbody>
</table>

*Source: Researcher, (2019)*
CHAPTER FIVE
DISCUSSION

5.1 Introduction
This chapter provides discussions of the study findings based on research objectives.

5.2 Level of Pregnancy preparedness by HIV Positive Women
The study found that as part of pregnancy preparedness, most of the pregnant women were prepared in terms of voluntary non-contraceptive use at 96.2%, pregnancy status assessment at 91.7% and was on ART (97.7%). However, in terms of “pregnancy intention” component, fewer women at 45.5% were prepared. From these findings, it can be deduced that the level of pregnancy preparedness through routine screening of HIV positive women for contraceptive usage, pregnancy-status assessment, preconception ART usage were high; while future pregnancy intention-screening were low.

Generally, the study found that as part of pregnancy preparedness, most of the HIV positive pregnant women were not prepared 72(54.5%) while 60(45.5%) had prepared based on these parameters. Level of preparedness is low among most of the women living with HIV and this could be due to lack of awareness and negative perception on contraceptive screening, ART usage, pregnancy assessment and intention. These findings concur with the 2014 global survey on the SRHR priorities of women living with HIV, which found that 60% of respondents had at least one unplanned pregnancy and that less than half had ever obtained family planning (FP) services (Salamander Trust, 2013). Similarly, a cohort study in Johannesburg, South Africa reported that nearly one in four women had at least one unplanned pregnancy within two years of initiating ART and that 62 percent of the pregnancies were unplanned (Peltzier, Chao, & Dana, 2009).

5.3 Demographic Factors and Pregnancy Preparedness by HIV Positive Women
The second study objective sought to investigate the demographic factors influencing pregnancy preparedness among HIV positive clients. First when probed on the number of previous pregnancies or parity, the study found that most of the respondents at 62.9% had more than one pregnancy, while 37.1% had only one parity. This shows that over two thirds of pregnant mothers living with HIV had more than one previous pregnancies alluding that they were in their active and reproductive age. In fact, most of these respondents were found to be falling within the age band of 25-34 years. Similar findings reported in an earlier analysis data for 2016-2018 by KDHS (2018) shows that women in their mid-20s and 30s tend to have high parity due to their active sex life, with overall pregnancy rates among HIV-
positive and HIV-negative women of 7.4 and 15.2 per 100 person-years respectively, and a significant difference being apparent during all time periods studied.

Most of the respondents, cumulatively at 59.85% agreed with the statement that being HIV positive and young influenced pregnancy preparedness. From the findings, it can be deduced that age of the respondent comes into play when looking at pregnancy preparedness among HIV-positive women. This finding support that of (Vitalis, 2013) who also found that HIV positive women of young ages were found to be a barrier to pregnancy ART adherence, while older mothers were shown to be more likely to contribute to good adherence. Further, (Vitalis, 2013) found that young ages were also linked to post-partum loss to follow-up.

Over two thirds of the respondents at 68.19% agreed with the statement that since they were married, they were expected to conceive regardless of their HIV status. Only 18.94% of the respondents disputed the statement. Another 68.18% of the respondents supported the statement that their level of education and knowledge on HIV influenced their current pregnancy, while only 16.67% disputed the statement. This shows that level of education positively influenced pregnancy and birth preparedness among the women. This shows that level of education positively influenced pregnancy and birth preparedness among the women. This finding was in agreement with (Babalola, and Fatusi, 2009) which also also found that educated women are more likely than are uneducated women to use ANC services, prepare adequately for their pregnancies, use ANC services early and frequently, and to use trained providers and medical institutions, hence positively associating good education background with safe delivery. Educated women have better pregnancy outcome compared with uneducated women, possibly since they are better informed, are likely to make better choices, are more likely to develop and implement a birth plan, and are more socially or financially empowered to make the necessary decisions in case of obstetric emergencies. Information, education and counselling plays a vital role in prevention of maternal death. This it does by making the pregnant women (and their partners) aware of the sequence of events from late recognition of danger signs, through delays in seeking care to delays in receiving prompt care (Kaphle, Neupane, Kunwar, & Acharya, 2015).

It was also found that income level influences pregnancies preparedness, as shown by 61.36% of the respondents. However, 21.97% disagreed with the statement, while 16.67% were not sure about the statement. From the findings, low-income level has been shown to be a barrier to effective pregnancy preparedness. Qualitative studies (Stinson and Myer, 2012)
found that barriers to initiating antiretroviral therapy during pregnancy among the HIV positive women were high cost of transportation, widespread poverty and financial dependence on partner as barriers to adequate preparedness. These are costs that a women of low socio-economic status (SES) would not be able to cope with.

In a study from Nepal, (Haeri, et al., 2014) household economic status in particular was found to be an important factor associated with pregnancy preparedness. This can be explained by the ability to pay for ANC services by economically well off pregnant women groups but the fact that there was a significant relationship after controlling for other factors like place of residence suggests that the richest groups differ from their poor counterparts by more than just dispensable income. According to (Nguyen, Oosterhoff, Ngoc, Write, & Hardon, 2015) women’s economic opportunity in providing for the family measured by their involvement in gainful or paid employment, type of occupation and status of work also affects their pregnancy preparedness.

Bivariate logistic regression revealed that pregnancy preparedness among HIV positive women had a significant association with age of the women, marital status, whether staying with partner, education status, and income level (P≤0.05). Compared to HIV positive women aged 15-24 years, women aged 25-34 and 35-44 years were more likely to be prepared for their pregnancies (OR = 1.189, 95% CI=1.08 – 1.7 and OR=1.08, 95% CI=0.064–1.736) respectively. Married HIV positive women were more likely to be prepared as compared to single HIV positive women (OR=7.95; 95% CI = 5.44–8.63). The study also found that HIV positive mothers with more than one parity (OR=1.28; 95% CI =1.07–1.69) were more prepared than those with one parity. The study also found that HIV positive women staying or living with their partners/spouses were more prepared (OR=3.97; 95% CI = 2.65–5.94) as compared to those living separately with their partners or spouses.

On family income level, those earning above KES 5700 were nine times more likely to be prepared (OR = 9.36; 95% CI= 6.37 – 13.76) as compared to those earning below KES 5700. Compared to those without education, HIV positive pregnant women with secondary education and above were more likely to be prepared (OR=9.17; 95% CI=3.25 – 25.89) for those with secondary education and OR=11.4; 95% CI = 7.72 – 17.02). The study also found that Christian HIV positive women of Christian faith and HIV positive women of Muslims faith (OR=2.61; 95% CI=1.88 – 3.47 and OR=1.46; 95% CI =1.22 – 2.40 respectively) were more prepared than those who were not religious at all.
As the age of the women, level of education, income level and parity increase, pregnancy preparedness among the HIV positive women also increases. These findings concur with those studies of (Adewumi, 2009) and (Magadi, Madise, & Rodgues, 2016) have shown that socio-demographic factors affect pregnancy preparedness among women. For instance, some studies showed that women’s education enhances good pregnancy preparedness which comes as a result of recommended practices such as effective utilization of maternal health services. Well-educated women tend to have high-income level due to good employments, hence they practice optimal preparedness practices because they can read and comprehend information on HIV management practices unlike less educated women, who have to be informed through leaflets and posters written in their local language for easy understanding. Economically stable families can easily access information and prompt means of transport to health facilities for medical screening and assessment as a form of preparedness. This agrees with the findings of NASCOP (2018), which reported that women with higher education have good employment, easily access information and easily reach healthcare facilities for medical screening and assessments.

5.4 Partner Characteristics and Pregnancy Preparedness by HIV Positive Women

The third study objective sought to investigate influence of partner characteristics on pregnancy preparedness among HIV Positive mothers. The study found that slightly over two thirds of the respondents at 62.88% agreed that within the past year, they have been hit, slapped, kicked or physically hurt in one way or the other by their partners. It was also noted that half of the respondents at 50% disclosed that they were in a relationship with persons who physically hurt them. Another 43.94% of the respondents also revealed that they were in a relationship with people who threaten, frighten, insult them, or treat them badly. Only 35.61% of the respondents indicated otherwise. As much as most of the respondents revealed that they have been physically hurt or threatened, majority of them at 51.52% disputed that they were in a relationship with people who forced them to participate in sexual activities that make them feel uncomfortable.
Based on spousal communication and pregnancy preparedness among HIV Positive women for spousal disclosure, the study found that more than two thirds of the respondents at 65.15% revealed that they had disclosed to their HIV status to their husbands or partners. However, significant number at 34.85% confessed that their husbands did not know their HIV status. This shows that level of disclosure is still low among the partners. This finding concurs with that of (World Health Organization; United Nations AIDS; United Nations Children's Fund, 2015) report which documented that in the developing world, rates of HIV status disclosure to sexual partners ranged between 16.7% - 86%, depending in large part on the type of partner to whom the person disclosed.

In describing the type of relationship between pregnant women living with HIV and their partners, the study found that most of these mothers at 52% described their relationship with their partner as friendly. However, 23% of the respondents described it as harsh, while 18% indicated warm and loving, as 7% could not describe their relationship. Assessing the partner relationship during pregnancy and the postpartum periods may help identify couples who are at risk for psychological maladjustment and who need intervention. Participants living together or happy with the pregnancy had better partner relationship scores than participants living without their partner or not happy about their pregnancy. Similar data has been reported by Cox, Paley, Burchinal, & Payne (2009), and suggest that spousal relationship during the transition to parenthood is affected by the fact that the women/men are living or not living together and are happy or not happy with their pregnancy, the two dimensions that need to be evaluated when screening parents for early interventions. However, a previous study (Florsheim, Emi, McCann, Mathew, Ritsuko, & Trina, 2013) revealed that partner relationships have been noted to decline across pregnancy and the postpartum periods. Decreased proximity, decreased communication, increased conflict and ambivalence between the two members of the couple result in less marital satisfaction and adjustment after compared to before delivery or early pregnancy.

The study established that majority of the respondents at 86.36% strongly agreed that spousal communication encouraged proper pregnancy preparedness among HIV positive clients. Most of the respondents at 88.64% strongly supported the statement that HIV positive women who do not communicate, discuss or agree with their partners regarding pregnancy hurt their preparedness. In fact, almost all the respondents at 97.73% strongly agreed with the statement that fear of rejection or discrimination may prevent a pregnant mother from disclosing their
HIV status to family members. Poor communication between women and their partners may be attributed to fear of stigma and “unfair” treatment by their partners. This shows that HIV-positive pregnant women have a harder time during pregnancy, as they might deal with an additional layer of stigma and judgment for getting pregnant and putting their unborn child at risk of HIV infection. This is a complicated issue and plays into issues surrounding fetal well-being, and perceptions of poor motherhood. These findings corroborate with that of Turan, Bukusi, Onono, Holzemer, Miller, & Cohen (2011), that found out that women who experienced internalized stigmatization and thought that HIV-positive people should be ashamed, were far less likely to report having used antiretrovirals than women who did not carry this same stigmatization.

Based on socio-economic status of the partner, the study also found that more than two thirds of the respondents’ spouses or partners at 68.51% earned above KES 5700 implying that they lived above 1.90 USD per day. However, significant number of the respondents at 31.49% still lives below the poverty line. This is in agreement with the Kenya Integrated Household Budget Survey (KIHBS 2016/17) data, which also found that proportion of Kenyans living on less than the international poverty line (US$1.90 per day in 2017 PPP) has declined from 46.8% in 2005/06 to 36.1% in 2016/17, according to the 17th edition of the Kenya Economic Update.

Binary regression revealed that pregnancy preparedness among HIV positive women had a significant association with partner characteristics such as violence and communication (P≤0.05). Intimate Partner violence was measured using a screening tool. HIV positive women with non-violent partners were more likely to be prepared as compared to HIV positive women with extremely violent partners (OR=2.57; 95% CI = 2.042–3.521) and those with moderately violent partners (OR = 1.671; 95% CI = 0.789 – 2.719). On spousal communication, HIV positive women who reported disclosure were more likely to be prepared (OR = 2.83; 95% CI=1.113 – 5.269). Considering Partner’s Income, HIV positive women whose partners had income level above KES 5,700 were more likely to be prepared for pregnancy (OR = 4.71; 95% CI = 3.66 – 8.54) compared to those whose partner income were below KES 5,700.

From these findings, partner involvement can be a determining factor in pregnancy preparedness for sero-discordant couples. Similarly, a study by (Peltzier, Chao, & Dana, 2009) on determinants of adherence to a single-dose Nevirapine regimen for the prevention
of mother-to-child HIV transmission in South Africa also found that women bring in treatment partners for support in taking and/or beginning ART. Another study by (Christofides & Jewkes, 2010) on self-reported adherence to antiretroviral medications among participants in HIV clinical trials found that lack of male involvement, lack of trust and confidentiality with healthcare workers and being a single woman were associated with mothers not taking Nevirapine.

5.5 Health Facility Factors and Pregnancy Preparedness by HIV positive Women

The fourth study objective sought to investigate health facility factors influencing pregnancy preparedness among HIV positive Mothers. The study found that out of the 132 respondents that took part in the study, majority of the respondents at 86% revealed that their current pregnancies were not planned, while only 14% indicated otherwise. This shows that most of the HIV positive women did not choose to be pregnant; neither did they plan for it. Similarly, Christofides & Jewkes (2010), in a study on prevalence and determinants of unplanned pregnancy in HIV-positive and HIV-negative pregnant women in Cape Town, South Africa observed high levels of unplanned pregnancy among HIV-positive women, particularly among those not on ART. In fact, unplanned pregnancy was most common among women newly diagnosed and women who were known HIV positive but not on ART.

On contraceptive usage, the study established that over two thirds of the respondents at 61% disagreed that they had discussed contraceptive usage with their healthcare providers. Only 9% had discussed this issue, while 30.0% remained neutral on the question. Failure to discuss the usage of contraceptive with the healthcare providers limited knowledge on sexual reproductive health among the pregnant mother. Similarly, a reproductive health study conducted by the WHO (2015) revealed that due to the lack knowledge on the available contraceptive methods, people are not able to make informed choices as far as contraceptives are concerned, resulting in fear to utilize them. However, general contraceptive knowledge is widespread, even among women with no education, according to (Asefa & Mitike, 2014), though the service uptake still remains low. This opinion was confirmed by the demographic health survey conducted in Makueni County in 2014, which also reported that 71% of the people surveyed had knowledge of contraceptives, while only 48% were reported to be utilizing them.

It was also found that at the time of pregnancy, few of the respondents at 5(3.8%) were on contraceptive usage, while 127(96.2%) were not on any contraceptive usage at the time of
pregnancy. The study found that 5(3.8%) of the respondents while on a method. Most of them at 3(60%) were using implants (Implanon), 1(20%) were using oral contraceptive pills and 1(20%) were using injectible contraceptive (Depo). This shows that although these women were on various contraceptive methods, implant methods were not highly effective as most of the respondents who were under this method registered failure of the method. This finding supports that of Timothy et al. (2010) who also found that methods of contraceptive are not 100% effective and some of the reasons for failures of these methods were expiry date and and poor timings of family planning administrations. However, in cases where the methods failed due to expiry dates, the healthcare workers recalled batch numbers of the cases-specific and the victims underwent counseling on acceptance of their pregnancies and continued to abide by recommendations.

Majority of the respondents in fact all at 91.37% agreed that health care providers assessed their pregnancy status. Only 8.63% disagreed with statement. On method used, the study found that in most cases, ordered pregnancy tests were used as shown by three quarters of the respondents at 75.81%. Only 19.17% indicated that they were assessed through physical examination, while 5.02% were assessed through history taking last menstrual period (LMP).

Based on Pregnancy Intention Screening, the study found that most 72 (54.5%) of the respondents were not screened for their future pregnancy intentions, while undergoing HIV care. Sixty respondents (45.5%) indicated that they were screened for their future pregnancy intentions as a way of reproductive health screening in HIV care clinics, before conception and subsequent referral to ANC. This shows that although significant number of mothers underwent pregnancy intention screening as part of HIV care and management, majority were not screened for future pregnancy intentions and this could compromise level of pregnancy preparedness among these mothers. This finding corroborate with the recommendations by Kvach, Lose, Marcus, & Loomis (2017) who also suggested that implementation of routine pregnancy screening is important to address unmet reproductive health needs, and can be successfully implemented through an electronic medical record (EMR) regardless of primary language. Another study (Skirton & Barr, 2010) revealed that pregnancy intention screening help women and their partners in making informed decision to gain detailed insight and improve their understanding of women’s complex needs with regard to screening tests. This finding corroborate with the recommendations by Kvach, Lose, Marcus, & Loomis (2017), who also suggested that implementation of routine pregnancy screening is important to
address unmet reproductive health needs, and can be successfully implemented through an electronic medical record (EMR) regardless of primary language. Another study by (Skirton & Barr, 2010) revealed that pregnancy intention screening help women and their partners in making informed decision to gain detailed insight and improve their understanding of women’s complex needs with regard to screening tests.

The study also found that most of the respondents at 96.21% confirmed that HCWs discussed ART Initiation/continuation and adherence to achieve viral load of <1000 copies/ml, while only 3.79% indicated otherwise. Most respondents at 93.94% agreed with the statement that being on HAART and achieving viral load of <1000 copies/ml reduces HIV transmission. These findings concur with that of (Sheri, Kirshenbaum, Elizabeth, & Jacqueline, 2004) who also documented that the aim of ART administered during pregnancy is to suppress viral replication, ideally reducing maternal viral load to an undetectable level by the time of delivery; this is the mechanism through which ART reduces the risk of vertical transmission. The Kenyan guidelines on use of antiretroviral drugs for treating and preventing HIV (2016 edition) also recommends that all PLHIV, regardless of WHO stage, CD4 count, age, pregnancy status, or comorbidities/co-infections be started on HAART with an aim of achieving viral load of <1000 copies/ml.

Secondary data from the health facilities reveal that among the 132 HIV pregnant women, 97.7% were on ARVs, while only 2.30% were not under ARVs. On those on ARVs, 98.3% had <1000 copies/ml, while 2% have >1000. However, those who were not on ARVs explained that they are active follow up at the facility.

In determining the association between Health Facility Factors and Pregnancy and pregnancy preparedness, bivariate logistic analysis revealed that, pregnancy preparedness among HIV positive women had a significant association with health facility factors which include use of contraceptive, pregnancy assessment, pregnancy intention screening and adherence to ART (P≤0.05). In terms of contraceptive usage, HIV positive women using contraceptives were more likely to be prepared as compared to HIV positive women who do not use (OR=1.914; 95% CI=1.511–4.672). Similarly, compared to HIV positive women who do not undergo pregnancy assessment, women who are assessed were more likely to be prepared (OR = 2.65; 95% CI=1.117 – 5.578); while on pregnancy intention screening, those who were screened were one and half times more likely to be prepared (OR = 1.562; 95% CI= 0.584 – 4.533) than those HIV positive women who were not screened. Regarding adherence to ART by
initiation or continuation, HIV positive pregnant women adhering to ART were more likely to be prepared (OR=2.97; 95% CI = 1.245 – 4.669) compared to those who do not adhere.
CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1 Summary of Findings

Based on the first objective, the study found low level of pregnancy preparedness by HIV positive pregnant women at 45.5% based on the studied parameters. The low level of pregnancy preparedness could be due to lack of awareness and negative perception by various stakeholders on contraceptive screening, ART usage, pregnancy status assessment and pregnancy intention screening at the HIV care clinics during routine consultations. Most of the pregnant women were prepared in terms of voluntary non-contraceptive use at 96.2%, pregnancy status assessment at 91.7% and on ART with ongoing adherence at 97.7%. However, in terms of “pregnancy intention” component, fewer women at 45.5% were prepared. Five respondents (3.8%) had a contraceptive-method failure and completed audit feedback discussed with them.

With reference to the second study objective, the study found that most of the respondents at 62.9% had more than one pregnancy, while 37.1% were 1 para. Majority of the respondents were found to be falling within the age band of 25-34 years. Most of the respondents, cumulatively at 59.85% agreed that being HIV positive and young influenced pregnancy preparedness. Further, over two thirds of the respondents (68.19%) agreed that since they were married, they were expected to conceive regardless of their HIV status. Only 18.94% of the respondents disputed the statement. Another 68.18% of the respondents supported the statement that their level of education and knowledge on HIV influenced their current pregnancy, while only 16.67% disputed the statement. It was also found that income level influences pregnancies preparedness, as shown by 61.36% of the respondents. However, 21.97% disagreed with the statement, while 16.67% were not sure about the statement. From the findings, low-income level has been shown to be a barrier to effective pregnancy preparedness. Overall, bivariate logistic regression revealed that pregnancy preparedness among HIV positive women had a significant association with age of the women, marital status, whether staying with partner, parity, education status, income level and religion (P≤0.05). Women in the age bands of 25-34 and 35-44 years were more likely to be prepared for their pregnancies (OR=1.189, 95% CI=1.08 – 1.7 and OR=1.08, 95% CI=0.064–1.736, respectively) compared to those aged 15 – 24 years.
Married HIV positive women were more likely to be prepared for their pregnancies compared to single HIV positive women (OR=7.95; 95%CI=5.44–8.63). HIV positive women with more than one parity (OR=1.28; 95% CI=1.07–1.69) were more prepared than those with one parity. HIV positive women staying or living with their partners/spouses were more prepared (OR=3.97; 95%CI = 2.65–5.94) compared to those living separately with their partners or spouses. On family income level, those earning above KES 5700 were nine times more likely to be prepared (OR=9.36; 95%CI= 6.37–13.76) as compared to those earning below KES 5700. Compared to those without education, HIV positive pregnant women with education were more likely to be prepared (OR=1.65; 95%CI =1.52–3.61, OR=9.17; 95%CI = 3.25 – 25.89, OR=11.4; 95% CI = 7.72 –17.02) for those with primary, secondary and post-secondary school level education, respectively). The study also found that HIV positive women affiliated to a religious faith were more prepared than those who were not (OR=2.61; 95%CI=1.88–3.47 and OR=1.46; 95%CI=1.22–2.40 for Christianity and Muslim, respectively).

On the third study objective, the study found that slightly over two thirds of the respondents at 62.88% agreed that within the past year, they have been hit, slapped, kicked or physically hurt in one way or the other by their partners. It was also noted that half of the respondents at 50% disclosed that they were in a relationship with persons who physically hurt them. Another 43.94% of the respondents also revealed that they were in a relationship with people who threaten, frighten, insult them, or treat them badly. Only 35.61% of the respondents indicated otherwise. As much as most of the respondents revealed that they have been physically hurt or threatened, majority of them at 51.52% disputed that they were in a relationship with people who forced them to participate in sexual activities that make them feel uncomfortable. The study also found that more than two thirds of the respondents at 65.15% revealed that they had disclosed their HIV status to their partners. However, significant number at 34.85% confessed that their partners did not know their HIV status. The study also found that most respondents at 52% described their relationship with their partners as friendly. However, 23% of the respondents described it as harsh, while 18% indicated warm and loving, as 7% could not describe their relationship. The study established that majority of the respondents at 86.36% strongly agreed that spousal communication encouraged proper pregnancy preparedness by HIV positive women. Most of the respondents at 88.64% strongly supported the statement that HIV positive women who do not communicate, discuss or agree with their partners regarding pregnancy hurt their
preparedness. In fact, almost all the respondents at 97.73% strongly agreed with the statement that fear of rejection or discrimination may prevent a pregnant mother from disclosing their HIV status to family members.

On socio-economic status of the partner, the study found that more than two thirds of the respondents’ spouses or partners at 68.51% earned above KES 5700 implying that they lived above 1.90 USD per day. However significant number of the respondents at 31.49% still lives below the poverty line. Binary regression revealed that pregnancy preparedness by HIV positive women had a significant association with partner characteristics such as Intimate Partner Violence (IPV) and communication (P≤0.05). HIV positive women who had not experienced IPV were more likely to be best prepared compared to those who underwent IPV of any severity (OR=2.57; 95% CI = 2.042–3.521 and OR = 1.671; 95% CI = 0.789 –2.719 for No violence and Moderate violence respectively). On spousal communication, HIV positive women who reported disclosure were more likely to be prepared (OR = 2.83; 95% CI=1.113 – 5.269). Considering Partner’s Income, HIV positive women whose partners had income level above KES 5,700 were more likely to be prepared for pregnancy (OR = 4.71; 95% CI = 3.66 – 8.54) compared to those whose partner income were below KES 5,700.

On the fourth study objective, it was found that Pregnancy Preparedness by HIV positive women had a significant association with health facility factors: Pre-pregnancy Contraceptive usage, Pregnancy assessment, Pregnancy intention screening and ART initiation/continuation and adherence (P≤0.05). In terms of contraceptive usage, HIV positive women using contraceptives were more likely to be prepared as compared to HIV positive women who did not use (OR=1.914; 95%CI=1.511–4.672). Women who underwent pregnancy assessments during routine ART visits were more likely to be prepared (OR=2.65; 95%CI=1.117 – 5.578); women whose pregnancy intentions were screened were one and half times more likely to be prepared (OR=1.562; 95%CI= 0.584– 4.533) compared to those who were not screened for pregnancy intentions. HIV positive pregnant women initiating / continuing with ART and adhering to the same were more likely to be prepared (OR=2.97; 95%CI = 1.245 – 4.669) compared to those who did not. Out of the 132 respondents who took part in the study, majority of the respondents at 86% revealed that their current pregnancies were not planned, while only 14% indicated otherwise. On contraceptive usage, the study established that over two thirds of the respondents at 61% disagreed that they had discussed contraceptive usage with their healthcare providers. Only 9% had discussed this issue, while 30.0% remained
neutral on the question. It was also found that, five of the respondents (3.8%) had contraceptive method failure - most of them at 3(60%) were on implants (Implanon), 1(20%) was using oral contraceptive pills and 1(20%) was using injectible contraceptive (Depo). One hundred and twenty-seven (96.2%) were not on any contraceptive usage at the time of pregnancy. Majority of the respondents in fact all at 91.37% agreed that health care providers assessed their pregnancy status. Only 8.63% disagreed with statement. On method used, the study found that in most cases, ordered pregnancy tests were used as shown by three quarters of the respondents at 75.81%. Only 19.17% indicated that they were asse through physical examination, while 5.02% were assessed through history taking last menstrual period (LMP).

Based on Pregnancy Intention Screening, the study found that most 72 (54.5%) of the respondents were not screened for their future pregnancy intentions, while undergoing HIV care. Sixty respondents (45.5%) indicated that they were screened for their future pregnancy intentions as a way of reproductive health screening in HIV care clinics, before conception and subsequent referral to ANC. The study also found that most of the respondents at 96.21% confirmed that HCWs discussed ART Initiation/continuation and adherence to achieve viral load of <1000 copies/ml, while only 3.79% indicated otherwise. Most respondents at 93.94% agreed with the statement that being on HAART and achieving viral load of <1000 copies/ml reduces HIV transmission. Secondary data from the health facilities reveal that among the 132 HIV pregnant women, 97.7% were on ARVs, while only 2.30% were not under ARVs. On those on ARVs, 98.3% had <1000 copies/ml, while 2% have >1000. However, those who were not on ARVs explained that they are active follow up at the facility.

6.2 Conclusion of the Study

The first study objective sought to determine level of pregnancy preparedness by HIV positive women in Seme Sub-County. Based on this objective, the study concluded that most of the HIV positive pregnant mothers were prepared in terms of voluntary non-contraceptive use, pregnancy status assessment and ART usage. However, when it comes to pregnancy intention, fewer women were prepared, indicating that future pregnancy intention screening were low among HIV women. This could be attributed to lack of awareness and negative perception on pregnancy assessment and intention among these mothers.

The second study objective sought to investigate the demographic factors influencing pregnancy preparedness among HIV positive clients. The study concluded that most of the
pregnant mothers living with HIV in Seme Sub-County had more than 3 previous pregnancies. Level and ability of preparedness also advanced with age, education level and income level. Specifically, older women (25 – 44 years) are more likely to be prepared for pregnancy compared to younger HIV positive women (less than 24 years). Marital status also influenced pregnancy preparedness among these mothers in that married HIV positive women are more likely to be prepared for pregnancy compared to single HIV positive women. The study also concluded that those with more than 1 parity were more prepared compared to those with less than 1 para. Level of education goes with knowledge on HIV hence proper preparedness among the HIV positive women. Those with higher education are more likely to be prepared for pregnancy compared to those with lower education levels or no formal education at all. HIV positive women who were staying with their partners or spouses were more likely to be prepared than those living separately with their partners. Similarly, income level of the mother influences their preparedness. Economically advantaged mothers access health services and information easily hence adequate preparations. Religious respondents of either Muslims or Christians were more likely to be prepared for their pregnancies than those without religion at all.

The third study objective sought to investigate influence of partner characteristics on pregnancy preparedness among HIV Positive mothers. The study concluded that most of the HIV positive pregnant mothers in one way or the other underwent various physical, emotional and mental frustrations from their spouses and partners. However, as much as most of the respondents have been physically hurt or threatened, they were not forced to participate in sexual activities that made them uncomfortable. Unsupportive spouse or partner discourages optimal pregnancy preparedness by HIV positive pregnant women. Significant number of HIV Positive women had not disclosed their HIV status to their husbands citing various reasons like physical harassment, stigmatization and victimizations from their husbands. However, good spousal communication and disclosure encouraged proper Pregnancy Preparedness by HIV positive women. Generally, HIV positive women who do not experience intimate partner violence are more likely to be prepared compared to HIV positive women who undergo intimate partner violence of any level. On spousal communication, HIV positive women who reported disclosure were more likely to be prepared than those who did not. Women whose spouse earned income levels above KES 5,700 were more likely to be prepared for pregnancy compared to those whose partners’/spouses’ income were below KES 5,700.
The fourth study objective sought to investigate health facility factors influencing pregnancy preparedness by HIV positive women. Most of the HIV positive pregnant women did not plan their current (at the time of the study) pregnancies. On contraceptive usage, health care providers did not discuss this with the women prenatally. Failure to discuss the usage of contraceptives led to limited knowledge on sexual reproductive health among pregnant women hence poor pregnancy-preparedness. In conclusion, HIV positive women who used contraceptives were more likely to be prepared as compared to HIV positive women who do not. HIV positive women who were assessed for pregnancy status during their ART clinic visits were more likely to be prepared compared to those who were not. On pregnancy Intention Screening, HIV positive women who were screened for their pregnancy intentions during ART clinic visits were more likely to be prepared than those whose intentions were never screened. Regarding ART initiation/continuation and adherence, HIV positive pregnant women were better prepared while on ART with adherence compared to those who do not initiate and/or continue ART with ongoing adherence support.

6.3 Recommendations from the current study

i. There is need for health care facility providers to pay more attention to young HIV positive women in terms of pregnancy preparedness.

ii. National and county government should emphasize the interventions aimed at reducing intimate partner violence

iii. There is need to promote HIV status disclosure among women living with HIV to promote optimal pregnancy preparedness by HIV positive women

iv. Clinicians and other health care providers should optimize the utilization of the Ministry of Health standard Reproductive Health Screening tool for women on ART as a way of strengthening health facility factors for pregnancy preparedness.

6.4 Recommendations for future studies

The study identified three gaps which the researcher recommends for further review by other scholars.

i. More studies should be done to look at service uptake factors for young women

ii. The study found that disclosure is sub-optimal. A study should be done on factors influencing disclosure processes among the HIV positive women.
iii. The study found that health care providers did not optimize the use of basic reproductive health screening tool for HIV positive women prior to their pregnancies. A study should be done on factors influencing optimal use of the basic reproductive health-screening tool for HIV positive women of reproductive age.
REFERENCES


APPENDICES

Appendix I: Sample Size (S) required for the given population (N)

<table>
<thead>
<tr>
<th>N</th>
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<th>N</th>
<th>S</th>
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<td>2600</td>
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</table>

Source: R.V Krejcie and D.W Morgan (1970), determining sample size for research activities, education and psychological measurement 30,608, Sage publication.
Appendix II: Consent Form
You are requested to participate in a research study conducted by Stephen O. Oyule who is pursuing a degree of Master of Public Health from School of Public Health and Community Development, Maseno University.

The purpose of this study is to contribute to the knowledge of pregnancy-preparedness among HIV positive women in Seme Sub-County health facilities. You are therefore requested to participate and your sincerity in answering the questions is highly encouraged.

Your participation in this study is voluntary, and your non-participation will not in any way affect you in this facility. Also, confidentiality is highly maintained in this study and at no time will you be required to identify yourself by name. The research does not pose any physical risk that would warrant the termination of the study. The study may cause some discomfort to you through possible reminders of past events that you would rather forget. However, counseling support services will be availed to you through referral should you require the same. Participating in this study will not yield direct monetary benefits. However, the findings of the study will be shared with the Department of Health so that policy-makers will be better informed about issues surrounding pregnancy-preparedness by HIV positive women. Lastly, if you agree to participate in the study, you would be required to sign this consent form.

Sign...................................... Date.................................................................
Appendix III: Women Questionnaire

Dear Respondents,

Re: Questionnaire

This is a study on factors affecting pregnancy preparedness among the HIV positive women in Seme Sub-county. The purpose of this questionnaire is to seek information from you on this theme of study. Your knowledge on pregnancy preparedness among the HIV positive women will be highly appreciated. Please complete this questionnaire as honestly as possible and note that any information you provide will be treated with at most confidence. DO NOT write your name on the questionnaire.

Thank you for accepting to take part in this study.

Please tick (√) where applicable and in case yours is missing write it on the free space provided.

SECTION A: Socio-Demographic Characteristics

a) Age
   - 10-19 years (  )
   - 20-29 years (  )
   - 30-39 years (  )
   - 40-49 years (  )
   - Above 50 years (  )

b) Marital status/Relationship Status
   - Single (  )
   - Married (  )
   - Divorced/separated (  )
   - Widowed (  )

i) If Married, do you live with your partner
   - No current partner (  )
   - Live separate from partner, (  )
   - Live with partner (  )

c) Level of education
   - None (  )
• Primary School ( )
• Secondary School ( )
• Post-Secondary School ( )

d) Religious Affiliation
  • Christian ( )
  • Muslim ( )
  • Others ( )

e) Monthly income
  Less than 5700 per month ( )
  More than 5700 per month ( )

SECTION B: Demographic factors influencing pregnancy preparedness among HIV positive clients
  a) No. of previous pregnancies
  • 1 [ ]
  • 2 – 3 [ ]
  • 3 – 5 [ ]
  • > 5 [ ]

  b) The following statement relates to demographic factors influencing pregnancy preparedness among the HIV positive clients. Please indicate whether you Strongly Agree, Agree, Not sure, Disagree or Strongly Disagree

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being HIV positive and young influences pregnancy preparedness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Since am married, am expected to conceive regardless of my HIV status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My level of education and knowledge on HIV influenced my current pregnancy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income level influences unintentional pregnancies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION C: Partner Characteristics and pregnancy preparedness by HIV positive Mothers

Intimate Partner Violence and pregnancy preparedness among HIV positive Mothers

a) Within the past year, have you been hit, slapped, kicked, or physically hurt by someone in any way?
   - Yes [ ]
   - No [ ]

b) Are you in a relationship with a person who physically hurts you?
   - Yes [ ]
   - No [ ]

c) Are you in a relationship with a person who threatens, frightens, insults you, or treats you badly
   - Yes [ ]
   - No [ ]

d) Are you in a relationship with a person who forces you to participate in sexual activities that make you feel uncomfortable?
   - Yes [ ]
   - No [ ]

e) Have you ever experienced any of the above with someone you do not have a relationship with?”
   - Yes [ ]
   - No [ ]

Spousal Communication and pregnancy preparedness by HIV positive Mothers

a) Have you disclosed your HIV status to your partner? Yes [ ] No [ ]

b) Describe your relationship with your partner before and during this pregnancy
   - Warm and Loving [ ]
   - Friendly [ ]
   - Harsh and cruel [ ]
   - Can’t tell [ ]

c) Do you discuss your reproductive health issues with someone other than your spouse/partner?
   - Yes [ ] No [ ]

If yes, how often do you communicate with him/ her?
   - Most of the time [ ]
Some of the time [ ]
Less often [ ]

The following statement relates to spousal communication influencing pregnancy preparedness among the HIV positive clients. Please indicate whether you Strongly Agree, Agree, Not sure, Disagree or Strongly Disagree

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spousal communication encourages proper pregnancy preparedness among HIV positive clients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV positive women who do not communicate, discuss or agree with their partners regarding pregnancy hurt their preparedness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of rejection or discrimination may prevent a pregnant mother from disclosing their HIV status to family members</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Socio-economic of the partner and pregnancy preparedness among HIV positive Mothers**

a) **Monthly income of your partner**
   - Less than 5700 per month ( )
   - More than 5700 per month ( )

b) **Does your partner support the recommendations by health providers?**
   - Yes [ ]
   - No [ ]

c) **If yes, how does your partner support you?**
   - Taking care of transport cost to seek HIV services [ ]
   - Reminding me on strict adherence to prescribed recommendations [ ]
   - Providing adequate food and nutrition recommended by the doctor [ ]
   - Buying the recommended drugs [ ]

d) **If No, what could be the reason for failing to support you?**
   - Inability to meet the financial obligations [ ]
   - My partner does not love me [ ]
   - He is irresponsible, does not understand the impact [ ]
SECTION D: Health facility-factors influencing pregnancy preparedness among the HIV positive clients

a) Is your current pregnancy planned?  Yes [ ] No [ ]

During clinical consultation sessions at the clinics before starting your ante-natal care, did the Health Care Worker discuss with you / explore the following:

b) Contraceptive use?

   Yes [ ]
   No [ ]

   Were you on a contraceptive at the time of pregnancy diagnosis?
   Yes [ ]
   No [ ]

   If Yes, which one?
   o Oral Contraceptive pill [ ]
   o Injectable Contraceptive (Depo) [ ]
   o Intrauterine Contraceptive Device (IUCD) [ ]
   o Implants (Jadelle or Implanon) [ ]
   o Bilateral Tubal ligation [ ]
   o Abstinence [ ]
   o Lactation Amenorrhea [ ]
   o Fertility Awareness Based Methods [ ]
   o Emergency contraceptive pills (e-pill) [ ]

Pregnancy Assessment

   Did healthcare provider assess your pregnancy status?
   Yes [ ]
   No [ ]

   If yes, through which method?
   Ordered pregnancy test [ ]
   Through history taking (LMP) [ ]
   Through physical examination [ ]

Pregnancy Intentions

   Did the HCW discuss future pregnancy intentions with you?
   ▪ Yes [ ]
   ▪ No [ ]

c) ART initiation/continuation and adherence in pregnancy

   Did the HCWs discuss prevention of HIV transmission via ART to achieve viral load of <1,000 copies/ml
   ▪ Yes [ ]
   ▪ No [ ]
d) Do you believe that being on HAART and achieving a viral load of <1,000 copies/ml reduces the chance of HIV transmission?

- Yes [ ]
- No [ ]

Thank you
Appendix IV: Swahili Consent Form (Fomu ya Idhini)

Unaombwa kushiriki katika utafiti unaofanywa na Stephen O. Oyule ambaye anataka shahada ya Uzamili wa Afya ya Umma kutoka Shule ya Afya ya Umma na Maendeleo ya Jamii, Chuo Kikuu cha Maseno.

Kusudi la utafiti huu ni kuchangia ujuzi wa utayarishaji wa ujauzito kati ya wanawake wenye HIV katika vituo vya afya katika Kaunti ndogo ya Seme. Kwa hiyo, unaomba kushiriki kikamilifu na kuarifiwa zaidi kuwa huu utafiti ni muhimu sana na uaminifu wako katika kujibu maswali unahamasishwa sana.


Saini:..........................Tarehe:..........
Appendix V: Swahili Questionnaire
Mhojiwa Mpendwa,

Dodoso
Huu ni utafiti juu ya *mambo yanayoathiri utayarishaji wa ujauzito kati ya wanawake wenye HIV* katika *Kauanti ndogo ya Seme*. Kusudi la dodoso hili ni kutafuta habari kwako juu ya mada hii ya utafiti. Ufahamu wako juu ya *utayarishaji wa ujauzito kati ya wanawake wenye HIV* utathaminiwa sana. Tafadhali jaza dodoso hili kwa uaminifu iwezekanavyo na kumbuka kuwa maelezo yoyote unayoyatoa yatashughulikiwa kwa ujasiri zaidi. USIANDIKE jina lako kwenye dodoso. Asante kwa kukubali kushiriki katika utafiti huu.

Tafadhali angiza (√) ambapo linahitajika na ikiwa lako linakosa liandike kwenye nafasi ya wazi lililotolewa.

**SEHEMU YA A:** Tabia za Kijamii na Kijiografia

a) Umri
- miaka 10-19 ( )
- miaka 20-29 ( )
- miaka 30-39 ( )
- miaka 40-49 ( )
- zaidi ya miaka 50 ( )

b) Hali ya ndoa/Hali ya Uhusiano
- Pekee ( )
- Oleka ( )
- Talakiana/tengana ( )
- Mjane ( )

i) Ikiwa umeolewa, je, unaishi na mpenzi wako
- Hakuna mpenzi kwa sasa ( )
- Kuishi mbali na mpenzi, ( )
- Kuishi na mpenzi ( )

c) Kiwango cha elimu
- Hakuna ( )
- Shule ya Msingi ( )
- Shule ya Sekondari ( )
- Zaidi ya Shule ya Sekondari ( )
d) Ushirika wa kidini

- Mkristo ( )
- Muislamu ( )
- Nyingine ( )

**SEHEMU YA B:** Mambo ya idadi ya watu zinazoathiri utayarishaji wa ujauzito kati ya washiriki wenyeye HIV

**a) Idadi ya mimba za awali**

- 1 [ ]
- 2 - 3 [ ]
- 3 - 5 [ ]
- Zaidi ya 5 [ ]

**b) Taarifa ifuatayo inahusiana na mambo ya idadi ya watu zinazoathiri utayarishaji wa ujauzito kati ya washiriki wenyeye HIV. Tafadhali onyesha ikiwa Unakubaliana Kabisa, Unakubaliana, Hauna uhakika, Haukubaliani au Haukubaliani Kabisa**

<table>
<thead>
<tr>
<th>Taarifa</th>
<th>Unakubaliana na Kabisa</th>
<th>Unakubaliana na</th>
<th>Hauna uhakikatia</th>
<th>Haukubaliani</th>
<th>Haukubaliani Kabisa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuwa na HIV na changa zinaathiri utayarishaji wa ujauzito</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kwa kuwa nimeolewa, ninahitajika kushika mimba bila kujali hali yangu ya HIV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kwango changu cha elimu cha ujuzi juu ya HIV iliathiri ujauzito wangu kwa sasa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kwango cha mapato huathiri mimba zisizokusudiwa</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SEHEMU YA C:** Tabia za Mpenzi na utayarishaji wa ujauzito kati ya Wamama wenyeye HIV

*Ukatili wa karibu wa mpenzi na utayarishaji wa ujauzito kati ya Wamama wenyeye HIV*

**a) Katika kipindi cha mwaka uliopita, je, umekabiliwa, kupigwa makofi, kupigwa teke, au kuumizwa mwili na mtu kwa namna yoyote?**

- Ndiyo [ ]
- La [ ]
b) Je! uko katika uhusiano na mtu ambaye hukuumiza mwilini?
   - Ndiyo [ ]
   - La [ ]

c) Je! uko katika uhusiano na mtu anayekutishia, anayekugopeshia, anayekudhulumu, au anayekutendea mabaya
   - Ndiyo [ ]
   - La [ ]

d) Je! uko katika uhusiano na mtu ambaye anayekulazimisha kushiriki katika shughuli za ngono ambazo hukufanya usijisikie kuwa na wasiwasi?
   - Ndiyo [ ]
   - La [ ]

e) Je! umewahi kuona yoyote ya hapo juu na mtu ambaye hauna uhusiano naye? "
   - Ndiyo [ ]
   - La [ ]

**Mawasiliano ya ndoa na utayarishaji wa ujauzito kati ya wamama wenye HIV**

a) Je! umefunua hali yako ya HIV? Ndiyo [ ] La [ ]

   *Unaweza kuandika zaidi ya moja*
   - kwa mpenzi/mume pekee [ ]
   - marafiki wa familia moja au zaidi [ ]
   - kwa mama wa mshiriki iwapo ni mimba ya wasichana wasioolewa [ ]

b) Je! ujauzito wako wa sasa ulipangwa? Ndiyo [ ] La [ ]

c) Eleza uhusiano wako na mpenzi wako kabla na wakati wa ujauzito huu
   - Nzuri na wenywe upendo [ ]
   - Kirafiki [ ]
   - Hasira na kikatili [ ]
   - Siwezi sema [ ]

d) Je! huwa unazungumzia afya na masuala yako na mtu mwingine isipokuwa mwenzi wako/ mpenzi wako?
   - Ndiyo [ ] La [ ]

   *Ikiwa ndio, mara ngapi unawasiliana naye?*
   - Mara nyingi [ ]
   - Wakati nyingine [ ]
- Sio mara nyingi [ ]

Taarifa ifuatayo inahusiana na mawasiliano ya ndoa inayotokana na utayarishaji wa ujauzito kati ya washiriki wenye HIV. Tafadhali onyesha ikiwa Unakubaliana Kabisa, Unakubaliana, Hauna hakika, Haukubaliani au Haukubaliani kabisa

<table>
<thead>
<tr>
<th>Taarifa</th>
<th>Unakubaliana na Kabisa</th>
<th>Unakubaliana na</th>
<th>Hauna uhakika</th>
<th>Haukubaliani</th>
<th>Haukubaliani kabisa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mawasiliano ya ndoa inahimiza utayarishaji nzuri kati ya washiriki wenye HIV</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wanawake wenye HIV ambao hawana mawasiliano, wanajadili au kukubaliana na wapenzi wao kuhusu ujauzito huumiza matayarisho yao</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hofu ya kukataliwa au kubaguliwa inaweza kuzuia mama mjamzito kufunua hali yao ya HIV kwa familia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Hali ya kiuchumi ya mpenzi na utayarishaji wa ujauzito kati ya wanawake wenye HIV_

_a) Je! Unaweza kuelezea kiwango gani cha mapato ya mpenzi wako?_

- Cha Juu [ ]
- Wastani [ ]
- Chini [ ]
- Siwezi sema [ ]

_b) Je! mpenzi wako anaunga mkono mapendekezo ya watoa huduma za afya?_

- Ndiyo [ ]
- La [ ]

c) Ikiwa ndiyo, mpenzi wako anaungaje mkono?

- Kuchukuwa gharama za usafiri kutafuta huduma za HIV [ ]
- Ananikumbusha kuzingatia kwa makini mapendekezo yaliyoko [ ]
- Anatoa chakula cha kutosha na lishe iliyoamakezwa na daktari [ ]
- Ananunua dawa zilizopendekezwa [ ]

d) Ikiwa La, nini kinaweza kuwa ni sababu ya kushindwa kukusaidia?

- Kutokuwa na uwezo wa kufikia majukumu ya kifedha [ ]
- Mpenzi wangu hanipendi [ ]
- Yeye hana jukumu, haelewii athari [ ]

SEHEMU YA D: Kituo cha afya-sababu zinazoathiria utayarishaji wa ujauzito kati ya wanawakwenye HIV

Wakati wa vikao vya ushauri vya kliniki kwenye kliniki kabla ya kuanza huduma yako ya ujauzito, Je! Mfanyakazi wa Huduma za Afya alijadili nawe/kuchunguza yafuatayo:

a) Matumizi ya mpango wa uzazi

Ndiyo [ ]
La [ ]

Je! ulikuwa katika mpango wa uzazi wa wakati wa uchunguzi wa ujauzito?

Ndiyo [ ]
La [ ]

Ikiwa Ndiyo, ni gani?

- Kidonge cha mpango wa uzazi [ ]
- Sindano ya mpango wa uzazi (Depo) [ ]
- Kifaa cha mpango wa uzazi (IUCD) [ ]
- Mpango wa uzazi cha kifaa kuwekwa chini ya ngozi (Jadelle au Implanon) [ ]
- Kukatwa mshipa wa kupitisha mbegu za kiume [ ]
- Kujizuia [ ]
- Kipindi cha Kunyonyesha na kutoona damu za hedhi [ ]
- Mbinu za Kuelewa mpango wa Uzazi [ ]
- Mipango ya uzazi wa dharura (tembe la dharura) [ ]

b) Tathmini ya Ujauzito

Je! mtoa huduma ya afya alitadhmini hali yako ya ujauzito?

Ndiyo [ ]
La [ ]

Ikiwa ndiyo, kwa njia gani?

Aliagiza upimaji wa ujauzito [ ]
Kupitia kuchukua historia (Siku ya Mwisho kuona damu ya Hedhi) [ ]
Kupitia uchunguzi wa kimwili [ ]

c) Nia za Ujauzito

Je! Mfanyakazi wa Huduma za Afya alijadili nia ya ujauzito ya baadaye?

- Ndiyo [ ]
d) Kuanzisha/Kuendeleza ART na uzingatiaji katika ujauzito
Je! Wafanyakazi wa Huduma za Afya walijadili uzuiaji wa maambukizi ya HIV kupitia ART ili kufikia uzito wa virusi wa <1,000 kwa nakala/kwa mililita

- Ndiyo [  ]
- La [  ]

e) Je! Unaamini kwamba katika HAART na kufikia uzito wa virusi wa <1,000/kwa mililita hupunguza nafasi ya maambukizi ya HIV?

- Ndiyo [  ]
- La [  ]

Asante
Appendix VI: Key Informant Schedule

Dear respondent;

This is a study on factors affecting pregnancy preparedness among the HIV positive women in Seme Sub-county. The purpose of this interview is to seek information from you on this theme of study. Your knowledge on pregnancy preparedness among the HIV positive women will be highly appreciated. Please note that any information you provide will be treated with at most confidence.

1. What is your opinion on pregnancy trends among HIV positive women in this region?
2. In your opinion, how do age, marital status, level of education influence pregnancy preparedness among the HIV positive women in this region?
3. In your opinion, how does spousal communication and disclosure influence pregnancy preparedness among the HIV positive women in this region?
4. In your opinion, how do intimate partner violence influence pregnancy preparedness among the HIV positive women in this region?
5. In your opinion, how do level of income, type of occupation of the partner influence pregnancy preparedness among the HIV positive women in this region?

Thank You
Appendix VII: Reproductive Health Basic Screening Tool

<table>
<thead>
<tr>
<th>Patient No.</th>
<th>Name</th>
<th>DOB/Age</th>
<th>Marital Status: ( ) Married ( ) Single ( ) Separated Divorced ( ) Widowed</th>
<th>Client on ART ( ) Yes ( ) No</th>
<th>Partner HIV status*: ( ) +Ve ( ) -Ve ( ) Not Known</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Visit</th>
<th>Initial</th>
<th>At 3 Months</th>
<th>At 6 Months</th>
<th>At 9 Months</th>
<th>At 12 Months</th>
<th>At 15 Months</th>
<th>At 18 Months</th>
<th>At 21 Months</th>
<th>At 24 Months</th>
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<tbody>
<tr>
<td>Indicate if Yes/NO</td>
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<td>I. Contraceptive</td>
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<td>a) Do you use condoms?</td>
<td>Male condom?</td>
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<td>b) Are you on any contraceptive excluding condoms</td>
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<td>c) If yes, which Method of contraception do you use?</td>
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<tr>
<td>i) Oral Contraceptive pill</td>
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<td>ii) Injectable Contraceptive (Depo)</td>
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<td>iii) Intrauterine Contraceptive Device (IUCD)</td>
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<td>iv) Implants (Jadelle or Implanon)</td>
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<td>v) Bilateral Tubal ligation</td>
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<td>vi) Vasectomy</td>
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<td>vii) Abstinence</td>
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<td>viii) Lactation Amenorrhea</td>
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<td>ix) Fertility Awareness Based Methods</td>
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<td>x) Emergency contraceptive pills (e-pill)</td>
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<td>xu) Others (specify)</td>
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<td>II. Pregnancy Assessment</td>
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<td>d) Have you been experiencing regular menses?</td>
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<td>e) What date was your last normal menstrual period? (Indicate date. If &gt; than 6 weeks complete question f)</td>
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<td>f) Do a pregnancy test</td>
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<td>g) Are you planning to conceive in the next 3 months?</td>
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</table>

If No, and not FP method, go to question (i), if yes go to (h)

| III. Pregnancy Intention |         |             |             |             |             |             |             |             |             |
| h) Start ART if not on ART |             |             |             |             |             |             |             |             |             |

*Start ART if viral load < 1000 cells / μl before conception

If partner status is unknown, encourage partner testing; if partner is HIV positive establish ART use according to guidelines
Appendix VIII: Map of Study Area

Sub Counties, Kisumu

Kenya, Counties

Legend
- Narok Region
- Kisumu County
- County Boundary
- Waterbodies

Key
- Health Facilities
- Fish landing sites
- Sub-County Boundary
- Lake Victoria

Seme

Kisumu West

Kisumu East

Kisumu Central

Nyakach

Nyando

Muhoroni

Chamunda

Maseno University

Cherangani Hills

Sege-Sengisio

El Molo

Riat

Chalambas

Kisumu West

Seme

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Appendix IX: Screening for Gender-Based Violence (GBV)/Intimate-Partner Violence (IPV)

All females aged 15-49 years and emancipated minors accessing HIV care services should be screened for IPV as part of the standard package of care for PLHIV.

<table>
<thead>
<tr>
<th>No.</th>
<th>Script</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Within the past year, I have been hit, slapped, kicked, or physically hurt by someone in any way</td>
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<tr>
<td>2.</td>
<td>Am in a relationship with a person who physically hurts me</td>
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<tr>
<td>3.</td>
<td>Am in a relationship with a person who threatens, frightens, insults me, or treats me badly</td>
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<tr>
<td>4.</td>
<td>Am in a relationship with a person who forces me to participate in sexual activities that make me feel uncomfortable</td>
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</tbody>
</table>

If a patient answers yes to any of these questions: identify if they are in a relationship with the perpetrator and provide them with some immediate counselling support (supportive messages and support with problem-solving if they are currently in an abusive relationship), and refer to the nearest IPV or GBV Recovery Centre or mental health team for further assessment and counselling.

Supportive messages that may be helpful include:
- “what happened to you is not your fault”
- “many women are in the same situation as you”
- “there are resources available to help you deal with the current difficulty”
- “if you feel like you are in immediate danger we can involve the police or local administration”
Appendix X: School of Graduate Studies Approval letter

MASENO UNIVERSITY
SCHOOL OF GRADUATE STUDIES
Office of the Dean

Our Ref: MPH/PH/00125/2013
Private Bag, MASENO, KENYA
Tel: (057)351 22/351008/351011
FAX: 254-057-351153/351221
Email: sgs@maseno.ac.ke
Date: 28th FEB, 2019

TO WHOM IT MAY CONCERN

RE: PROPOSAL APPROVAL FOR STEPHEN OTIENO OYULE — MPH/PH/00125/2013

The above named is registered in the programme of Master of Science in Public Health in the School of Public Health and Community Development, Maseno University. This is to confirm that his research proposal titled "Factors influencing pregnancy-preparedness among HIV positive women in Seme Sub County, Kenya" has been approved for conduct of research subject to obtaining all other permissions/clearances that may be required beforehand.

Prof. J.O. Aguirre
DEAN, SCHOOL OF GRADUATE STUDIES

Maseno University ISO 9001:2008 Certified
Appendix XI: NACOSTI Letter

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 2241349, 3310571.2219429
Fax: +254-20-318245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

Ref. No: NACOSTI/P/19/96845/29806

Date: 27th May, 2019

Stephen Otieno Oyule
Maseno University
Private Bag
MASENO.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Factors influencing pregnancy preparedness among HIV positive women in Seme Sub County Kenya” I am pleased to inform you that you have been authorized to undertake research in Kisumu County for the period ending 27th May, 2020.

You are advised to report to the County Commissioner, the County Director of Education and the County Director of Health Services, Kisumu County before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a copy of the final research report to the Commission within one year of completion. The soft copy of the same should be submitted through the Online Research Information System.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kisumu County.

The County Director of Education
Kisumu County.
Appendix XII: NACOSTI Certificate

THIS IS TO CERTIFY THAT:
MR. STEPHEN OTIENO OYUDE
of MASENO UNIVERSITY, 2425-40100
KISUMU, has been permitted to conduct research in Kisumu County

on the topic: FACTORS INFLUENCING PREGNANCY PREPAREDNESS AMONG HIV POSITIVE WOMEN IN SEME SUBCOUNTY KENYA

for the period ending:
23rd May, 2020

Applicant’s Signature

NACOSTI Certificate

Director General
National Commission for Science, Technology and Innovation

Note: This certificate is valid for the proposed research, location and specified period.

CONDITIONS:
1. The License is valid for the proposed research, location and specified period.
2. The License and any rights thereunder are non-transferable.
3. The Licensee shall inform the County Governor before commencement of the research.
4. Excavation, drilling and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
5. The Licensee does not give authority to transfer research materials.
6. NACOSTI may monitor and evaluate the licensed research project.
7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.
8. NACOSTI reserves the right to modify the conditions of the License, including cancellation without prior notice.
Appendix XIII: Ministry of Health Approval Letter

COUNTY GOVERNMENT OF KISUMU

Telegrams: “Health”
Telephone: 254-0712-977-007
Fax: Kisumu
E-mail: medsupkombewa@gmail.com

THE MEDICAL SUPERINTENDENT
KOMBWEA COUNTY HOSPITAL
P. O. BOX 60-40102
KOMBWEA.

Date: 1st May, 2019

TO:
Stephen Otieno Oyule
PG/MPH/PH/00125/13
School of public health and community development
Maseno University,
P.O. BOX private Bag, Maseno

RE: APPROVAL FOR ACADEMIC STUDY

This is to inform you that your request to conduct a research study on “Factors Influencing Pregnancy-Preparedness among HIV Positive Women in Seme Sub County, Kenya” is approved. I acknowledge that this will involve other satellite sites under Kombewa County Hospital in the HIV programming. Feel free to involve health care workers as key informants for the study as indicated in chapter 3 of your study proposal and do contact us in case of further needs. Additionally, try to limit the study to your academic timelines as indicated.

Finally, please note that you will be required to lead a feedback session with departmental heads to in order to correlate our strategies for pregnancy preparedness among the HIV positive mothers, to limit the spread of HIV virus for the ongoing PMTCT programming.

Thank you

Dr. David Okeyo
Medical superintendent Kombewa County Hospital &
Program Manager, MOH/PEPFAR Kisumu Program

CC: ANC and CCC in-charges
Appendix XIV: Maseno University Ethical Review Committee (MUERC) Approval Letter

MASENO UNIVERSITY ETHICS REVIEW COMMITTEE

FROM: Secretary - MUERC                  DATE: 9th April, 2019
TO: Stephen Otieno Oyule
     PGMPH/PH/00125/2013
     Department of Public Health
     School of Public Health and Community Development
     Maseno University
     P. O. Box, Private Bag, Maseno, Kenya

REF: MSU/DRPI/MUERC/00677/19


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 9th day of April, 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 8th April, 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 March, 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 March, 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 advice MUERC when the study is completed or discontinued.

Thank you.

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

Cc: Chairman,
Maseno University Ethics Review Committee.
Appendix XV: CITI certificate

Completion Date 04-Apr-2019
Expiration Date 03-Apr-2021
Record ID31260527

This is to certify that:

**stephen oyule**

Has completed the following CITI Program course:

**Human Research Group 22 - Refresher (6 modules)**

1 - Basic Course (Stage)

Under requirements set by:

Walter Reed Army Institute of Research (WRAIR)

Verify at [www.citiprogram.org/verify/?wa54d7483-1670-4037-93bf-4d529a84ea26-31260527](http://www.citiprogram.org/verify/?wa54d7483-1670-4037-93bf-4d529a84ea26-31260527)