THE ROLE OF MATERNAL, PSYCHOSOCIAL AND SOCIAL-CULTURAL FACTORS IN HIV-EXPOSED INFANTS’ SERVICE UPTAKE; NAKURU COUNTY REFERERAL HOSPITAL, KENYA

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OCTOBER, 2016
DECLARATION

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

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DEDICATION

This work is dedicated to all parents/guardians who offer care and support to HIV-Exposed or infected children.
ACKNOWLEDGEMENT

Many people have supported in the study through giving their time to read and give constructive guidelines and moral support. My sincere gratitude goes to Prof. Margaret Keraka and Dr. Purity Nguhiu from Kenyatta University for offering their time to read through the research proposal and their thoughtful corrections and guidance.

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I appreciate my daughters Harriet and Lynette who have been my source of inspiration always.

Above all I sincerely appreciate God for bringing me this far, His grace has surely been sufficient to me.
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DEFINITION OF OPERATIONAL TERMS

Early infant diagnosis (EID): Refers to the making of HIV diagnosis in infant and young children before 18 months of age.

Exclusive Breast feeding: Feeding a child with only breast milk without any other liquid or solid feed except oral rehydration solution, or drops/syrups of vitamins, minerals or prescribed medicines

Exclusive Replacement Feeding: Feeding a child who is not receiving any breast milk with a diet that provides all the nutrients the child needs.

HIV-Exposed Infant (HEI): A baby born to a HIV positive woman

Lost to follow up (LTFU): Missed more than 3 appointments, and more than 90 days after their last appointment

Mentor Mother: A HIV positive woman who during pregnancy, delivery and postnatal phase received interventions to prevent Mother to Child Transmission of HIV within ≤ 2 years prior to recruitment to Mentor Mother Program. The woman is trained to offer psychosocial support to other HIV positive women.

Mixed Feeding: Feeding a child on both breast milk and breast milk substitutes

PMTCT continuum of care: Care offered to HIV positive mother from time of HIV diagnosis and her infant after delivery until exit from PMTCT program

Psychosocial support: Scale of care and support which influences both the individual and the social environment in which people live. This ranges from care and support offered by caregivers, family members, friends, neighbors, teachers, health workers, and community members on a daily basis but also extends to care and support offered by specialized psychological and social services.

Psychosocial support group: A group of HIV positive women pregnant and within 2 years post-delivery who regularly meet/interact to share challenges and achievements in prevention of mother to child transmission of HIV

Service uptake: Receiving timely routine PMTCT and Child Welfare services according to the national standards and guidelines as per specific age of the HIV-Exposed Infant
# ACRONYMS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>AB/Ab</td>
<td>Antibody</td>
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<td>ANC</td>
<td>Ante Natal Care</td>
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<tr>
<td>BCG</td>
<td>Baccile Calmette Guanine</td>
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<td>ART</td>
<td>Anti- Retro Therapy</td>
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<td>ARV</td>
<td>Anti-Retro Viral</td>
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<tr>
<td>CTX</td>
<td>Cotrimoxazole</td>
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<td>CxCa</td>
<td>Cancer of the Cervix</td>
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<tr>
<td>DBS</td>
<td>Dry Blood Spot</td>
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<td>DNA</td>
<td>Deoxyribonucleic Acid</td>
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<tr>
<td>eMTCT</td>
<td>Elimination of Mother-to-Child Transmission of HIV</td>
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<td>FP</td>
<td>Family Planning</td>
<td></td>
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<tr>
<td>HAART</td>
<td>Highly Active Anti-Retroviral Therapy</td>
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<tr>
<td>HCP</td>
<td>Health Care Provider</td>
<td></td>
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<tr>
<td>HEI</td>
<td>HIV-Exposed Infant</td>
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<tr>
<td>HIV</td>
<td>Human Immuno-Deficiency Virus</td>
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<tr>
<td>IFC</td>
<td>Infant Feeding Counseling</td>
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<tr>
<td>KEPI</td>
<td>Kenya Expanded Program on Immunization</td>
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<tr>
<td>LTFU</td>
<td>Lost to Follow Up</td>
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<td>M2M</td>
<td>Mother-to-Mother</td>
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<tr>
<td>MM</td>
<td>Mentor Mother</td>
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<tr>
<td>MNCH</td>
<td>Maternal Newborn and Child Health</td>
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<tr>
<td>MSG</td>
<td>Mother Support Group</td>
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<td>MTCT</td>
<td>Mother to Child Transmission</td>
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<tr>
<td>NVP</td>
<td>Nevirapine</td>
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<tr>
<td>OPV</td>
<td>Oral Polio Vaccine</td>
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<tr>
<td>PCR</td>
<td>Polymerase Chain Reaction</td>
<td></td>
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<tr>
<td>PLHIV</td>
<td>People Living with HIV</td>
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<tr>
<td>PMTCT</td>
<td>Prevention of Mother to Child Transmission of HIV</td>
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<tr>
<td>PSSG</td>
<td>Psycho- Social Support Group</td>
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<td>YCF</td>
<td>Young Child Feeding</td>
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ABSTRACT

In 2015, approximately 1.8 in million children under 15 years of age were living with HIV with an estimated 150,000 newly infected mainly through Mother-to-Child Transmission while 110,000 died of HIV/AIDS related causes. In East and Southern Africa region, approximately one million children were living with HIV with 56,000 newly infected and 47,000 due to AIDS-related illnesses in the same year. Although Early Infant Diagnosis (EID) and immunization services for HIV-Exposed infants are readily available and provided free of charge in public health facilities, only 35% of HIV-Exposed infants received EID before the age of 6 weeks in Kenya in 2012. Nakuru County is one of the 20 high prevalence HIV burden counties in Kenya which stands at 5.6% among mothers attending antenatal care clinics. The study was carried out in Nakuru County Referral Hospital; a high-volume level five government facility accounting for the highest prevalence of HIV among women attending PMTCT clinic at 5% in 2013 and 11% in 2014. The objective of the study was to assess the relationship between maternal determinants, psycho-social and social-cultural factors which determine HIV-Exposed Infant’s service uptake. Due to stigma and discrimination related to HIV infection, negative attitudes and beliefs on HIV infection and lack of HIV status disclosure, uptake of HIV-Exposed infants’ services is likely to be compromised. This calls for informed strategies to motivate HIV infected mothers to embrace timely HEI services uptake. Study design was cross-sectional descriptive study of mother/baby pairs enrolled in PMTCT care in Nakuru County and Referral Hospital. Systematic sampling method was used to select respondent and a total of 329 mother/baby pairs were recruited for the study. Data was collected using both quantitative and qualitative approaches where an interviewer administered questionnaires and key informant interviews were used as the data collection tools. Cleaned data was analyzed using SPSS software version 20. Descriptive statistics were used to describe the continuous variables while chi square tests assessed associations between categorical variables. Hypothesis testing was done using chi-square test. All the results were considered at a significance level of 0.05. The study findings indicated that maternal factors including marital status and timeliness of uptake of immunization services had significant statistical association ($\chi^2 = 7.67$, df=1, $P=0.001$). Psycho-social factors showed significant association with timeliness in immunization ($\chi^2 = 8.87$, df=1, $P=0.03$) and timeliness in uptake of Early Infant Diagnosis (EID) as ($\chi^2 = 28.9$, df=1, $P<0.001$). Further findings on the respondents who had disclosed their HIV status to their male partners showed significant statistical association ($\chi^2 = 6.88$, $P=0.009$). The study concluded that maternal characteristics, psychosocial and social-cultural factors influenced timely HIV Exposed Infants’ service uptake and recommended for promotion of PMTCT psychosocial support groups among all HIV positive women and inclusion of mentor mothers as champions in demand creation, campaigns and interpersonal communication to improve the timely uptake of early infant diagnosis (EID) and immunization services.
CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Globally in 2015, approximately 1.8 in million children under 15 years of age were living with HIV with an estimated 150,000 newly infected mainly through Mother-to-Child Transmission while 110,000 children died of HIV/AIDS related causes. In East and Southern Africa region, approximately one million children were living with HIV while 56,000 were newly infected with 47,000 deaths of children due to AIDS-related illnesses in the same year (UNAIDS, 2016).

HIV-Exposed infants are an important population in relation to infant mortality. Various studies have shown that uninfected infants, who represent 30% of all children born in some areas of southern Africa, have higher mortality rates than do infants born to HIV-uninfected mothers, even when feeding patterns are similar (Marinda et al, 2011); (Shapiro et al, 2007). This means that all the HIV-Exposed Infants (HEI) need comprehensive follow up to prevent them from acquiring the transmission with the aim of reducing HIV related infant morbidity/ mortality. In 2015, Women of reproductive age living with HIV globally were 17,800,000 while in East and Southern Africa they were 10,700,000 and 830,000 living in Kenya during the same period (UNAIDS, 2016).

Globally 53% of HIV-infected women received antiretroviral drugs (ARV) for Prevention of Mother-to-Child Transmission of HIV (PMTCT) in 2009 but coverage of key services for the HIV-exposed infants (HEI) born to these women were considerably low (UNAIDS/WHO/UNICEF, 2010) while in Kenya 33% of HIV-positive pregnant women received ARVs for PMTCT in the same year (MOH Kenya, 2012).
In 2015, in East and Southern region of Africa, only six priority countries (Botswana, Mozambique, Namibia, South Africa, Swaziland and Uganda) met the Global Plan target of reducing mother-to-child transmission by 90% (UNAIDS, 2016). According to Central Bureau of Statistics Census (KNBS, 2010), Kenya had a population estimated at 38.6 million, with 1.55 million births per annum. The HIV prevalence among pregnant mothers was 6.3 per cent with a total of 97,272 births to HIV-infected mothers thus exposure of infants to MTCT. It is estimated that only 10-15% of HIV-Exposed Infants (HEI) are retained in HIV care 12 months after initiating HIV care and treatment (WHO, 2013).

The overall goal of the psychosocial support program is to reduce mother-to-child transmission by empowering HIV-positive mothers and mothers-to-be to make informed decisions about their reproductive health and the health of their babies (Viadro, Stratton, Asfaw, & Shabiru, 2008). Retention and provision of follow-up care to mother– infant pairs through the end of exposure to minimize risks of HIV transmission is critical (Sugandhi, et al., 2013).

Any model for the provision of comprehensive care for PLHIV and their families must ensure that clients’ psychosocial needs, in addition to their medical needs, are being satisfactorily addressed (MOHCW, 2009). A comprehensive approach to HIV service provision therefore involves the integration of psychosocial support (PSS) interventions within HIV prevention, care, and treatment services (Chima, 2010).
1.2 Problem statement

Despite high ANC attendance and HIV-testing rates of 92% and 80%, respectively in Kenya, there is poor retention in care with service uptake reducing along the cascade (KNBS, 2010). Among the 64% of HEI who had virological testing done within 2 months only 7% received co-trimoxazole prophylaxis while ART coverage among children in need was only 31% in 2011 (UNICEF, 2012). In 2015, only 54% of children exposed to HIV in the 21 highest-burden countries were tested for the virus within the recommended two months (UNAIDS, 2016).

In selected sites in Nakuru county 2013 HEI cohort analysis at 12 months assessed in July- September 2014 showed that 92% of the 175 HEI analyzed received infants’ ARVs age 0-6 weeks while only 86% of the mothers received maternal prophylaxis at the same HEI age bracket. Among the 135 infants who were assessed for feeding options at 6 months only 77% were exclusively breastfed. Of the HEI enrolled in the cohorts, only 65% were active in follow up at 9 months (APHIAPlus Rift valley project; Appendix 5)

The study aimed to establish whether maternal, psychosocial and social-cultural factors were associated with service uptake among the HIV-Exposed Infants (HEI).

1.3 Justification of the Study

The survival of HIV-exposed children (whether infected or not), is closely linked to the health and survival of their mothers. Therefore, long-term benefits of PMTCT programs will only be sustained if there is ongoing comprehensive care for the children and their mothers and/or care givers (MOH, 2012).
Poor follow-up of HEI and lack of Psychosocial support (PSS) for long term retention are potential threats to successful PMTCT implementation (WHO, 2013). Failure to retain a significant proportion of HIV-exposed infants disrupts opportunities to prevent transmission events and to diagnose early HIV in infants and thus prevent associated morbidity and mortality (Holly, 2012).

Nakuru County is one of the 20 high prevalence HIV burden counties in Kenya at 5.6% among mothers attending antenatal care clinics (NASCOP, 2012). The study was carried out in Nakuru County Referral Hospital which have the highest prevalence of HIV among women attending PMTCT clinic at 5% in 2013 and 11% in 2014 (DHIS Kenya, 2014). There was a mismatch in HIV-Exposed Infant (HEI) enrolment in PMTCT program and coverage of key HEI services. A total of 384 HEI were enrolled in PMTCT program where 354 were retained up to 18 months, 30 were lost to follow up (LTFU).

The aim of the study was to assess the association between maternal, psychosocial and social-cultural determinant of service uptake among HIV-exposed infants in PMTCT program. The findings of this study will be useful in addressing the priority area of scaling up timely service uptake among HIV-exposed infants.

1.4 Research Questions

i. What are the maternal determinants of HIV-Exposed Infant’s service uptake?

ii. What are the psycho social factors which determine HIV-Exposed Infant’s service uptake?

iii. What are the social-cultural factors which determine HIV-Exposed Infant’s service uptake?
1.5 Hypothesis
There is no relationship between maternal determinants, psycho social, social-cultural factors and timely uptake of routine HEI services.

1.6 Study Objectives

1.6.1 Broad Objective
The broad objective of the study was to assess relationship between maternal determinants, psychosocial, social-cultural factors and uptake of routine HEI services among HIV-Exposed Infants in Nakuru County Referral Hospital, Kenya.

1.6.2 Specific Objectives

i. To identify the maternal determinants of HIV-Exposed Infant’s service uptake

ii. To identify the psycho social factors which determine HIV-Exposed Infant’s service uptake.

iii. To determine the social-cultural factors determining HIV-Exposed Infant’s service uptake.

1.7 Significance of the study
The findings of this study will offer significant contribution particularly in programmatic interventions aimed at promoting HEI service uptake. The findings may be used to inform utilization of mentor mothers as champions in demand creation, campaigns and interpersonal communication to improve the timely uptake of early infant diagnosis.
1.8 Limitation and Delimitations

Limitation

The study sample was drawn from PMTCT mother-baby pairs attending Nakuru County Referral Hospital for services such as immunization, growth monitoring, excluding mother-infant pairs who do not utilize these services. Thus, the study cannot be generalized.

Delimitation

The study involved HIV positive mothers with infants aged below 24 months residing in environs surrounding Nakuru County Referral Hospital in Nakuru County.

1.9 Conceptual Framework and Theoretical framework

The conceptual framework below identifies the maternal characteristics, psycho social and socio-cultural determinants of uptake of HEI services. This study applied a social-ecological framework for the exploration of factors determining HEI service uptake. Health outcomes have increasingly been recognized as being shaped less by individual behaviour and more by the wider environments in which people live and make choices, influenced by family and peers, local beliefs and values, cultural norms and practices and political and economic circumstances (Busza, et al., 2012). The framework illustrates the factors in the study which may hinder or facilitate HEI service uptake at individual, community, programmatic and structural levels.

<table>
<thead>
<tr>
<th>Independent Variables</th>
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In Summary, HIV prevalence in pregnant and lactating women is high, thus more HIV Exposed infants. There is a mismatch between HIV Exposed service uptake (early infant diagnosis and timely immunization) and the number of HIV Exposed infants in need of the service. The study therefore endeavored to establish the role of maternal, psychosocio and socio-cultural factors in the uptake of the HEI services in Nakuru County Referral Hospital.

Source: adopted and modified from (Roula, et al., 2009)

**Figure 1.1: Conceptual Framework**

- Disclosure of HIV status
- Timing of maternal HIV Diagnosis
- Accessibility to Psychosocial support services
- Perceived benefits of enrolling in PSSG
- Mentor Mother Strategy
- Age, education level, employment status and residence
- Social cultural environment (Gender norms, Male involvement, Attitude to HIV, stigma and discrimination)
CHAPTER TWO: LITERATURE REVIEW

2.1 Follow-up of a HIV-Exposed Child

Interventions for the HEI are aligned on the Kenya Immunization schedule (KEPI) to maximize the benefits of service integration to the infants. This reduces duplication of service provision, saves on the already constrained resources and therefore enhances compliance to HEI follow up.

At birth, the HIV-Exposed Infants (HEI) requires immunization (OPV-0, BCG), ARVs prophylaxis, counselling on return visits including Cotrimoxazole (CTX) initiation and PCR at 6 weeks. Infant feeding counseling (IFC), routine immunization, growth and development monitoring continue from birth up to 24 months. At the age of 1-2 weeks, infants are assessed for adverse drug reactions and adherence to ARVS. DBS collection and starting of CTX are done at 6 weeks. At 6 months, measles vaccine, Vit. A, complementary feeding counseling are done. HIV Antibody test with confirmatory PCR if Ab test is positive and Measles vaccine are offered at 9 months. At 1 year, AB test if not done at 9 months, Vit A, Deworming, adherence counseling and counselling on stoppage of breastfeeding are done. Confirmatory HIV antibody test is done at 18 months and growth and development monitoring and Young Child Feeding (YCF) counseling, Vit A and deworming done at 24 months (MOH, 2012).
2.2 Maternal determinants of HIV-Exposed Infant’s service uptake

2.2.1: Disclosure of HIV status

HIV status disclosure serves as an important prevention strategy in PMTCT by enabling PMTCT attendees to benefit by being able to use ART prophylaxis, practice safe infant feeding and family planning practices (MOHCW, 2009). Disclosure of HIV status among pregnant women to partners is positively associated with service use.

Women who keep their status secret find it challenging to store and take medications (Wouters, Van Loon, Van Ransberg, & Meulemans, 2009). With disclosure to partners it is more likely that HIV-positive mothers will follow infant feeding recommendations (Bii, Otieno-Nyunya, Siika, & Rotich, 2008). Non-disclosure makes it more difficult for women to adhere to PMTCT guidance; as opposed to situations where male partners are aware of Nevirapine being provided to an infant, where adherence is higher (Peltzer, Mlambo, Phaswana-Mafuya, & Ladzani, 2010).

Timing of maternal HIV Diagnosis or length of time since diagnosis also determines disclosure (Mucheto, et al., 2011). United Nations General Assembly Zimbabwe’s country report of 2007 (United Nations, 2007) on HIV and AIDS stated poor disclosure of HIV status by women to significant others (husband/partner, in-laws, siblings or friends) as one of the major challenges in the PMTCT programme as cited by Mucheto, et al., 2011.
2.2.2: Timing of maternal HIV Diagnosis

Timing of HIV diagnosis in relation to PMTCT service uptake is of great importance. Women who register earlier for services have the opportunity of being booked in for more medical appointments, and thus have more time to deal with their HIV diagnosis, which might result in better follow-up (Pedro, Gerlen, Maria, & Militao, 2014). Further, women with undocumented HIV infection late into pregnancy or during delivery present high-risk behavior and live under extremely stressful social conditions resulting in a significant degree of vulnerability according to (Cohen, et al., 2008) as cited by Pedro, et al., in 2014.

According to Pedro, et al., 2014 it is important to focus efforts on registering women during early pregnancy, to retain them in the program.

The Lost To Follow up (LTF) of children born to women who initiate PMTCT later emphasizes the need to identify this group of patients for intensive follow-up and educate them on the importance of monitoring both for themselves and for their infants. In Kenya, Self-reported HIV positive women diagnosed after last pregnancy were 16.3%, those diagnosed before last pregnancy were 38.0% while women diagnosed at time of last pregnancy 45.7%. (KAIS, 2014).
2.3: Psycho-social factors

2.3.1 Accessibility to Psychosocial support services

According to (Kalembo & Zgambo, 2012), psychosocial support from peers helps women adhere to PMTCT program recommendations. In a Horizons, final report, women participating in psychosocial support groups were significantly more likely to report disclosure of HIV status which in turn facilitate other positive behaviors around HIV and AIDS including use ARVs prophylaxis and treatment for mother and infant and an exclusive method of infant feeding (Baek, et al., 2010). Mother in psychosocial support groups were less likely to report feeling alone in the world, overwhelmed by problems, and hopeless about the future according to Baek, et al., 2010 as cited by Baek & Rutenberg in 2010. These results suggest that the peer support yielded substantial benefits and increased uptake of PMTCT services.

Creative strategies are needed to ensure that HIV-positive mothers receive psycho-social and emotional support which should enable them to navigate the health care system to access antenatal care, PMTCT and HEI services. Successful PMTCT outcomes are based on broad psycho-socio support group objectives per an Ethiopian study by Viadro, et al., (2008).

The support group objectives include ensuring adherence to antiretroviral therapy among pregnant and postpartum women, lessening HIV-related stigma and discrimination and increasing HIV-positive mothers’ understanding of infant feeding options. Enhancing access to and use of PMTCT services by building strong linkages between health care providers and peer support networks is also an objective.
Building linkages with other programs and services that strengthen women’s health and decision making example nutritional support is another objective of enrolling in a psychosocial support group.

2.3.2 The Mentor Mother (MM) strategy

A mentor mother is a mother living with HIV who is trained and employed as part of a medical team to support, educate, and empower pregnant women and new mothers about their health and their babies’ health (Ministry of Public Health and Sanitation, 2012). Linked with Community Health Workers, Mentor Mothers draw from their own experiences as former PMTCT clients to inspire behavior change in their peers.

Mentor Mother Programmes were originally developed in South Africa and employ HIV positive mothers to provide support and advice to HIV positive pregnant women and mothers of HIV-Exposed babies. These programmes aim to provide psychosocial support and education in areas such as feeding practice as well as promoting retention in care and encouraging disclosure (Shroufi, et al., 2013). The Mentor Mother (MM) strategy has been employed in several African countries to address the lost to follow up and improve outcomes for HIV positive mother-infant pairs (WHO, 2013).

Working as non-technical members of the PMTCT team from local communities, they help to reduce stigma, increase community communication and mobilize demand for services which are all aspects of the Global Plan and address barriers to PMTCT uptake (Ministry of Public Health and Sanitation, 2012).
An evaluation mentor mother program found that women participating in the PSSG were significantly more likely to reveal their HIV status to at least one person, receive Nevirapine for themselves and their infants, practice an exclusive method of infant feeding (Baek & Rutenberg, 2010). According to a study by Shroufi, et al., (2013), it was observed that Mothers in the M2M programme were twice as likely to return for testing at 6–8 weeks, compared with mothers who had not enrolled in M2M.

2.4 Social cultural factors

These are factors which include the Social cultural environment of the HIV positive mother. Individuals’ decision-making is influenced by opinions of sexual partners, family members, friends, and influential community members while other people’s positive perception about ART influence individuals’ decisions to test and stay on treatment (Roula, et al., 2009).

HIV stigma is a barrier to service uptake according to a five-country comparative study which found a statistically significant relationship between perceived stigma and neglecting to take all prescribed pills (Busza, et al., 2012). Gender roles are also barriers to service uptake as they affect male partners’ behaviour where expectations of male and female responsibilities pose barriers to male involvement in pregnancy and infant care according to (Falnes, et al., 2011) and (Byamugisha, Tumwine, Semiyya, & Tylleskar, 2010) in Tanzania and Northern Uganda respectively.
2.5 Male partner and community involvement

Male involvement in PMTCT is a breakthrough in follow-up and retention in care. Peer and family influences have been shown to be important determinants of PMTCT involvement with lack of partner support reducing the likelihood of a woman engaging with services (Tchendjou, et al., 2011).

Male partner and community involvement have been found to provide psychosocial support and eventually improving retention of clients in PMTCT program according to (Lettow, et al., 2011). Male partners play an equally important role in the scale-up of PMTCT services as they are the decision makers and readily influence decisions on uptake and follow-up of services for the mother-baby pairs.

Male partners play a significant role in service uptake. Some women refuse services, fearing partner disapproval (Busza, et al., 2012). Delivery in a health facility and attendance of follow-up care was evidenced through male involvement as reported by (Nassali, et al., 2009). In Botswana and Zambia, where disclosure of HIV status among pregnant women is relatively high, families and male partners are involved in PMTCT including decisions around ART and infant feeding (Peltzer, et al., 2011).

2.6 Synopsis of literature review

Understanding the role of maternal, psychosocial and social-cultural factors in HIV-Exposed infants’ service uptake is an important aspect in the provision of quality services; uptake and timely utilization of HEI services. Raising awareness and advocacy on male involvement among both providers and clients will contribute to a significant improvement in timely HEI services uptake, reduced stigma and discrimination and HIV status disclosure.
CHAPTER THREE: MATERIALS AND METHODS

3.1 Study Design

The research design was a cross-sectional descriptive study with retrospective data review of mother/baby pairs enrolled in PMTCT care in Nakuru County Referral Hospital. The advantages of the study design are that the researchers record information about their subjects without manipulating the study environment, data on all variables is only collected once and able to measure prevalence for all factors under investigation with Multiple outcomes being studied.

3.2 Variables

3.2.1 Independent variables

The independent variables in this study include socio-demographic characteristics of the mother (age, gender and marital status, level of education, employment, and residence), psychosocial and socio-cultural factors. Other independent variables of the study were maternal disclosure of HIV status, timing of maternal HIV Diagnosis and infant characteristics such as age and sex.

3.2.2 Dependent variables

The dependent variable (outcome variable) was HIV- exposed infants’ service uptake (DNA- PCR, antibody test at 9 months, infant ARVs prophylaxis and infant immunization status).
3.3 Location of study
The study was conducted in Nakuru County Referral Hospital in Nakuru County. The facility serves as a referral site for the population of 1,603,325 in South Rift region of Kenya with an area of 2,325.8 km² (KNBS, 2010). The catchment population for Nakuru county Referral Hospital is 79,882 per DHIS population estimates of 2014. The MCH/FP Clinic is one of the departments in the hospital offering preventive and promotive services to children aged below 5 years and women of reproductive age. This was the clinic where the study was undertaken.

3.4 Study population
The study population comprised of 540 of HIV-Exposed Infants aged below 24 months and their mothers who are enrolled in PMTCT care. This was the average attendance for HIV-Exposed Infants seeking services in the clinic. After sampling a total of 329 mother/baby pairs were considered for the study. Health care professionals involved in the provision of EID and pediatric HIV treatment, mentor mothers and community Health workers were also targeted in the study in Key informant interview.

3.5 Sampling techniques and Sample Size determination
3.5.1 Sampling Techniques
Multistage sampling approach was adopted for this study. First, purposive sampling of the study area was done due to the high prevalence rate of HIV among women attending PMTCT clinic in Nakuru which was (11%) in 2014. Secondly systematic random sampling was used to sample the required sample size for the study. The sampling interval was calculated from $k=N/n$ where N was the target population in a month (average monthly attendance) and n was the required sample size. $k=540/329=1.64$. This was rounded off to 2 giving kth value of 2.
Upon arrival of the research assistants at the study site on the day of interview, the first respondent was selected randomly from the register of clients waiting to be served at the PMTCT clinic and within the sampling frame. After that, every 2nd client seeking HEI services at that MCH clinic was approached with an intention to enroll her in the study.

Clear explanation about the study was done after which each client was asked to sign the consent form voluntarily. The sampling interval provided the research assistants adequate time to complete interviewing one participant before embarking on the next one and thereby maximizing the interview time. Additionally, it also avoided extended waiting time on the part of the mother/baby pair after receiving the services.

### 3.5.2 Sample size determination

The formula to calculate the actual sample size was as described by (Cochran, 1977)

\[ n = \frac{Z^2 (pq)}{e^2} \]

Where;

- \( n \) is the desired sample size
- \( Z \) is the standard normal deviation for a two tailed Z-test at 95% confidence interval;
  - in this \( Z = 1.96 \)
- \( d \) is the margin of error; in this study 0.05 was adopted.
- \( p \) is the estimated proportion of PMTCT mothers enrolled in psychosocial support groups,
- \( q=1-p \) or the proportion of PMTCT mothers not enrolled in psychosocial support groups.

Therefore, by substitution \( n=1.96^2 (0.69 \times 0.31)/0.05^2 \) Thus, 329.

The study sample size used in this study was 329 HIV Positive women in PMTCT.
3.6 Pretesting of the tool

Pretesting of the Questionnaire was done in Langa-Langa Sub-County Hospital a government high volume facility. Langa-Langa sub-County Hospital offers PMTCT services in addition to serving a population with similar characteristics as Nakuru County Referral Hospital in Nakuru town. This was to ensure the questions were complete and standardized. Thirty-two clients were interviewed using interviewer administered questionnaire and information gathered was useful in ensuring proper flow of questions as well as correction of mistakes identified. Expert review of the two instruments was sought. The experts advised on harmonization of the interviewer administered questionnaire and the key informant interview as the latter was to beef up the findings of the former. The pretesting guided the flow in the collection of data using the two tools.

3.7 Validity

Validity of the instruments was established where a pre-test was done to HIV-Exposed Infants’ mothers at Langa-langa sub-County Hospital to ensure completeness, coherence and accuracy of the data collection tools. The questions used were standardized and closed ended where appropriate to ensure that the responses were guided. Four research assistants were trained using standardized materials. The training included taking them through the basic concept of HEI follow up and explanation of key words and interpretation of the questions in the tools. This ensured they acquired the desired level of competence in completeness and accuracy in the filling of questionnaires.
3.8 Reliability
The trained research assistants were supervised to ensure they administered the questionnaires correctly and consistently during pretesting of tools and during data collection. Data handling and cleaning was done daily and errors were corrected immediately. Operational terms were clearly defined to avoid ambiguity. Replication of the data collection tools was anticipated to be possible to other similar study groups. Four research assistants were trained on data collection. Two practicing nurses and two mentor mothers were recruited and taken through a comprehensive data collection training period before data collection began. Interviewer administered questionnaire was used to collect most of the quantitative data. Qualitative data was collected through Key Informant Interview targeting health care providers, mentor mothers and community link persons (community health workers) in the facility.

3.10 Logistical and Ethical Considerations
Ethical clearance to carry out this research was granted by Kenyatta University Ethical Review Committee (Ref KU/R/ COMM/51/ 489, Appendix 7). Research Authorization was granted by National Commission for Science and Technology (NACOSTI/P/15/9140/7565, Appendix 8). Permission and Approval to undertake research at Nakuru County Referral Hospital was granted (RV/Vol. 1/06, Appendix 10). Signed informed consent was given by mothers who had HIV-Exposed infants (Appendix 2).

Participation in the study was voluntary after the study participants signed the informed consent form and were free to withdraw from the research at any time without loss of any benefits in the PMTCT care.
Information collected from the study was treated with ultimate confidentiality. Confidentiality of respondents was assured by coding and use of unique numbers for identification. Participation in the study was voluntary and no financial incentives, gains/benefits or otherwise was offered to the participants and no monetary or other forms of gains were provided to individuals for participating in the study. Whether an individual accept/decline to participate in the study there was no impact on their current or future care.

3.9 Data Collection Techniques
A desk review of the mother/baby booklet, HEI cards and registers was done to validate the information from the mothers during the interview period. The mother/baby pairs were interviewed daily for two months on all working days. The key informants included two nurses offering PMTCT services, two clinical officers, two mentor mothers all working in the MCH/FP clinic in Nakuru County Referral Hospital. Two Community Health Workers from community units linked to Nakuru County Referral Hospital were included in the key informant interview.

3.10 Data analysis
Data was sorted and coded then entered to MS Excel data base for cleaning at the end of every field day checking for completeness and exported to Statistical Package for Social Scientists (SPSS) version 20 for subsequent analysis. Qualitative data from key informant interview was transcribed verbatim into MS word files and thematic analysis was done to provide in-depth understanding role of maternal, psychosocial and social-cultural factors in HIV -Exposed infants’ service uptake.
Data from key informant interviews was transcribed at the end of each field day and analyzed by content analysis. Data was presented using graphs and frequency tables. Hypothesis testing was done where bivariate analysis involved chi square test analysis to assess associations between various independent variables and the dependent variable. All the results were considered at a significance level of 0.05.
CHAPTER FOUR: RESULTS

4.1.1 Baseline characteristics of the study population

In this study, 329 women with HIV-Exposed Infants (HEI) were recruited. All the women were the biological mothers of the HIV-Exposed infants. The participants’ age ranged between 17 years and 47 years, with a mean of 30 years and a standard deviation (SD) of 5.3. The modal age was 28 years while the median age was 30. Majority were Married women 265 (80.5%), 49 (14.9%) single and 15 (4.6%) were either divorced or separated. Of the 329 participants, 50 (15.2%) had college/university education and 143 (43.5%) had secondary-level education. One hundred and thirty-one (39.8%) had primary-level education while only five (0.9%) had not formal education. Majority of the respondents resided in urban area 187 (56.8%), 96 (29.2%) from peri-urban and 46 (14%) from rural areas. A large proportion of the respondents had no specified occupation 141 (42.9%), self-employed 133 (40.4%), formally employed 19 (5.8%) while casually employed were 36 (10.9%).

Figure 4.1: Background characteristics of the study participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency(n=329)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal Age in Years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-19</td>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>20-24</td>
<td>43</td>
<td>13.1</td>
</tr>
<tr>
<td>24-29</td>
<td>110</td>
<td>33.4</td>
</tr>
<tr>
<td>30-34</td>
<td>99</td>
<td>30.1</td>
</tr>
<tr>
<td>35-39</td>
<td>58</td>
<td>17.6</td>
</tr>
<tr>
<td>40-45</td>
<td>15</td>
<td>4.6</td>
</tr>
<tr>
<td>45-47</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>49</td>
<td>14.9</td>
</tr>
<tr>
<td>Married</td>
<td>265</td>
<td>80.9</td>
</tr>
<tr>
<td>Divorced or Separated</td>
<td>15</td>
<td>4.3</td>
</tr>
<tr>
<td>Highest level of education attained</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College/University</td>
<td>50</td>
<td>15.2</td>
</tr>
<tr>
<td>Secondary</td>
<td>143</td>
<td>43.2</td>
</tr>
<tr>
<td>Primary</td>
<td>131</td>
<td>40.1</td>
</tr>
<tr>
<td>None</td>
<td>5</td>
<td>1.5</td>
</tr>
<tr>
<td>Area of residence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>187</td>
<td>56.8</td>
</tr>
<tr>
<td>Peri-Urban</td>
<td>96</td>
<td>29.2</td>
</tr>
<tr>
<td>Rural</td>
<td>46</td>
<td>14</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal Employment</td>
<td>19</td>
<td>5.8</td>
</tr>
<tr>
<td>Self Employed</td>
<td>133</td>
<td>40.4</td>
</tr>
<tr>
<td>Casual Employment</td>
<td>36</td>
<td>10.6</td>
</tr>
<tr>
<td>None</td>
<td>141</td>
<td>43.2</td>
</tr>
</tbody>
</table>
Distribution by number of children per respondent

Majority of the respondents 113 (34.3%) had two children each, 91 (27.7%) had three children while 56 (17%) and 69 (21%) had one and above four children respectively as shown in figure 4.2.

Figure 4.2: Distribution by number of children per respondent

4.1.2 Child characteristics

Majority of the infants were aged below six months 121(36.8%), 7-12 months 89 (27.1%), 13-18 months 87 (26.4%) and 19-24 months 32 (9.7%). The mean age of the exposed infants was 10 months, minimum and maximum age being one (1) and 24 months respectively with a standard deviation of 6.2. A total of 174 (53%) were males while 155 (47%) were females. Nevirapine prophylaxis was issued timely to 322 (98%) of the infants in the study. Majority 312 (95%) had been tested at the recommended age of 6-8 weeks, 17 (5%) tested when aged above 8 weeks.
Three feeding options were explored among the respondents. Among the respondents, exclusive breastfeeding was practiced among 304 (92.4%), while exclusive replacement feeding and mixed feeding were practiced among 17 (5.2 %) and 8 (2.4%) respectively (Figure 4.3).

**Figure 4.3: Summary of child characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Category</th>
<th>Observations</th>
<th>Proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Frequencies</td>
<td></td>
</tr>
<tr>
<td>Age in Months</td>
<td>&lt;6 months</td>
<td>121</td>
<td>36.8%</td>
</tr>
<tr>
<td></td>
<td>7 months -12 months</td>
<td>89</td>
<td>27.1%</td>
</tr>
<tr>
<td></td>
<td>13 months -18 months</td>
<td>87</td>
<td>26.4%</td>
</tr>
<tr>
<td></td>
<td>19 months – 24months</td>
<td>32</td>
<td>9.7%</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>174</td>
<td>53%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>155</td>
<td>47%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>329</td>
<td></td>
</tr>
<tr>
<td>Nevirapine Prophylaxis</td>
<td>Received timely</td>
<td>322</td>
<td>98%</td>
</tr>
<tr>
<td></td>
<td>Did not Received timely</td>
<td>7</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>329</td>
<td></td>
</tr>
<tr>
<td>Age of HEI @ initial HIV test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-8 Weeks</td>
<td></td>
<td>312</td>
<td>96%</td>
</tr>
<tr>
<td>&gt;8 Weeks</td>
<td></td>
<td>17</td>
<td>4%</td>
</tr>
<tr>
<td>Feeding options</td>
<td>Exclusive Breastfeeding</td>
<td>304</td>
<td>92.4%</td>
</tr>
<tr>
<td></td>
<td>Exclusive Replacement Feeding</td>
<td>17</td>
<td>5.2%</td>
</tr>
<tr>
<td></td>
<td>Mixed feeding</td>
<td>8</td>
<td>2.4%</td>
</tr>
</tbody>
</table>
4.1.3 Distribution of Socio-Demographic Factors against uptake of EID services

Marital status of the mothers was significantly associated with ($X^2 = 7.67$, df=1, P=0.001).

The other maternal factors in the study did not show any significant statistical association with timeliness of uptake of Early Infant Diagnosis (Table 4.1).

**Table 4.1: Socio-Demographic Factors against uptake of Early Infant Diagnosis (EID) Services**

<table>
<thead>
<tr>
<th>Social Demographic Characteristic</th>
<th>Timely uptake of Early Infant Diagnosis services</th>
<th>Tested for EID timely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Frequency</td>
<td>Proportion (%)</td>
</tr>
<tr>
<td>Maternal Age in Years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-29 yrs</td>
<td>148</td>
<td>95.5%</td>
</tr>
<tr>
<td>30 Yrs &amp; Above</td>
<td>169</td>
<td>97.1%</td>
</tr>
<tr>
<td>Total</td>
<td>317</td>
<td>96.4%</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>259</td>
<td>97.7%</td>
</tr>
<tr>
<td>Not Married</td>
<td>58</td>
<td>90.6%</td>
</tr>
<tr>
<td>Total</td>
<td>317</td>
<td>96.4%</td>
</tr>
<tr>
<td>Highest level of education attained</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post primary</td>
<td>187</td>
<td>96.9%</td>
</tr>
<tr>
<td>Primary or none</td>
<td>130</td>
<td>95.6%</td>
</tr>
<tr>
<td>Total</td>
<td>317</td>
<td>96.4%</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Employment</td>
<td>179</td>
<td>95.2%</td>
</tr>
<tr>
<td>Non Employment</td>
<td>136</td>
<td>96.5%</td>
</tr>
<tr>
<td>Total</td>
<td>315</td>
<td>95.7%</td>
</tr>
</tbody>
</table>

Key: ** Significant P-Value
4.1.4 Immunization Schedules Timeliness

Immunization schedule timeliness (within 3 days) was highly observed from first doses at six weeks to measles vaccine at 9 months being above 90%. Timeliness declined with age as only 85 (63.4%) immunized with Vitamin A at 12 months and only 70 (51.9%) were timely dewormed at 12 months (figure 4.4).

**Figure 4.4: Immunization schedule timeliness**

<table>
<thead>
<tr>
<th></th>
<th>Within days</th>
<th>3 days</th>
<th>4-7 days</th>
<th>8-28 days</th>
<th>Above 28 days</th>
<th>Never Issued</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunization (1st Dose)</td>
<td>306 (94.2%)</td>
<td>6 (1.8%)</td>
<td>11 (3.4%)</td>
<td>2 (0.6%)</td>
<td>325</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunization (2nd Dose)</td>
<td>284 (94.0%)</td>
<td>11 (3.6%)</td>
<td>6 (2.0%)</td>
<td>1 (0.3%)</td>
<td>302</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunization (3rd Dose)</td>
<td>253 (90.4%)</td>
<td>14 (5.0%)</td>
<td>8 (2.9%)</td>
<td>5 (1.8%)</td>
<td>280</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles (6 Months)</td>
<td>207 (91.2%)</td>
<td>1 (0.4%)</td>
<td>5 (2.2%)</td>
<td>4 (1.8%)</td>
<td>10 (4.4%)</td>
<td>227</td>
<td></td>
</tr>
<tr>
<td>Vitamin A (6 months)</td>
<td>209 (92.1%)</td>
<td>1 (0.4%)</td>
<td>6 (2.6%)</td>
<td>5 (2.2%)</td>
<td>6 (2.6%)</td>
<td>227</td>
<td></td>
</tr>
<tr>
<td>Measles (9 Months)</td>
<td>164 (93.7%)</td>
<td>0 (0%)</td>
<td>5 (2.9%)</td>
<td>6 (3.4%)</td>
<td>175</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin A (12 months)</td>
<td>85 (63.4%)</td>
<td>4 (3%)</td>
<td>13 (9.7%)</td>
<td>18 (13.4%)</td>
<td>14 (10.4%)</td>
<td>134</td>
<td></td>
</tr>
<tr>
<td>Deworming (12 months)</td>
<td>70 (51.9%)</td>
<td>2 (1.5%)</td>
<td>9 (6.7%)</td>
<td>30 (22.2%)</td>
<td>24 (17.8%)</td>
<td>135</td>
<td></td>
</tr>
</tbody>
</table>

4.2: Maternal determinants of HIV-Exposed Infant service uptake

4.2.1 Knowledge and Attitude of PSSG

The study endeavored to assess the knowledge and attitude of a psychosocial support group of the women taking part in the research. Of the 329 women, 319 (97%) had heard of a PSSG while 10 (3.0%) had no knowledge of PSSG. Among the 319 who had heard about PSSG, 6 (2%) had not enrolled in a PSSG.
Among the participants who knew of the PSSG, their main source of information was mentor mothers 166 (52%), 141 (44%) from health care workers and 6 (2%) from either the family members or friend as shown in figure 4.5.

Access to information during adherence counselling, quality of care and interaction with a mentor mother highly motivated clients to enroll in PSSG at 310 (99.2%), 308 (98.7%) and 307 (99%) respectively. During the key informant interview with community health workers, they emphasized the need for the mothers to be enrolled in psychosocial support. “We would like them to enroll in the support groups since when they enroll; they mix with other mothers who share their experiences too. This helps them see that they are not alone in the journey. Mama atajua vile atalea mtoto wake ako HIV positive bila kumuabukiza (the mother will learn how to keep her HIV-Exposed baby negative)” CHEW attached to Nakuru County Referral Hospital.

Figure 4.5: Knowledge and Attitude of PSSG

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency (n=329)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of an existing PSSG in the facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>319</td>
<td>97</td>
</tr>
<tr>
<td>No</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Source of information on PSSG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentor Mother</td>
<td>170</td>
<td>51.7</td>
</tr>
<tr>
<td>Health Care Provider</td>
<td>144</td>
<td>43.8</td>
</tr>
<tr>
<td>Friends</td>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>Family Members</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Enrolled in a support group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>313</td>
<td>95.1</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>4.9</td>
</tr>
</tbody>
</table>
4.2.2 Perceived benefits of Joining Support group

The study found that the majority of the respondents cited strong linkages between HCPs and Peer Support Networks as a benefit of joining PSSG 299 (94.6%) while 17 (5.4%) disagreed with the statement. Three hundred and ten (98.1%) agreed that joining a PSSG lessened HIV/AIDS related stigma and discrimination while 6 (1.9%) disagreed.

On joining PSSG as a strategy to help in building linkages with other programs/services that strengthen women health and decision-making, the study found that 183 (95.6%) agreed while 14 (4.4%) disagreed as shown in figure 4.6. The findings were similar to reports from mentor mothers during the key informant interview who said, “When the mothers and their exposed infants join the support group, the health care workers teach them on several issues which make them feel wanted. By joining support group, there is less stigma because we all have a common characteristic. We also have chamas which we have formed where we contribute little money for savings”

Figure 4.6: Perceived benefits of joining support group

<table>
<thead>
<tr>
<th></th>
<th>Disagree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq (%)</td>
<td>Freq (%)</td>
</tr>
<tr>
<td>Strong linkages between HCPs and Peer Support Networks is a benefit of joining PSSG</td>
<td>17 (5.4%)</td>
<td>299 (94.6%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lessened HIV/AIDS related stigma and discrimination is a benefit of joining PSSG</td>
<td>6 (1.9%)</td>
<td>310 (98.1%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building linkages with other programs/services that strengthen women health and decision making is a benefit of joining PSSG</td>
<td>14 (4.4%)</td>
<td>183 (95.6%)</td>
</tr>
</tbody>
</table>
4.2.3 Disclosure of HIV status

On disclosure of HIV status, a total of 314 (95%) of the participants had disclosed their HIV status. Of the 314 participants that disclosed 262 (83%) disclosed to their male partners while 52 (17%) did not. Of the 52 participants who had not disclosed to their male partners, 50 (96%) disclosed to a family member while 2 (4%) disclosed to a friend. A total of 67 (26%) had disclosed to both male partners and another family member. Majority (96.6%) of the women who disclosed their HIV status to the male sexual partners reported to have gotten support to take up PMTCT services (Figure 4.7).

“Once we encourage the mother to disclose her HIV positive status, the partners usually accompany them during the clinic appointments and we even have couple support groups comprising of the women and their sexual partners” Mentor mothers during the key informant interview.

**Figure 4.7: Disclosure of HIV status**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency (n=329)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disclosure of HIV status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>314</td>
<td>95.4</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>4.6</td>
</tr>
<tr>
<td>Male partner support on PMTCT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>253</td>
<td>96.6</td>
</tr>
<tr>
<td>No</td>
<td>9</td>
<td>3.4</td>
</tr>
</tbody>
</table>

4.2.4: Timing of maternal HIV Diagnosis

On timing of HIV diagnosis, majority of the women 199 (60.5%) knew their HIV positive status before conception while 119 (36.2%) were tested positive during pregnancy and 11(3.3%) were tested after delivery.
4.2.5: Maternal factors against Early Infant Diagnosis service uptake

Timing of maternal HIV diagnosis was significantly associated with timely uptake of EID services ($X^2 = 5.9$, df=1, $P=0.02$) as shown in table 4.2.

**Table 4.2: Maternal factors against Early Infant Diagnosis service uptake**

<table>
<thead>
<tr>
<th>Maternal Determinants</th>
<th>Timely uptake of Early Infant Diagnosis services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tested for EID timely</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Knowledge of an existing PSSG in the facility</td>
<td>Frequency</td>
</tr>
<tr>
<td>Yes</td>
<td>303</td>
</tr>
<tr>
<td>No</td>
<td>9</td>
</tr>
<tr>
<td>Disclosure of HIV status</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>14</td>
</tr>
<tr>
<td>Timing of maternal HIV Diagnosis</td>
<td>Before last pregnancy</td>
</tr>
<tr>
<td></td>
<td>While pregnant/breastfeeding</td>
</tr>
</tbody>
</table>

*Key: ** Significant P-Value*

4.3 Psychosocial factors

4.3.1 Accessibility to PMTCT and Psychosocial support services

The study endeavored to assess the knowledge and attitude of a psycho-social support group of the women taking part in the research. Of the 329 women, 319 (97%) had heard of a PSSG while 10 (3.0%) had no knowledge of PSSG. Among the 319 who had heard about PSSG, 6 (2%) had not enrolled in a PSSG. Among the participants who knew of the PSSG, their main source of information was mentor mothers (52%). On the other hand, health care workers were the source of this information among 44% of the participants. Only 2% of the women got the information from either the family members or friend.
4.3.2 The Mentor Mother (MM) strategy

Among the participants who knew of the PSSG, their main source of information was mentor mothers (52%). Of the 310 respondents who had enrolled in PSSG, 307 (99%) confessed that interaction with a mentor mother motivated them to enroll in the group.

What mainly motivated the respondents was the fact that the mentor mothers were sharing about their personal experiences (peer support) as well as the quality of psychosocial support services offered which made the mothers feel accepted. “Once they are tested and interact with us, we share our experiences and our status to them so they get that motivation and they want to know more.” said one mentor mother during Key informant interview.

4.3.3 Psycho social factors against HEI services uptake

The study found statistical significant association between timely immunization uptake \((X^2 = 8.87, \text{df}= 1, P=0.03)\) (Table 4.3) and timely uptake of EID services \((X^2 = 28.9, \text{df}=1, P<0.001)\) against enrollment into a psycho-social support group (Table 4.4).

Table 4.3: Psycho social factors against immunization

<table>
<thead>
<tr>
<th>Psychosocial Determinants</th>
<th>Timely uptake of Immunization status</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Timely immunized</td>
<td>Not timely immunized</td>
</tr>
<tr>
<td></td>
<td>Frequency</td>
<td>Proportion (%)</td>
</tr>
<tr>
<td>Enroled in PSSG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>286</td>
<td>91.4%</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>70.6%</td>
</tr>
</tbody>
</table>

Key: ** Significant P-Value
Table 4.4: Psycho social factors against EID services

<table>
<thead>
<tr>
<th>Psychosocial Determinants</th>
<th>Timely uptake of EID services</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Timely immunized</td>
<td>Not timely immunized</td>
<td>Chi-square Statistic (df)</td>
<td>P-value</td>
<td></td>
</tr>
<tr>
<td>Enroled in PSSG</td>
<td>Frequency</td>
<td>Proportion (%)</td>
<td>Frequency</td>
<td>Proportion (%)</td>
<td>28.9 (1)</td>
</tr>
<tr>
<td>Yes</td>
<td>298</td>
<td>95.5%</td>
<td>14</td>
<td>4.5%</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>7</td>
<td>58.3%</td>
<td>5</td>
<td>41.7%</td>
<td></td>
</tr>
</tbody>
</table>

Key: * Significant P-Value

4.4 Social cultural factors

4.4.1 Motivation to seek HEI services

According to the study, disclosure of HIV Status to someone motivated majority respondents 169 (54.2%) while other peoples' positive perception as a major motivation to 197 (63.2%) respondents (figure 4.8). A report from a mentor mother during the key informant interview stated that “after the woman is tested HIV positive, we encourage her to disclose her status to people close to her and by seeing we the mentor mothers living positively, they get motivated and are empowered to continue to bring their babies for follow up with the aim of having them HIV negative at exit from PMTCT program”. Majority of the respondents disagreed with the influence of opinion of sexual partner, family members and influential community members as a motivation to seek HEI services at 272 (87.2%).

Majority 280 (90%) disagreed being motivated to seek HEI services by opinion of family members and 298 (94.9%) by opinion of influential community members. Denial of the positive HIV status, self-stigma and stigma from the community and from the health care providers was cited during the key informant interview.
A health care provider; PMTCT nurse during the key informant interview reported that “some clients claimed to feel stigmatized from staff in the facility and from other patients who are not HIV infected who are seeking child welfare services in the clinic and who knew that the PMTCT room is for follow up for the HIV-Exposed infants”. Stigma and Discrimination was identified as a hindrance to HEI service uptake by 53.9% of the respondents. Negative attitudes and beliefs on HIV infection was cited a barrier by 38.5%.

**Figure 4.8: Motivation to seek HEI services**

<table>
<thead>
<tr>
<th>Motivation to seek HEI services</th>
<th>Disagree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq (%)</td>
<td>Freq (%)</td>
</tr>
<tr>
<td>1. Disclosed HIV Status to someone</td>
<td>143 (45.8%)</td>
<td>169 (54.2%)</td>
</tr>
<tr>
<td>2. Other Peoples' Positive Perception</td>
<td>115(36.9%)</td>
<td>197 (63.2%)</td>
</tr>
<tr>
<td>3. Opinion of Sexual Partner</td>
<td>272 (87.2%)</td>
<td>40 (12.8%)</td>
</tr>
<tr>
<td>4. Opinion of Family members</td>
<td>280 (90%)</td>
<td>31 (10%)</td>
</tr>
<tr>
<td>5. Opinion of influential community members</td>
<td>296 (94.9%)</td>
<td>16 (5.1%)</td>
</tr>
<tr>
<td>6. Access to information during adherence counselling</td>
<td>2 (0.6%)</td>
<td>310 (99.2%)</td>
</tr>
<tr>
<td>7. Quality of Care</td>
<td>4 (1.3%)</td>
<td>308 (98.7%)</td>
</tr>
<tr>
<td>8. Interaction with mentor mother</td>
<td>3 (0.9%)</td>
<td>307 (99%)</td>
</tr>
</tbody>
</table>
4.4.2: Male partner and community involvement

Of the 314 participants that disclosed 262 (83%) disclosed to their male partners while 52 (17%) did not. Of the 52 participants who had not disclosed to their male partners, 50 (96%) disclosed to a family member while 2 (4%) disclosed to a friend. A total of 67 (26%) had disclosed to both male partners and another family member. Majority (96.6%) of the women who disclosed their HIV status to the male sexual partners reported to have gotten support to take up PMTCT services.

4.4.3 Social cultural factors against HEI services uptake

The chi-square test on the respondents who had disclosed their HIV status to their male partners and timely uptake of Early Infant Diagnosis services showed significant statistical association ($X^2 = 6.88, P=0.009$) as shown in table 4.5.

<table>
<thead>
<tr>
<th>Social cultural Determinants</th>
<th>Timely uptake of Early Infant Diagnosis services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Timely initiated</td>
</tr>
<tr>
<td>Disclosed HIV status to male partners</td>
<td>Frequency</td>
</tr>
<tr>
<td>Yes</td>
<td>257</td>
</tr>
<tr>
<td>No</td>
<td>59</td>
</tr>
</tbody>
</table>
CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussion

5.1.1: Socio Demographic Characteristics of the Study Population

Several socio-demographic, cultural and economic factors were found to significantly influence uptake of HIV-Exposed services uptake. They included maternal age, marital status, education level and occupation.

Women aged 30 years and above were the majority who sought HIV-Exposed infants’ services as compared to women aged below 30 years. Married women were more likely to take their exposed infants for services timely. This was ultimately linked to the decision maker on choice and support. It was found that sexual partners had a great influence in seeking of HEI services. This finding was consistent with a study done by WHO which states that women need permission in seeking care during pregnancy, childbirth and postpartum period (WHO, 2006).

In Nakuru County levels of education progressively decreases up the education ladder. Most mothers in the study had acquired primary education which was attributed to the free primary education. Women with post primary education had the knowledge to make informed decisions on their own and their exposed infants’ health services. The findings agree with a study that found out that women’s education or literacy levels are strongly associated with use of reproductive health and maternal health services (Harun, Shelmith, & Muia, 2012).
5.1.2: HIV-Exposed Infants’ service uptake among the study population

HIV-Exposed services uptake was highly demonstrated in the study. This included early infant diagnosis (EID) and routine childhood immunization. Majority of the exposed infants were enrolled for HEI follow up and had their initial HIV diagnostic test for early infant diagnosis (EID) at 6-8 weeks while aged below two months thus timely interventions were instituted at an appropriate age. The eligible study population had immunization given within three days, which was considered timely per the study. The findings are in line with the recommended national HEI follow up standard by the ministry of health in Kenya (MOH, 2012).

5.1.3: Maternal determinants of HEI service uptake

In the current study, disclosure of HIV status had been done by majority of respondents. Of the participants that disclosed their status, (83%) disclosed to their male partners. Of the 52 participants who had not disclosed to their male partners, 50 (96%) had disclosed to a family member while 2 (4%) disclosed to a friend. The findings were like United Nations General Assembly Zimbabwe’s country report of 2007 findings on HIV and AIDS which stated poor disclosure of HIV status by women to significant others (husband/partner, in-laws, siblings or friends) as one of the major challenges in the PMTCT programme (United Nations, 2007).
Further, the findings concurred with findings by Zimbabwe Ministry of Health and Child Welfare where HIV status disclosure served as an important prevention strategy in PMTCT by enabling PMTCT attendees to benefit by being able to use ART prophylaxis, practice safe infant feeding and family planning practices (MOHCW, 2009). Similar findings were observed in a study by Wouters, et al., (2009) where women who kept their status secret found it challenging to store and take medications.

Timing of HIV diagnosis in relation to PMTCT service uptake is of great importance. Respondents who were diagnosed with HIV after last pregnancy were the least in comparison to those diagnosed during or before the last pregnancy. These findings are similar in the current study and KAIS report of 2012. This meant that the timely diagnosis of HIV positive in pregnant women enhanced seeking of PMTCT services thus HEI service uptake.

5.1.4: Psychosocial factors

The current study found statistical significant association between timely immunization uptake as well as timely uptake of EID services among women enrollment into a psychosocial support group. These findings concur with a study by Kalembo & Zgambo, (2012) which stated that psychosocial support from peers helped women adhere to PMTCT program recommendations. Further, the study concurs with findings that successful PMTCT outcomes are based on broad psycho-socio support group objectives per an Ethiopian study by Viadro, et al., (2008).
**Mentor mother strategy**

In the current study, majority of the respondents had heard of a Psycho social support group with most of them enrolled in the psycho social support groups. The main source of information was mentor mothers. Access to information during adherence counselling, quality of care and interaction with a mentor mother highly motivated clients to seek HEI services. Both accesses to information and interaction with a mentor mother motivated mothers to seek HEI services. These findings concur with findings of a study by Baek & Rutenberg, (2010).

**5.1.5: Social cultural factors**

In the current study, majority of the respondents disagreed that influence of opinion of Sexual Partner, family members and influential community members motivated them to seek services. However, the findings differed with a study where other Peoples' Positive Perception had been reported to motivate respondents to seek services (Roula, et al., 2009).

In the current study, majority of the women who disclosed their HIV status received overwhelming support. The findings concur with a study by Tchendjou, et al., (2011) where peer and family influences were shown to be particularly important determinants of PMTCT involvement; with lack of partner support reducing the likelihood of a woman engaging with services. Male partner and community involvement have been found to provide psychosocial support and eventually improving retention of clients in PMTCT program (Lettow, et al., 2011).
Non-disclosure makes it more difficult for women to adhere to PMTCT guidance; as opposed to situations where male partners were aware of ARV prophylaxis was being provided to an infant, where adherence was higher according to Peltzer, et al., (2010).

In the current study the similar findings were observed where the respondents who disclosed their HIV status to the male sexual partners reported getting support to take up HEI services. Those who had disclosed their HIV status had their babies having timely early infant diagnosis (EID) at 6-8 weeks and their babies received relevant immunized as per age. Similar findings were observed in other studies with disclosure to partners making it more likely that HIV-positive mothers would follow infant feeding recommendations (Bii, et al., 2008).

5.2 Conclusion

1) Maternal characteristics including marital status, HIV status disclosure and timing of HIV diagnosis demonstrated influence in timely HIV-exposed service uptake.

2) Psychosocial factors including enrolment into a psychosocial support group and interaction with mentor mothers influenced timely HEI service uptake of immunization and EID services among the study population.

3) The social cultural factors which enhanced HEI services uptake in the study included male involvement in PMTCT program.

The Study had a null hypothesis that stated that there is no relationship between maternal determinants, psychosocial and social cultural factors and timely uptake of routine HEI services. The findings of this study found out that maternal characteristics, psycho-social and social cultural factors influenced timely HEI service uptake making the hypothesis an alternative hypothesis thus rejecting the null hypothesis.
5.3 Recommendations

Within the limits and conditions of this study, the following recommendations can be made:

a) There is need for promotion of PMTCT psychosocial support groups among all HIV positive women to increase the timely uptake of the HEI services in the region.

b) The inclusion of mentor mothers as champions in demand creation, campaigns and interpersonal communication would improve the timely uptake of early infant diagnosis (EID) and immunization.

c) Increase advocacy and awareness creation on male involvement in all the facilities providing the PMTCT services in the region as well as improve perception of integration of PMTCT services.

5.4 Further Research

1) This study did not include Health care systems’ role in determining HEI service uptake. There is need for research to establish the health care systems’ role in HEI service uptake.

2) There is need for a longitudinal study to follow up mother-baby pairs from specific HEI cohorts and establish the trend of utilization of HEI services in other regions.
REFERENCES


UNAIDS. (2016). AIDSINFO. UNAIDS.


APPENDICES

Appendix 1: Questionnaire

Section 1: Background Information

1. What is your age in years? ______________

2. What is your marital status?

☐ Single  ☐ Married  ☐ Divorced/Separated

3. How many children do you have?

1 2 3 Above 4

4. What is the sex of the exposed baby?

☐ Male  ☐ Female

5. What is the current age of the exposed baby in months?

(Date of birth)…………..

6. What is the highest level of education have you attained?

☐ College/University  ☐ Secondary Completed

☐ Secondary not completed  ☐ Primary

☐ Non

7. What is your area of residence?

☐ Urban  ☐ Peri-urban  ☐ Rural
8. What is your occupation?

☐ Formal employment  ☐ Self-employed/business
☐ Casual employment  ☐ None

9. When did you know your HIV status?

☐ Before last pregnancy  ☐ During last pregnancy
☐ After delivery

Section 11: Knowledge and Attitude of PSSG

10. Have you ever heard of an existing psychosocial support group in this facility?

☐ Yes  ☐ No

11. If yes, what was the source of information?

☐ Mentor  ☐ Mother  ☐ Health Care Provider
☐ Peers  ☐ Media
☐ Friends'  ☐ Family members

12. Have you been enrolled in a support group?

☐ Yes  ☐ No
13. What are your opinions on the benefits of joining a support group?

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved adherence to antiretroviral therapy by self and infant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lessened HIV/AIDs related stigma and discrimination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased understanding of infant feeding options</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Built linkages with other programs and services that strengthen Women’s health and decision making (e.g., nutritional support, Income generating activities and skills training)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14. Have you disclosed your HIV status?

☐ Yes    ☐ No
15. If yes, to who have you disclosed?

- Male Partner
- Close family member
- Friend

16. If disclosed to male partner, does he offer support on PMTCT issues?

- Yes
- Partial support
- No support

Section 111: Enhancers to Enrollment and Retention in PSSG

17. What motivated you to join a support group?

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Disclosed HIV status to someone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other People Positive Perception</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opinion of sexual partners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opinion of family members</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opinion of influential community members</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to information during adherence counselling</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Quality of care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction with mentor mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Section IV: Barriers to Enrollment in PSSG

18. What hindered you from joining a group?

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stigma and discrimination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative attitudes &amp; beliefs on HIV infection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of knowledge of service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of perceived benefits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time constraints</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health care workers attitude (Mentor Mothers, Nurses, Clinicians)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Section V: HEI Service Uptake

19. What age was the baby during the initial HIV test (DBS)?

- [ ] 6-8 weeks
- [ ] 3-8 months
- [ ] 9 months and above
- [ ] Never tested (Reason: ..........................................................)

20. If the baby is 9 months and above, has first antibody test performed?

- [ ] Yes (Age of test....)  
- [ ] No
21. From where did you come for enrollment in HEI follow up (Source of referral)?

☐ OPD  ☐ IPD  ☐ Maternity  ☐ CCC  ☐ MCH/PMTCT

22. What age (in weeks) was the baby during enrollment in HEI follow up? …

23. How old was the baby when mother/baby enrolled in support group? (In weeks)

24. What age did the baby start using Nevirapine syrup for prevention? (In weeks)

25. Has the baby received relevant immunization as per age?

☐ Yes  ☐ No

Birth Doses  scheduled dates………………… Date issued………………

1st Doses  scheduled dates………………… Date issued………………

2nd Doses  scheduled dates………………… Date issued………………

3rd Doses  scheduled dates………………… Date issued………………

6 m measles Doses scheduled dates………………… Date issued………………

6 m Vit A scheduled date………………… Date issued………………

9-month measles Doses scheduled dates………………… Date issued………………

12 Vit A scheduled date………………… Date issued………………

13 Deworming scheduled dates………………… Date issued………………

26. What was/is the feeding option of the baby below 6 months?

☐ Exclusive breastfeeding

☐ Excusive replacement feeding

☐ Mixed Feeding
Appendix 2: Informed consent form for the participant

My name is Eliza Wachuka Wambui MPH – RH Track student at Kenyatta University. I am carrying out a study on ‘Influence of PMTCT psychosocial support group on Mothers’ compliance to HIV-Exposed infants’ services Uptake; Nakuru County Referral Hospital, Kenya’. The information will be used by the Ministry of Medical Services and Public Health and Sanitation to improve facility based PMTCT support groups as an intervention to improve uptake of HIV-Exposed Infants services in this hospital as well as in other regions of Kenya.

PROCEDURES TO BE FOLLOWED

Participation in this study will require that I ask you some questions in order assess uptake of HEI services. You have the right to refuse participation in this study. Whether you accept or decline to participate in the study there will be no impact on your current or future care. Please remember that participation in the study is voluntary. You may ask questions related to the study at any time.

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

DISCOMFORT AND RISKS

Some of the questions you will be asked may be embarrassing or make you uncomfortable. If this happens, you may refuse to answer these question if you so choose. You may also stop the interview at any time. The interview may add approximately half an hour to the time you wait before you receive your routine services.

BENEFITS

Your participation in this study will help us learn how to provide effective and quality care to the HIV-Exposed Infants thus reducing the chances of mother to child transmission of HIV. You will also benefit from being offered appropriate health messages pertaining to care of the HIV-Exposed infant.

REWARD

There may be no direct benefit if you agree to participate in the study; however, the research findings will help to shape up future interventions that will potentially help improve health of HIV-Exposed children.

CONFIDENTIALITY

All the interviews will be conducted privately within the clinic. Your name will not be recorded on the questionnaire. Filled questionnaires will be kept in a secure cabinet for safe keeping at Kenyatta University. Privacy will be maintained in the whole process.
CONTACTS INFORMATION

If you have any question about your rights as a research volunteer, you may contact

Prof. Margaret Keraka – 0721817521

Dr. Purity Nguhiu- 0722737711

Ethical Review Committee Secretariat – kuerc@ku.ac.ke.

PARTICIPANT'S STATEMENT

The above information above regarding my participation in the study has been made clear to me. I have been given a chance to ask questions which, have been answered to my satisfaction. Am voluntarily participating in this study. I understand that my records will be kept private and that I can leave the study at any time. I understand that I will still get the same care and medical treatment whether I decide to leave the study or not and my decision will not change the care I will receive from the clinical today or that I will get from any other clinic at any other time.

Name of participant.............................................................................................................

Signature or Thumbprint Date

Investigator’s statement

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

Name of interviewer.............................................................................................................

Interviewer signature Date

Appendix 3: Assent form for underage participants

Guardian’s Statement

The above information regarding the participation of ........................ in the study is clear to me. I have given been given a chance to ask questions and my questions have been answered to my satisfaction. I understand that the records will be kept private and that my ............... can leave the study at any time. I understand that she will get the same care and medical treatment whether she decides to leave the study or not and their decision will not change the care they will receive from the clinic today or that she will get from any other clinic at any other time.

Name of the guardian.............................................................................................................

Signature/thumb print Date
INVESTIGATOR’S STATEMENT
I the undersigned have explained to the volunteer in a language she understands, the procedures to be followed in the study and the risks and the benefits involved.

Name of Interviewer.................................................................................................................................

Interviewer signature
Date

Appendix 4 : Key Informant Interview Guide

Questions for medical personnel

• What are the health system challenges that hinder delivery of psychosocial support services to the HIV Positive mothers attending clinic in Nakuru County Referral Hospital?

• What are the main challenges that the HIV positive mothers face as they seek services in the health facilities?

• What recommendations would the health care providers propose for enhancing the quality of care to the HIV positive women and their exposed infants in relation to PSSG enrolment and retention?

Questions for facility-based Mentor Mothers

• Which are the main reasons that influence HIV positive mothers to enroll in Psycho social support group?

• Which are the main reasons that hinder HIV positive mothers from enrolling in psychosocial support group

• What challenges do mentor mothers encounter that hinder them from delivering psycho-social support services to the mother/baby pair in the facility.

Questions for Community Health Workers (CHWs)

• What are the main community- based reasons that influence HIV positive mothers to enroll in Psycho social support group?

• Which are the main community-based reasons that hinder HIV positive mothers from enrolling in psychosocial support group

• What recommendations would the community health workers propose for enhancing the quality of care to the HIV positive women and their exposed infants in relation to PSSG enrolment and retention?

NOTE: The topic was re-worded during corrections with the supervisors.
Appendix 5: Nakuru County 2013 HEI Cohort Analysis Report

2013 HEI cohort analysis of selected health facilities in Nakuru County at 12 months (Jul-Sep 14’)

<table>
<thead>
<tr>
<th>HEI cohort indicator targets</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEI tested positive by first PCR at age 6-8 weeks</td>
<td>5%</td>
</tr>
<tr>
<td>HEI Identified as positive between 0 and 9 months</td>
<td>7%</td>
</tr>
<tr>
<td>HIV positive infants identified between 0 and 9 months linked to CCC</td>
<td>50%</td>
</tr>
<tr>
<td>HEI active in follow-up</td>
<td>65%</td>
</tr>
<tr>
<td>Eligible HEI tested with 1st AB test and results available</td>
<td>66%</td>
</tr>
<tr>
<td>HEI who were Exclusively Breastfed at 6 months among HEI assessed</td>
<td>77%</td>
</tr>
<tr>
<td>Mothers who received PMTCT ARVs</td>
<td>86%</td>
</tr>
<tr>
<td>Infants who received ARVs at 0-6 weeks</td>
<td>92%</td>
</tr>
</tbody>
</table>

Source; APHIAPlus -Rift
Appendix 6: Follow up of HIV-Exposed Infant

<table>
<thead>
<tr>
<th>Age</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>At birth</td>
<td>Immunization (OPV-0, BCG), infant feeding counseling(IFC), ARVs prophylaxis, counsel on return visits including CTX initiation and PCR at 6 weeks</td>
</tr>
<tr>
<td>At age 1 to 2 weeks</td>
<td>Adverse drug reactions and adherence to ARVS, Immunization for missed (OPV-0, BCG), IFC</td>
</tr>
<tr>
<td>At age 6 weeks</td>
<td>Immunizations, DBS collection, start CTX, IFC, Growth and development monitoring. Mother- FP, ART, CaCx screening</td>
</tr>
<tr>
<td>At age 10, and 14 weeks</td>
<td>Immunization, Growth and development monitoring and IFC</td>
</tr>
<tr>
<td>At age 6 months</td>
<td>Measles vaccine, Vit. A, complementary feeding counseling, Growth and development monitoring</td>
</tr>
<tr>
<td>At age 9 months</td>
<td>HIV Antibody test with confirmatory PCR if Ab test is positive, Measles vaccine, IFC, Growth and development monitoring</td>
</tr>
<tr>
<td>At age 12 months</td>
<td>AB test if not done at 9 months, Vit A, Deworming, adherence counseling, Growth and development monitoring, Counsel on stoppage of breastfeeding</td>
</tr>
<tr>
<td>At 18 months</td>
<td>Confirmatory HIV antibody test, Growth and development monitoring, Young child feeding counseling, Vit A and deworming.</td>
</tr>
<tr>
<td>After 2 years</td>
<td>Growth and development monitoring and Young child feeding counseling, Vit A and deworming.</td>
</tr>
</tbody>
</table>

Source; (MOH, 2012)
Appendix 7: Ethical clearance letter

NOTE: The topic was re-worded during corrections with the supervisors.
Appendix 8 : Authority letter (NACOSTI)

NOTE: The topic was re-worded during corrections with the supervisors.
Appendix 9 : Letter of introduction

ELIZA WACHUKA WAMBUI,
KENYATTA UNIVERSITY,
P. O. BOX 43844-00100
NAIROBI.

THE MEDICAL SUPERINTENDENT,
NAKURU COUNTY REFERRAL HOSPITAL,
P.O. BOX 3990-20100
NAKURU.

Dear Sir/ Madam,

RE: PERMISSION TO CARRY OUT RESEARCH IN YOUR INSTITUTION

I am Eliza Wachuka Wambui, a student at the Kenya Kenyatta University pursuing a Master’s degree of Public Reproductive Health (MPH – Reproductive Health Track). I am carrying out a study on Influence of PMTCT psychosocial support group on Mothers’ compliance to HIV-Exposed Infants’ services Uptake; Nakuru County Referral Hospital, Kenya. This is an academic requirement in my course. The purpose of this letter is therefore to request to be allowed to conduct this research project in your institution.

The study objective is to assess the relationship between enrollment of mothers in PMTCT support groups and uptake of routine services for the HIV-Exposed infants at Nakuru County Referral Hospital.

I wish to state that I will strictly adhere to the code of conduct required with total respect to confidentiality. All records and information obtained will be handled discreetly and professionally, will remain confidential unless otherwise stated through your consent and of any other persons involved.

I am looking forward to your kind and favorable consideration.

Thanking you in advance.

Yours Faithfully,

ELIZA WACHUKA WAMBUI.

NOTE: The topic was re-worded during corrections with the supervisors.
Appendix 10: Authority letter (Nakuru County Referral Hospital)

NOTE: The topic was re-worded during corrections with the supervisors.
Appendix 11: Map of the study area
Map of Nakuru County Referral Hospital, Kenya