ILLINGNESS OF ANTE-NATAL MOTHERS TO UPTAKE ELIMINATION OF MOTHER TO CHILD TRANSMISSION (EMTCT) OF HIV SERVICES IN GULU REGIONAL REFERRAL HOSPITAL, GULU DISTRICT.

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FACTORS AFFECTING WILLINGNESS OF ANTE-NATAL MOTHERS TO UPTAKE ELIMINATION OF MOTHER TO CHILD TRANSMISSION (EMTCT) OF HIV SERVICES IN GULU REGIONAL REFERRAL HOSPITAL, GULU DISTRICT

A POST GRADUATE DISSERTATION PRESENTED TO FACULTY OF HEALTH SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A MASTER OF SCIENCE IN PUBLIC HEALTH POPULATION AND REPRODUCTIVE HEALTH

UGANDA MARTYRS UNIVERSITY

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DEDICATION

I dedicate this piece of work to all those who are in the struggle against eMTCT of HIV and to my parents, husband, children, sisters and brothers, head of department and friends for their tireless and selfless efforts offered to make this piece of work a success. I also dedicate this work to my supervisor Dr Maniple for the advice and guidance he offered me throughout the whole process

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ABBREVIATIONS

AIDS:	Acquired Immunodeficiency Syndrome
ART:	Anti-Retroviral Therapy
ARV	Anti-Retroviral
CDC:	Centre for Disease Control
eMTCT	elimination of Mother To Child Transmission
HCT:	HIV Counseling and Testing
HIV:	Human Immunodeficiency Virus
HSD:	Health Service Delivery
LMICS	Low and Middle Income Countries
MTCT	Mother To Child Transmission
PMTCT	Prevention of Mother To Child Transmission
SPSS:	Statistical Package for Social Sciences
STDs:	Sexually Transmitted Diseases
STIs:	Sexually Transmitted Infections
UNAIDS:	United Nations program on HIV/AIDS
UNICEF:	United Nations International Children's Emergency Fund
USAID:	United States Agency for International Development
VCT:	Voluntary Counseling and Testing

DEFINITIONS OF KEY WORDS

Knowledge: Information and skills acquired through experience or education.

Risk: A situation involving exposure to danger/ the possibility that something unpleasant will happen.

Voluntary Counseling and Testing: Willingness to undergo confidential education about HIV between a person and health care personnel aimed at knowing one's HIV status.

Stigma: A mark of disgrace associated with a particular circumstance, quality or person.

HIV test-seeking Behavior: Various attempts to find or obtain HIV testing services.

Pre-test Counseling: Formal knowledge about HIV given to a person prior to the testing.

HIV Sero-Positivity: Referring to a person who gives a positive reaction to an HIV serological test.

Drug Therapies: Medical treatment given to a person to help cure a disease or disorder.

ABSTRACT

Introduction

Mother-to-child transmission (MTCT) of HIV accounts for 14% of all new HIV infections worldwide (UNAIDS 2010). An estimated 3.2 million children were living with HIV at the end of 2013 mostly in sub-Saharan Africa (WHO 2014), while in Uganda, MTCT accounted for more than 20% of all HIV transmission (MoH 2012). With efficacious interventions the risk of mother-to-child HIV transmission can be reduced to 2% (WHO 2014).

Research questions

The research questions were based on willingness, factors affecting willing, actual uptake, and factors affecting actual uptake of ANC mothers to uptake eMTCT services in GRRH.

Methods

The study was a cross sectional which employed mixed methods approach majorly quantitative study with a minor qualitative part. Self-administered questionnaires were used to collect data from 227 willing pregnant mothers, who attended ANC services in GRRH.

Results

The research findings showed an over whelming positive responses of ANC mothers willing to undergo HCT with a proportion of 223 (98.2%), and 227 (100%) willing to be enrolled for eMTCT services if found HIV positive, while 226 (99.6%) were willing to be retained in eMTCT services. There were no significant factors affecting willingness as the majority of the ANC mothers did not need the permission from their spouses to attend ANC and were not affected by their spouses of not getting involved in eMTCT/ANC services though they showed importance of male involvement. Out of the 227 ANC mothers interviewed, 57 (25.1%) were HIV positive and on ART, while 170 (74.9%) were HIV negative.

CHAPTER ONE

1.0 Introduction

Every day over 6800 people become infected with HIV and over 5700 persons die from Aids (UNAIDs 20011). Human immunodeficiency virus/Acquired immune deficiency syndrome (HIV/AIDS) pandemic is a threatening disease worldwide and it remains one of the most challenging diseases of public health (UNAIDS 2011).

As of 2014, of the estimated nearly 37 million people worldwide were living with HIV, approximately 2.6 million is children under 15 years of age, with 88 percent of these children residing in sub-Saharan Africa. An estimated 220,000 children were newly infected with HIV in 2014; further, 600 children are newly infected with HIV every day (UNAIDS 2015).

In Uganda estimated Human Immunodeficiency Virus (HIV) infection in 2009 was estimated at 124,000 and 128,000 in 2010, a figure that shows an increasing number of new infections (WHO 2010). The number of new infections outstrips annual enrolment into Anti-Retroviral Therapy (ART) by two-fold. If the *status quo* continues, the HIV burden is projected to increase by 700,000 new infections over the next five years (WHO 2010).

Mother-to-child transmission (MTCT) of HIV accounts for 14% of all new HIV infections worldwide and may occur during pregnancy, labor and delivery or breastfeeding. (UNAIDS 2010), Furthermore an estimated 3.2 million children were living with HIV at the end of 2013 mostly in sub-Saharan Africa. Majority of them acquire HIV from their HIV-infected mothers during pregnancy, birth or breastfeeding. With efficacious interventions the risk of mother-to-child HIV transmission can be reduced to 2%. However such interventions are still not widely accessible or available in most resource-limited countries where the burden of HIV is highest.

And these children who are already infected with HIV need to be enrolled in effective treatment to stay healthy (WHO 2014).

While in the absence of prevention, rates of MTCT are estimated to be 25-35 percent (UN 2007), and without treatment, around a quarter of babies born to HIV infected women will become infected during pregnancy and delivery, a further 5 to 10 percent become infected through breastfeeding (WHO, 2011). In addition, most children still do not have access to antiretroviral treatment (ART). Without diagnosis and treatment, one third of the infected infants will die before the age of one year, and almost one-half before their second birth day (UNAIDS, 2015).

In Uganda the national average HIV prevalence fell from a high of 18.5% in 1992 to about 5% in 2000. This was due to several key factors, including strong political leadership, an open to combating the epidemic and a strong multi-sectoral, decentralized and community response (UAC 2011). However, the 2004/05 sero behavioural study put the prevalence at 6.4% (Macro, 2006), and the Uganda AIDS Indicator Survey (UAIS 2011, MoH 2012) reported an increase in prevalence to 7.3% in 2011. The general increase in HIV prevalence demonstrates indisputably that HIV/AIDS remain significant health and development problems for Uganda (MoH, 2012).

HIV prevalence in Uganda is higher among women (8.3%) than men (6.1%). Moreover, the prevalence increase with age until it peaks at age 35-39 for women (12%), and at age 40-44 (11%) for men while 4% of young adults are 15-24% are living with HIV. Women in urban areas have a higher HIV prevalence than those in rural areas (11% vs 8%). The prevalence is highest among widowed women (32.4%), and lowest among women who had never been married (3.9%). Additionally, the HIV prevalence varies by region, from a low of 4.1% in mid-eastern to 10.6% in central region (MoH 2012).

Prevention of Mother-to-Child Transmission (PMTCT) of HIV in Uganda accounts for more than 20% of all HIV transmission and almost all HIV infections in children below five years of age. Based on the 9.1% HIV prevalence among women in the region and on the approximately 5% deliveries occurring annually in the population, the estimate of HIV-positive pregnancies in Northern Uganda in 2012 was about 9,600. This would result in over 3,000 additional HIV-infected babies without any PMTCT intervention (NUMAT 2012).

The Uganda HIV and AIDS Country Progress report (2013) shows that between 1st October 2012 and 30th September 2013, out of the total 1,726,177 women enrolled in eMTCT services and with a known HIV status, 123,754 (7.2 percent) were already HIV positive. A total of 88,792 (71.7 percent) among the positive mothers received ARVs for eMTCT; including those already on ART prior to pregnancy, and those started on Option B+. This was just below the 2013 National Priority Action Plan (NPAP) for HIV/AIDS target, which was set at 75 percent of all HIV positive pregnant mothers. However, only 37,432 (36.7 percent) of the infants born alive to HIV positive mothers and thus HIV-exposed, received ARV for eMTCT. The health facility deliveries are still low at 41 percent; and post-natal care service delivery is still poor. This contributes to the high level of missed opportunity for infant protection.

In Northern Uganda, HIV prevalence in 2005 was 8.2% of the adult population (9.0% among women and 7.1% among men). The higher prevalence than the national average was attributed to various factors: the long-standing conflict and its resulting displacement of populations; food insecurity leading to transactional sex; and sexual and gender-based violence (SGBV) and rape, all of which were compounded by lack of access to health care in the conflict-stricken areas. use (NUMAT 2012).

Uganda pledged to virtually eliminate mother-to-child transmission of HIV by 2015. The vertical transmission rate by 2010 was 8% for mothers who accessed prevention of mother-to-child transmission (PMTCT) services, compared to 14% for non-users nationally (UBOS 2010). The Uganda MoH also decided to adopt a more efficacious PMTCT prophylaxis regimen in which pregnant women by then received highly active triple drug anti-retroviral therapy (ART) from 14 weeks until one week after exposure to breast milk has ended, and infants were given Nevirapine syrup for six weeks after birth. However, the overall coverage of PMTCT prophylaxis for HIV-infected pregnant women was at 53%, with wide variations across districts, (UBOS 2010). While with the eMTCT programme (Option B+), ART is initiated immediately the mother tested HIV positive whether pregnant or not for life and doesn't consider CD4 cell count (WHO 2013).

Mother to child transmission is situation whereby HIV infection is transmitted from an HIV infected mother to her baby. It is also called vertical or peri-natal transmission which is likely to occur in; Utero: 15 -20% (across the Placenta), during labour and delivery: 60 - 70%, post-partum /breast feeding: 15 -20% (WHO 2010). Factor increasing MTCT include viral factors such as high viral load: maternal factors like low immunity, Early infection and advanced disease, Malnutrition (esp. Vitamin A], Unprotected sexual intercourse [re-infection]; placenta factors; infections such as Syphilis, Malaria, conditions like Abruptio placenta, External Cephalic Version, chorioamnionitis and smoking; obstetric factors like Ante partum haemorrhage, Premature rupture of membranes, Prolonged labour, Invasive monitoring of fetus, Episiotomy, Instrumental delivery, Milking of the cord, and Electrical suction of the baby. Fetal factors include: Prematurity, Twins (first twin always at risk). Infant factor: Breast feeding esp. if prolonged, Mixed feeding, Poor Conditions of the Breasts, Sores in the baby's mouth, and Lack of ARV, (Uganda Ministry of Health, 2010).

The objectives of prevention of mother to child transmission of HIV between 2006 – 2010 were to provide counselling and testing to 90% of all pregnant women attending ANC; counsel and support 50% of HIV pregnant women to remain HIV free; provide family planning to 75% of women living with HIV and their partners; provide recommended package for PMTCT and including comprehensive HIV care (WHO 2012).

The strategies set to prevent mother to child transmission included Primary prevention by preventing HIV infection in the general population through abstinence, being faithful to one HIV negative partner, condom use, contraception dual methods; while Secondary Prevention is by avoiding pregnancy in HIV infected women, by carrying out HIV testing before pregnancy, providing Family Planning for HIV positive women, and provision of lifelong ART to HIV positive mothers (WHO 2010).

While Option B+ which was introduced in Uganda in August 2012 helps offer protection against MTCT in future pregnancies as well as continuing prevention against sexual transmission of the virus in case of the discordant partners (WHO 2012). Option B+ is given to the mother not only for the sole purpose of limiting transmission of HIV from the mother to the infant but also addressing the wellbeing of the mother during and after delivery of her baby (WHO 2012). The recommendation for option B+ provides lifelong ART for all HIV positive women in reproductive age regardless of CD4 cell count (WHO 2012).

In the continuous move to eliminating MTCT, more innovative efforts are being extended for instance; United Nation AIDS Programme in 2011 produced 'The Global Plan towards the Elimination of New Infections among Children and Keeping Their Mothers Alive". The plan recognizes the need to consider different ways of preventing MTCT, and to integrate HIV interventions into other family planning, maternal health and child health services (WHO 2011).

1.1 Background

The term "Prevention of Mother-To-Child Transmission" (PMTCT) was recently revised to ***elimination*** of Mother-To-Child Transmission (eMTCT) to illustrate the global goals in eliminating all new cases of pediatric HIV (IATT, 2012). By March 2013, the overall PMTCT service coverage in Uganda was only 48%, and by the end of 2013, all 112 districts in the country had at least one health facility providing the full scope of PMTCT (UNAIDS 2014). The HIV National Priority Action Plan (HNPAP) 2011-2013 helped increase the percentage of HIV positive pregnant women on antiretroviral drugs to reduce risk of mother to child transmission (MTCT) to 71.1%. This was because of the 22 countries prioritized; Uganda had the fourth highest number of new infections among children (HNPAP 2013). Of equal importance is the use of eMTCT as a platform for the prevention of HIV-related maternal deaths, since keeping HIV-positive mothers alive is crucial, not only for the mother, but also for her children. With this new focus on elimination. The virtual eMTCT of HIV means that fewer than 2% of babies born to HIV positive pregnant mothers contract the virus (IATT, 2012).

Despite extensive scale-up of prevention of mother-to-child transmission (PMTCT) services in Sub-Saharan Africa, many HIV-infected pregnant women and their HIV exposed infants are not receiving the complete package of preventive and treatment services they need to reduce the risk of MTCT of HIV to less than 5 percent (UNAIDS 2013). Without effective PMTCT intervention, the risk of MTCT during pregnancy and birth is 15–50% and another 5–20% will become infected through breastfeeding. Estimates in 2009 revealed that among 1.4 million HIV-positive pregnant women, (over 90% of which was in Sub-Saharan Africa) only 53% had received Antiretroviral (ARVs) to reduce MTCT risk (UNAID 2013).

However, with concerted efforts and strategic investment, there is the opportunity of global reduction of 50% in HIV incidence in women of reproductive age, which is in line with global targets (KMCC 2012). In addition, a reduction to 'zero' in the unmet need for family planning among HIV positive women, a reduction to less than 5% in the risk of mother to child transmission of HIV, and access to antiretroviral therapy (ART) for 90% of eligible HIV positive women, are also deemed achievable (KMCC 2012).

The recent presentation on PMTCT service delivery update by the HIV/AIDS unit of the FMOH on PMTCT shows that it's Coverage had risen from 11% in 2010 to 32% 2012, making Nigeria the leading country with the highest burden of MTCT (HIV/AIDS Division 2012: FMOH 2011). This is a far cry when compared to Ghana, with a population of about 24 million, having coverage of 27% and South Africa with the highest burden having 88% coverage suggesting they may likely meet their country's targets (UNICEF 2010, UNICEF 2010).

Considerable challenges interfere with PMTCT delivery, particularly with respect to HAART uptake for qualifying women and infants. These include health systems infrastructure limitations such as inefficient laboratory flow, inconsistent commodity supply for essential lab services or drugs, and poor provider knowledge (WHO 2009). Low stakeholder involvement, poor integration of services, and ineffective referrals are other important factors. Low patient, partner, and community PMTCT knowledge, as well as social stigma, fear, and denial, can also prevent women from accessing or following through with the HIV care and treatment they need. Collectively these challenges make provision of EMTCT services at each step difficult, contributing to compromised EMTCT quality of care (WHO 2009).

Uganda pioneered PMTCT research in 1988; and this resulted in the 1999 study that demonstrated the safety and efficacy of nevirapine for mothers and infants in reducing the risk of

transmitting HIV from the mother to the child by almost 50%. This intervention, and its subsequent modifications, became the cornerstone of PMTCT policies and programs globally.

In keeping with its pioneering and pace-setting practice with regard to PMTCT, Uganda adopted Option B+ in April 2012, and a policy in this respect was launched in October 2012. In 2013, at that time, there was high level advocacy by Uganda's First Lady and other political leaders; religious and cultural leaders, and by persons living with HIV to promote eMTCT. The overall eMTCT service coverage by March 2013 was 2,138 health facilities (129 hospitals, 187 HC IV, 1,034 HC III and 733 HC II); 48 percent of all health facilities in the country.

By the end of 2013, all 112 districts in the country had at least one health facility providing the full scope of eMTCT services. Out of a total of 1,516,772 attending ANC between 1 October 2012 and 30 September 2013, 1,410,598 (93.0 percent) received HCT. An additional 246,141 mothers were enrolled into eMTCT through other health care settings (e.g., Maternity, Post Natal Care, Immunization, etc.); and 69,438 had a known and documented HIV status by the first ANC attendance. Out of the total 1,726,177 women enrolled in eMTCT services and with a known HIV status, 123,754 (7.2 percent) were HIV positive. A total of 88,792 (71.7 percent) among the positive mothers received ARVs for eMTCT; including those already on ART prior to pregnancy, and those started on Option B+.

This was just below the 2013 National Priority Action Plan (NPAP) for HIV/AIDS target, which was set at 75 percent of all HIV positive pregnant mothers. However, only 37,432 (36.7 percent) of the infants born alive to HIV positive mothers and thus HIV-exposed, received ARV for eMTCT. The HSSIP mid-term review showed that health facility deliveries are still low at 41 percent; and post-natal care service delivery is still poor. This contributes to the high level of

missed opportunity for infant protection. As a result of this extensive eMTCT service coverage, the projected number of new vertical infections fell from 15,411 in 2012 to 9,629 in 2013.

1.1.1 Background information of the study area

This study was conducted in Gulu Regional Referral Hospital (GRRH) located in Gulu municipality, Gulu District which is located in Northern Uganda between longitudes 30-32 degrees east and latitudes 02-4 degrees north. It is bordered by Amuru District in the West, Lamwo District in the North East, Pader District in the East, Lira District in the South East, Oyam District in the South and Nwoya District in the South West.

The total land area of Gulu District is 3,449.08 sq km (1.44 % of the Uganda land size). 96.9 sq km (0.8 %) is open water. The District headquarters is 332 km by road from Kampala and through the Great North Road that gives access to the Sudan and Democratic Republic of Congo. The total population of Gulu District is 436,345 with male being 215,901 and female 220,439 (UBOS 2014). Gulu district has 3 counties namely; Gulu Municipality with the largest population of 163,100, Omoro county with a population of 143,400, and Aswa county with a population of 101,000 (Gulu District Statistical Abstract for 2012/13).

The major economic activity carried out in the District is agriculture mostly in the rural areas, while in urban areas; most men are involved in professional associate work and most of the women are social service workers.

Access to health services still remains poor in Gulu District as a whole. Over 37 percent of the population still moves distance of more than 5kms in search of health services and 73.8 percent are within 5 km radius. Generally, awareness of basic rights of patients is very low, and feedback channels from community is weak (Gulu District Statistical Abstract for 2012/13).

There are a total of 76 health facilities (public, private not for profit and private for profit) of which 51 are functional government health facilities (46 locally managed and 5 centrally managed) and about 17 health facilities are run by NGOs. Gulu Municipality has a total of 26 health units: - 3 hospitals, 4 health centre III, and 17 health centre II with1 nonfunctional health centre (DDP 2010/11 & HMIS Section- DHO Gulu).

The staffing level in the health sector stands at 72 percent as per 2013 as compared to 65 percent in 2009/10. The trained health workers stand at 41 percent out of the total 432 staff in the health sector; majority being support staff (Askaris, porters, nursing assistants and drivers). With the exception of Clinical Officers, all other cadres are still understaffed. This still has an adverse effect on quality of care provided to reduce maternal and child mortality and also combat HIV/AIDs, Malaria, and other diseases (Gulu District Statistical Abstract for 2012/13). HIV prevalence rate was reported to be experiencing a downward trend from 14.4 percent in 2009 to 11 percent in 2011 among antenatal attendees while the national prevalence is 64 percent. Maternal Mortality Rate (MMR) was 354/100000 live births in the populations and Infant Mortality Rate (IMR) stood at 132/1000 live births in the population (Gulu District Statistical Abstract for 2012/13).

HIV/AIDS still remains a big development challenge in the district. The prevalence rate steadily declined from about 27 percent in 1993 to 11.9 percent in 2005 and currently stands at 12.8 percent (HMIS 2010/2011).

In regards to HIV Counseling and Testing (HCT), the number of people who were counseled in 2009/10 was at 68,549 as compared to 80,645 in 2008/09; those who tested for HIV/AIDS in 2009/2010 were 64,297 as compared to 75,547 people who tested in 2008/09. The people who

tested HIV positive were 6,364 in 2009/10 as compared to 8,196 in 2008/09, which showed a decline (DDP 2010/11 & HMIS Section- DHO Gulu).

Gulu Regional Referral Hospital was chosen because it is the only referral hospital in the Acholi sub-region serving the whole district including the neighboring districts. The ANC attendance according to ANC register of 2015 had an average estimated to be 818 per Month, (the highest number was 968 in August 2015, and the lowest was 668 in July 2015). The number of pregnant mothers who tested for HIV as per 2009/2010 was at 28,956, those who tested HIV positive was at 2,573 (DDP 2010/11 & HMIS Section- DHO Gulu). In addition, the district is facing a number of gaps in HCT services and the most pressing one is inadequate human resource. This has affected the quality of health services such as counseling, for example; a counselor has to provide service to more than 10 clients instead of the recommended 6 per day (DDP 2010/11).

1.2 Problem Statement

In spite of effective strategies to eliminate mother-to-child-transmission of HIV, the implementation of such strategies remains a major challenge in developing countries like Uganda. Mother to child transmission of HIV accounts for about 10% of the HIV burden globally and HIV has been recognized as a major contributor to the persistently high maternal as well as child mortality and morbidity in Africa (UNAIDS 2012)

International commitments to eliminate preventable maternal mortality and reduce HIV-related deaths among pregnant and postpartum women by 50 percent will not be achieved without a better understanding of the links between HIV and poor maternal health outcomes and improved health services for the care of women living with HIV during pregnancy, childbirth, and postpartum WHO 2010.

This therefore calls for a study to establish factors affecting uptake of eMTCT of HIV services including level of knowledge of pregnant mothers, and their attitudes towards eMTCT services in Gulu Regional referral Hospital Gulu district. This will also help provide suggestions to challenges related to willingness of ante-natal mothers to uptake eMTCT services in Gulu Regional Referral hospital Gulu district.

1.3 Research questions

1. What factors determine willingness of ANC mothers to uptake eMTCT services in GRRH
2. What are the factors affecting willingness of ANC mothers to uptake eMTCT services in GRRH
3. What factors influences ANC mothers to actually uptake eMTCT services in GRRH
4. What are the factors that affect ANC mothers to actually uptake eMTCT services in GRRH?

1.4 Objectives of the study

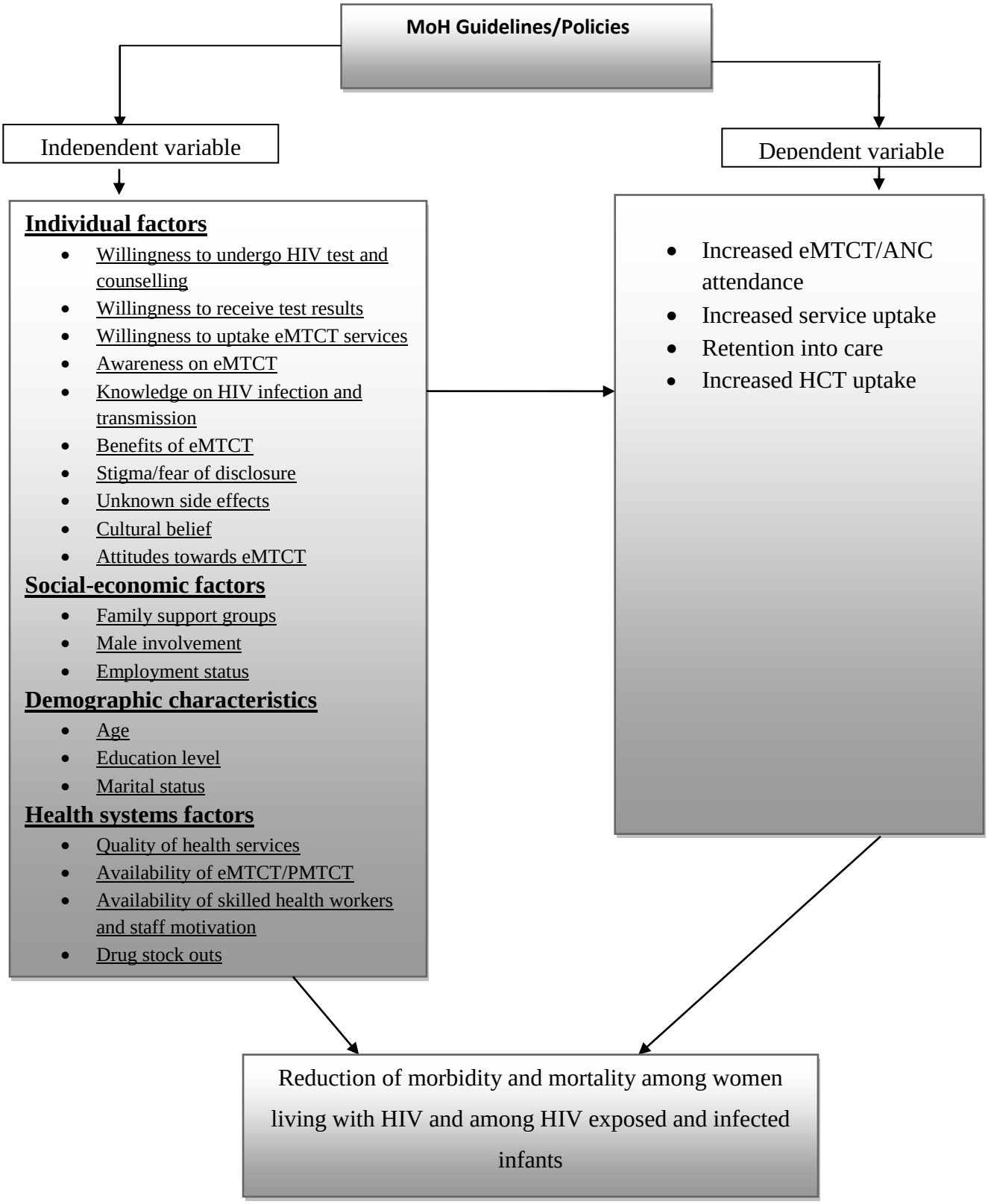
1.4.1 Overall objective of the study

To explore factors affecting the willingness of ANC mothers to uptake eMTCT services in Gulu Regional Referral Hospital (GRRH)

1.4.2 Specific objectives

1. To explore willingness of ANC mothers to uptake eMTCT services in GRRH
2. To identify factors affecting willingness of ANC mothers to uptake eMTCT services in GRRH.
3. To explore the actual uptake of ANC mothers to uptake eMTCT services in GRRH
5. To identify factors that affect ANC mothers to actually uptake eMTCT services in GRRH

4. 1.5 Conceptual Framework



1.6 Significance of the study

Acquired immune deficiency syndrome is believed to be a threatening disease worldwide and it remains a challenging disease to public health as well as reproductive health. In 2008 an estimated 33.4million people were living with HIV globally, out of which 2million (6.2%) were children and AIDS related deaths in infant and children accounted for 280.000 (14%). Without treatment, around a quarter of babies born to HIV infected women will become infected during pregnancy and delivery, a further 5-20 percent will become infected through breastfeeding (WHO, 2011).

The study findings will provide baseline information that may be used to monitor the impact of eMTCT services in Gulu Regional Referral Hospital, Gulu district for more effective measures to be sought in an ongoing service improvement. This is important to reproductive health in that, improvement in eMTCT services will provide basis for improved health of both the mothers and their babies who are the determinants of the future generation.

The study findings may be used by HIV/AIDS programme planners and coordinators to address identified HIV/AIDS related issues and gaps pertaining to factors affecting adequate eMTCT of HIV services

The findings from the study may also help the District health team and the stakeholders to effectively streamline, guide and scale up for implementation on adequate eMTCT of HIV services throughout the district.

To the Ante-natal mothers, with improved services, they will benefit by having better services as well as having wider knowledge on eMTCT of HIV leading to uptake of eMTCT services and achievement in reduction of MTCT.

The findings will as well provide up-to date information for academicians that could be used as a basis for future research.

1.7 Justification of the study

The researcher felt motivated to conduct this research because the researcher is highly convinced and acknowledged what various scholars have done on studies related to utilization of eMTCT/PMTCT and is aware that no other study has been conducted on willingness as well as factors affecting willingness of ANC mothers to uptake eMTCT services. The researcher believed that by examining the various factors leading to willingness of ANC mothers to uptake eMTCT services, a clear picture of the various factors affecting uptake of eMTCT services by pregnant mothers will be identified and plans could be made on how to improve eMTCT uptake in GRRH as well as the country at large. This will in turn help improve on many lives of the mothers and babies as well as meet the target of reducing mother to child transmission of HIV by 2% (WHO 2014) In addition, the research topic corresponds with one of the targets of the sustainable development goal number 3 which talks of ensuring healthy lives and promoting well being for all ages by the year 2030 (UN. General Assembly August 2014).

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter consists of literature reviewed from various sources including what scholars internationally, regionally and locally have done on elimination of Mother to Child Transmission (eMTCT) of HIV as well as review on Prevention of Mother to Child Transmission of HIV. The literature included factors affecting willingness of ante-natal mothers to uptake of eMTCT of HIV among pregnant mothers attending ANC in Gulu Regional Referral Hospital, Gulu district. Literatures are subdivided into themes namely; magnitude of HIV in young children as a result of mother-to-child transmission of HIV; dynamic of eMTCT/PMTCT; willingness of ante-natal mothers to uptake eMTCT services; factors affecting willingness, to uptake eMTCT services; Actual uptake of eMTCT services and factors affecting actual uptake of eMTCT services.

2.2 Background

About 18 million women worldwide are HIV positive, and more than 90% of HIV positive pregnant women are from sub-Saharan Africa. Globally, HIV and complications related to pregnancy remain one of the two leading causes of death for women of reproductive age. Without timely antiretroviral therapy (ART), Women Living With HIV in sub-Saharan Africa are approximately 8 times as likely to die during pregnancy or the postpartum period as HIV-negative women. It has been noted that Mother to child transmission of HIV accounts for about 10% of the HIV burden globally. As in 2009, Nigeria had the highest number of children in the world with HIV through MTCT, and was a priority country for intensified support in reaching the Universal Access goal (UNAIDS; 2010).

In Uganda, Mother-to-child transmission accounts for more than 20% of all HIV transmission and almost all HIV infections in children below five years of age. Based on the 9.1% HIV prevalence among women in the region and on the approximately 5% deliveries occurring annually in the population, the estimate of HIV-positive pregnancies in Northern Uganda in 2012 was about 9,600. This would result in over 3,000 additional HIV-infected babies without any eMTCT intervention (MoH 2012).

Mother to child transmission is the way through which HIV infection is transmitted from an infected mother to her baby during utero, labour and delivery, and postnatal period. In addition, factors that faviour eMTCT of HIV includes: viral factors such as high viral load, viral genotype and viral resistance; maternal factors like maternal immune and nutritional status, behavioural factors and mothers on ART; Obstetric factors like prolonged rupture of membranes, assisted delivery, intra-partum haemorrhage, obstetrical procedures, and invasive fatal monitoring; Fetal factors such as immaturity, genetic and multiple pregnancy; infant factors such as mixed feeding, gastro-intestinal tract infections and immature immune system (WHO 2010).

The role eMTCT is to ensure that mothers infected with HIV do not transmit the HIV infection to their babies. This is done through: primary prevention; by preventing HIV infection in the general population through abstinence, being faithful and use of condoms; secondary prevention by avoiding unwanted pregnancy in HIV infected women through HIV testing before pregnancy and contraception for HIV positive women. If these fails then prevention of HIV transmission through safe sex during pregnancy and lactation, use of ARV drugs, safe delivery practices and safe infant feeding. In addition, provision of treatment care and support to women infected with HIV, their infants and their families through use of ARV, prevention of opportunistic infection,

palliative and non HIV care, nutritional support, reproductive health care, psychosocial and community support (WHO 2012).

The availability of effective interventions to prevent mother-to-child HIV transmission and the significant reduction in the number of HIV-infected infants have led to the concept of elimination of mother-to-child HIV transmission (eMTCT) by which, elimination efforts can be coordinated (Pediatrics Vol. 2012) . It is emphasized that eMTCT will not be a one-time accomplishment but, rather, will require sustained effort as long as there are new HIV infections in women of childbearing age (Pediatrics Vol. 2012).

2.3 Magnitude of HIV/AIDS in young children

HIV/AIDS continues to be a major socio-economical challenge and is among the leading cause of morbidity and mortality in Uganda. The epidemic has matured and is generalized across the entire population with an increasing prevalence rate in women (15-49 years) estimated at 7.7%, while that of men is 5.6%, and 13% in children (Uganda AIDS Commission 2012).

The transmission of HIV infection from mother to child constitutes a global challenge especially for the developing countries in absence of preventive interventions. The risk of infection in HIV exposed children can be as high as 25% from Human immune deficiency virus (HIV) type 1 and 4% for HIV type 2 (WHO 2006). In Uganda, HIV type 1 is the commonest putting the children at a very high risk of infection (WHO 2006)

In the year 2009, approximately 130,000 children were newly infected with HIV in sub-Saharan Africa, over 90% of them by vertical transmission (UNAIDS 2O10). If HIV infected infants are left undiagnosed and untreated, about half of them die before the age of two (WHO 2010). Mother-to-child transmission, which occurs in 20% to 45% of HIV-infected pregnant women without antiretroviral prophylaxis, can be lowered to ≤5% with adequate interventions (WHO

2010). Early infant diagnosis (EID) and treatment after delivery dramatically reduce infant mortality (Violari e*t al* (2008). However, loss to follow-up of mothers and their infants from licsprevention of mother-to-child transmission (PMTCT) programs limits the impact of these interventions (WHO 2010).

Previously with the PMTCT programme, pregnant women who attend antenatal care unit for the first time were counseled and tested for HIV. If they were found to be positive, they are counseled for PMTCT and then provided with antiretroviral medication. The pregnant mothers were also assessed for eligibility for lifelong antiretroviral combination therapy (cART) and if they were found to be eligible, therapy is initiated. However with the option B+ approach, pregnant mothers do not go through assessment to be eligible for cART as they are started immediately on lifelong ART (WHO, 2012).

HIV testing among pregnant women is increasing with expansion of provider- initiated testing and counseling in ANC clinics, labour and delivery centers, and other health-care settings (WHO 2010). Yet despite recent progress, much work remains to be done. WHO (2010) report of 2008, estimated 430.000 children newly infected with HIV, and nearly all of them through MTCT. Globally, HIV/AIDS being the leading cause of mortality among women of reproductive age especially in several high burden countries in sub Saharan Africa such as South Africa and Zimbabwe. Even in countries that are rapidly scaling up PMTCT services, the major challenge is to provide effective ARV interventions, including the provision of antiretroviral treatment (ART) for pregnant women and mothers eligible for treatment, and to demonstrate the impact of these interventions by a decrease in Pediatric infections, HIV free survival, and improved maternal and child health (WHO 2010).

However, HIV-related child mortality rates remain high in sub-Saharan Africa despite growing access to antiretroviral therapy. In 2010, around 390,000 children aged less than 15 years became infected with HIV and more than 90% were as a result of mother-to-child transmission during pregnancy, labour and delivery, or breastfeeding. Without interventions, chances that a baby born to an HIV-infected mother will become infected are 20-45% (WHO 2011).

Recent studies demonstrate the global eMTCT status; about 330,000 (280,000-380,000) children were newly infected with HIV in 2011, almost half the number that was infected in 2003. In addition, 95% of HIV infection in children is a result of mother-to-child transmission (MTCT), and this transmission occurs in 30 – 40% of HIV positive pregnant women. Transmission can occur during pregnancy, labour or breastfeeding (UNAIDS and Obeid 2012).

Without treatment it is essential that half of the HIV infected children will die before their second birthday, contributing to high infant and childhood mortality rates. Access to comprehensive HIV services reduces the risk of transmission, which in this case still requires a lot to be done, not only the health providers, but with the participation of the community, family members, as well as the individuals involved (WHO, 2010). In-order to attain eMTCT targets in Uganda, it will require increased funding to the response from both the Government and international agencies, and also need for strong and clear communication of priority eMTCT messages which will focus on each major part of the health system, a national campaign on eMTCT as well as at the local levels (KMCC 2012).

In Uganda, National HIV sero prevalence at antenatal surveillances sites is high at 6.5%. Implying that, out of an estimated 1.2 million women who annually get pregnant, about 160,000 are HIV positive which increases their risk of contracting HIV and passing it onto their unborn babies (MoH, 2009).

However, achieving the eMTCT vision will require a continued investment in a wide range of essential activities including: optimizing interventions; maximizing coverage and retention; strengthening health systems; engaging communities; assuring adequate human resources' implementing favorable policies; promoting leadership and coordination; mobilizing adequate financial resources; developing research and innovation; and conducting surveillance and measurements (Simonds 2012).

In Uganda the 2011 AIDS Indicator Survey showed a national HIV prevalence rate of 7.3% in the general population and 6.5% among pregnant women attending antenatal care (ANC) clinics, the prevalence in northern Uganda was at 8.3%, (MoH 2012).

In Northern Uganda, by 2011, a total of 4436 children born to HIV-infected mothers had been tested between the ages of 6 weeks and 18 month by DNA PCRs; 6.1% (269) of them tested were HIV-positive, while the HIV prevalence in these children between 2004 and 2011 declined significantly from 10.3% to 5.0% (MoH 2011). In addition, HIV prevalence rate in Gulu district was reported to be experiencing a downward trend from 14.4 percent in 2009 to 11 percent in 2011 among antenatal attendees, while the national prevalence is 6.4 percent (DDP 2010/11 and HMIS and DHO Gulu). Pregnant mothers who underwent HIV testing and counseling under PMTCT programme in 2008/9 were 28,075 as compared to 28,956 in 2009/10. Those who tested HIV positive in 2008/9 were 3,737 as compared to 2,573 in 2009/10, (DDP 2010/11 and HMIS section and DHO Gulu). Furthermore, HIV testing for children 18 months to 5years born to HIV positive mothers between 2008/9 was 2,452 as compared to 2554 in 2009/10. Children who tested HIV positive were 559 in 2008/9 as compared to 261 in 2009/10 (DDP 2010/11 and HMIS section and DHO Gulu).

2.4 The dynamics of eMTCT/PMTCT

The global UNAIDS eMTCT targets set to be achieved by 2015 still faces a big challenge in that not all health units offer eMTCT services and not all deliveries take place in hospital settings with adequate eMTCT services (UNAIDS 2014).

Despite global progress in the fight to reduce maternal mortality over the last 20 years, HIV-related maternal deaths remain persistently high, with approximately 24 percent of deaths in pregnant and postpartum women in sub-Saharan Africa attributable to HIV (Colvin Christopher *et al* 2014). Lifelong antiretroviral therapy (ART) appears to be the most effective way to prevent HIV-related maternal mortality. Although ART is increasingly available in the public sector health services of most countries, many pregnant or postpartum women continue to struggle to access treatment, and the rates of initiation, retention in care, and long-term adherence remain troublingly low, as well as Communication and coordination problems is still a big challenge in sub-Saharan Africa (Colvin Christopher *et al* 2014). A wide range of the included studies reported that dropouts and delays in the maternal ART cascade were often the result of communication and coordination problems, including scheduling difficulties, poor follow-up and tracking of patients, weak information systems, and failure to effectively communicate, rapidly changing treatment protocols and, referral procedures throughout the health system (Colvin Christopher *et al* 2014).

2.5 Willingness of ANC mothers to uptake eMTCT services

The willingness of HIV women to undergo HIV testing during pregnancy is a complex phenomenon that shows frequent inconsistence in research results in relation to various researches done. Numerous factors related to pregnant women's willingness to be tested suggest multiple possible interventions to maximize HIV testing efficiency and increase testing rates.

Over 90% of MTCT of HIV occurs in sub-Saharan Africa, where women in their reproductive years represent 50% of the HIV-infected population (Kellerman 2012). MTCT of HIV is not limited to low-income countries: according to one source, each year in the United States there are between 100 to 200 new cases (Health Resources and services 2010).

HIV testing of pregnant women has been advocated by UNAIDS as one of the key strategies for preventing MTCT (Kellerman UNAIDS 2014). In 2004, the World Health Organization (WHO) and UNAIDS issued recommendations for routine HIV testing of pregnant women in resource-limited countries (UNAIDS; WHO 2004). At present, routine prenatal HIV testing is considered to be standard care in the United States and other developed nations. Nearly half of African countries have also adopted routine prenatal HIV testing policies, with 42.7% of them adopting these policies in 2006 (Baggaley *et al,* 2012). Despite these positive developments, HIV testing rates of pregnant women in many countries including Uganda remain suboptimal (WHO 2012).

Testing for HIV is voluntary and dependent on the willingness of women to receive testing. Understanding factors related to women's willingness to receive HIV testing during pregnancy is critical to developing strategies to increase HIV testing rates for pregnant women. Extensive research elucidates various factors as being related to women's willingness to be tested for HIV during pregnancy. Considering the goals set by the United Nations to reduce the rate of infants infected with HIV (Baggaley, 2013).

In a study done by Turan *et al,* (2011) among pregnant women in rural Kenya, found that, fear of their spouses' reaction and possible repercussions were a more powerful influence on the willingness of women to be tested for HIV during pregnancy than were their concerns regarding any other significant factors. The study further suggested that because community members are

not easily able to identify if a woman is infected with HIV, women have less fear of receiving negative consequences from the whole community.

2.6 Factors affecting willingness of ANC mothers to uptake eMTCT services

2.6.1 Fear of the test results

Fear of the test results has been shown to be a major barrier to being tested for HIV during pregnancy, both in earlier and in more recent studies (Peltzer, 2010). Dube and Nkosi (2008) found that half of the women in their study felt that getting tested for HIV was emotionally stressful. Similarly, Moges and Amberbir, (2011) found that pregnant women resist HIV testing because they are afraid to receive a positive result. A similar finding was also seen in Tanzania (de Paoli and Manongi, 2004). In contrast, an Ethiopian study by Maedot *et al,* (2008) found that pregnant women who felt that they were capable of coping with a positive HIV test result were identified as being more likely to accept VCT.

Research also showed that fears of negative reactions from the male partner have been identified as a factor influencing the willingness of women to receive HIV testing (Turan 2011). In light of societal expectations of women's sexual monogamy to their spouse, a male partner may blame an HIV-infected woman for unfaithfulness (Blanc AK 2001). As a consequence, women may face negative repercussions due to their identification as being infected with HIV, such as domestic violence (Turan *et al,* 2011).

2.7 Actual willingness

2.7.1 Awareness on eMTCT services

Awareness on eMTCT of HIV plays a major role in prevention and control of HIV infection, and depends on the success of strategies to prevent new infections as well as to treat currently infected individuals. Voluntary HIV testing and counseling serve both goals. HIV testing and counseling provide essential knowledge and support to individuals at risk for contracting HIV, enables uninfected individuals to remain uninfected and those infected to plan for the future as well as to prevent HIV transmission to others. Knowing one's sero- status may also enable HIV-infected individuals to access early and appropriate treatment, care and support programmes (WHO 2012).

In Uganda, Option B+ was launched in June 2012 and kicked off in Sept 2012 in some districts, prioritized according to HIV prevalence as well as PMTCT population coverage. The national launch and campaign for eMTCT in Uganda was at Ntungamo District, Itojo Hospital grounds, under the theme 'Stand Out, Participate, Protect and Have an HIV-Free Baby' (Uganda Ministry of Health and ICF International 2012, 2011 UAIS). The champion of this new intervention was the first lady of the Republic of Uganda Janet Museveni who advised couples to go together for HIV testing and for mothers to attend antenatal care four times and give birth in a health facility to guarantee that the baby is born HIV free (Uganda Ministry of Health and ICF International 2012, 2011 UAIS). However, 7.3 per cent of adults in Uganda are living with HIV and 0.6 per cent of children under age five are infected. About 1.3 million people are living with HIV, and an estimated 145,000 new infections are occurring each year. Of these, mother-to-child transmission contributes 16,000 (11 per cent) of these new infections (Uganda Ministry of Health and ICF International 2012, 2011 UAIS).

Option B+ provides lifelong ART to all pregnant and breastfeeding women living with HIV regardless of CD4 count or WHO clinical stage. ART should be maintained after delivery and completion of breastfeeding for life. All infants born to HIV-positive mothers should receive a course of medication linked to the ARV drug regimen that the mother is taking and the infants feeding method. Breastfeeding infant should receive once-daily nevirapine (NVP) from birth for six weeks, and those on replacement feeding should receive once-daily NVP (or twice-daily zidovudine (AZT)) from birth for four to six weeks (WHO Guideline 2015).

Furthermore, Option B+ offers lifelong ART, lowers lifetime transmission rate, leads to less risk of resistance, enables safer breastfeeding, and provides continuity of treatment throughout childbearing years. It makes breastfeeding safe, which is important for low and middle income countries (LMICs) where very few mothers have any other feeding option and importantly, helps to keep more mothers alive. Although Option B+ is simpler than previous regimes, it is not necessarily an easy fix and the cumulative costs of medicines under this Option are more than three times as high as either option A or option B by year 4. It is therefore important to explore ways of delivering Option B+ more efficiently and effectively in the eMTCT of HIV (KMCC 2012).

2.7.2 Knowledge on HIV infection and transmission

The Correct knowledge of HIV transmission and methods of HIV prevention are low (52.5 percent) among adult men in Nigeria. Poor male involvement and poor ANC support by men reduces the chances of women accessing ANC/PMTCT services. Even though spouses/partners generally support pregnant women, they do not accompany them to ANC due to gender-based misconceptions which is perceived as a woman's role and to accompany them would imply weakness or that they are jobless, (NACA 2014).

Prevention of mother-to-child transmission might seem simple but there is much more to it than that. The vast majority of women in the low and middle-income countries have never been tested for HIV and do not know whether they are infected (UNAIDS 2010).

HIV-infected women who are aware of their sero status are in a better position to make informed choices about their reproductive lives, and if pregnant, to access specific interventions such as antiretroviral prophylaxis, infant feeding counseling and support, which can significantly reduce the risk of mother-to-child transmission of HIV (WHO,2011).

The Uganda Ministry of Health report (2012) revealed that, 1.6 million pregnancies occurred and about 5.5 per cent of these expectant mothers were estimated to be living with HIV. This translated to 88,000 pregnant women whose babies were at risk of acquiring HIV. With an average transmission rate of thirty per cent, it was estimated that about 26,400 babies would get infected with HIV in 2012 alone through mother to child transmission without intervention. This explains the Ministry's new effort through Option B+ which differs from previous PMTCT policies in that all HIV pregnant women will be initiated on Option B+ irrespective of her CD4 count.

To prevent the transmission of HIV from mother to baby, WHO promotes a comprehensive strategic approach to all health units that provides eMTCT services. These include: Primary prevention of HIV infection among women of child bearing age; preventing unintended pregnancies among women living with HIV; preventing HIV transmission from a woman living with HIV to her infant; and providing treatment, care and support to mothers living with HIV and their children as well as families, (WHO 2010).

2.7.3 Perceived benefits of eMTCT of HIV

The Government's eMTCT of HIV strategy aims at reducing transmission of HIV from infected mothers to their children by 90 per cent by 2015. In addition, Option B+ offers some other benefits and these include: Promotion of antiretroviral treatment for life for all HIV positive pregnant women; Reducing the number of orphans; Reducing transmission of HIV to the negative spouse in a discordant relationship; Improving adherence and treatment outcomes; Contributing towards achievement of MDG3, 4, 5 and 6, (MoH 2012).

As many women still deliver at home, it is important to ensure that those who test positive for HIV have access to the necessary antiretroviral needed for PMTCT, including treatment for the infant. Option B+ is the latest treatment option recommended by the WHO for eMTCT. Unlike other treatment options, Option B+ recommends that all HIV positive pregnant women are placed onto a triple antiretroviral regimen for eMTCT, irrespective of their CD4 count, and continuing for life (WHO 2013). This approach protects the health of the mother, whilst also reducing the risk of HIV transmission to her child and all future pregnancies. Option B+ also provides mothers with antiretroviral treatment once she test HIV positive without waiting for CD4 cell counts or laboratory results, as this wait can lead to a delay in accessing treatment or to mothers being completely lost to follow up (WHO, 2013).

In addition, Cost effectiveness analysis of option B compared with Option A or other no intervention was conducted for generalized epidemics in low-income and middle-income countries. However, the results of the studies done in Malawi and Zimbabwe showed reduced child infections, improved health benefits to the mother, and higher costs under option B+ (Goppalapa *et at* 2010) . The study concluded that option B+ is cost-effective in the long-term in reducing child infections and improving health benefits (Goppalapa *et at* 2010).

Modern family planning methods are safe, cost effective and provide substantial benefits towards PMTCT and beyond. It is an important tool in prevention of unwanted pregnancies among HIV positive women (Hladik *et al* 2009). The study further calls for better integration of family planning with eMTCT programs as an important way to achieve this benefit. In addition, donors, policy makers, and programme planners need to acknowledge and embrace the real contribution of family planning for eMTCT, and support to its expansion.

There is need to identify the opinion of health workers on eMTCT uptake and the challenges they face in following up mothers who are enrolled into eMTCT services

2.7.4 Increased ANC attendance

Improving access to antenatal care (ANC) services is vital for moving towards virtual eMTCT. Access to antenatal clinics as an entry to the health system can be improved through investigating ways of providing services at more local health facilities (health centre level II or within communities themselves on and outreach basis). There is need to improve systems and processes so that women require fewer visits to health facilities, to reduce the barriers which stop women and family.

The overall Antenatal attendance by WHO guidelines, the Ministry of Health (MOH) recommends that a woman have at least four ANC visits, the first of which should be made in the first trimester. This is important because it is possible that during these visits health problems associated with a pregnancy are identified. Regular antenatal care is helpful in identifying and preventing adverse pregnancy outcomes when it is sought early in the pregnancy and is continued through delivery and therefore more frequent visits are advised, and admission to a health facility may be necessary (UDHS 2011). The fourth Antenatal visits stands at only 46 percent among rural mothers and 57 percent among urban mothers, while 1st visits stands at 96

percent (UDHS 2011). Despite some improvement in ANC attendance there is a gap which calls for a study to identify barriers to access eMTCT services especially during fourth visits in HIV positive pregnant mothers as there is no documentation available.

International experience in Rwanda, Botswana and elsewhere suggests that the effective involvement of male partners and fathers is crucial for effective eMTCT. Some examples on what it takes to increase male involvement and developing family centered approaches to eMTCT include: developing community outreach and communication programmes which target families not just mothers; encouraging male peers to act as champions for change among other men and investigating ways of increasing male attendance at health facility.

2.7.5 Increased service uptake

According to Mbonye *et al*. (2010) the participation of men not only improves mother's attendance in PMTCT but also enhanced utilization of facility delivery. A research conducted in Botswana showed that media campaigns improved male participation in prevention of HIV programmes from 4%-11%, (Peltzer, *et al*. 2011). While a study in Zambia used financial incentives for any couple that attended HIV counseling together which increased male involvement in PMTCT, and in Tanzania, since men became involved, the uptake of Nevirapine increased (in mothers 55 vs 24% .p=0.07 and infant 55 vs 22%. P=0.06) (Pletzer et al 2011).

In a similar research documented in Ethiopia, only 95 male partners out of 473 accompanied their partners to ANC/PMTCT even though out of these 82% got tested and counseled for HIV (Haile, *et al.* 2014). Male participation will provide support for the woman (Ramirez-Ferrero, *et al.*, 2012) and therefore, enhance the uptake and utilization of PMTCT. A report from a project in Uganda showed that male VCT and PMTCT uptake increased after special invitations were

sent to male partners (King *et al*. (2008). This shows that if male partners are involved the goals of PMTCT programmes can be achieved

2.7.6 Increased HIV Counseling and Testing (HCT) uptake

Mother-to-child transmission (MTCT) of HIV remains a major public health problem and continues to account for a substantial proportion of new HIV infections among young children (WHO 2010). The delivery of HIV counseling and testing (HCT) services toward pregnant women for prevention of mother-to-child transmission (PMTCT) is one of the most important HIV prevention strategies (WHO 2010). During the past decade, significant progress has been made in scaling-up PMTCT services to pregnant women, particularly in resource constrained countries (WHO, USAIDS and UNICEF 2010). The risk of MTCT of HIV can be reversed through the detection of maternal infection during pregnancy and administration of antiretroviral (ARV) prophylaxis (WHO 2006).

2.7.7 Mothers and babies enrolled on ART and being followed up

For adequate eMTCT of HIV service to succeed, both the mother and her baby must be followed up for a period of up to 18 months until the baby is confirmed HIV negative. The services offered included; breastfeeding assessment, treatment, serial testing of the baby done at 6 weeks, 6 months and confirmatory test done at 18 months, while the mother's general health, treatment, and CD4 cell count are also done. In addition, these mothers are counseled and educated on the benefits of eMTCT as well as prevention and transmission of HIV to their babies. A research done in Rakai District revealed that out of 1,182 HIV infected pregnant women identified over 8 months (between September 2011 to May 2012), 1105 HIV infected women were followed up, 371 HIV positive deliveries, and in the postnatal period only 385 HIV-exposed infants took

nevirapine, while HIV-exposed infants with DNR PCR result were 182, reflecting failed retention in the system (Barigye, 2012).

Lesions from 6 districts of Uganda, consultation process indicate that reasons for loss to follow-up included: poor quality of counseling; this lead to low demand for follow up visits by the mother and baby; disclosure; women who had not disclosed their HIV-infection status were reported to find it difficult to come back to continue with PMTCT services after giving birth; geographical barriers; women living in difficult terrains such as the hilly Kabale or Kasese were challenged to come for post-partum PMTCT interventions; stigma-women were unwilling to access services for fear of being stigmatized. Innovative retention strategies included priority treatment given to women infected with HIV (Barigye H, 2012).

A study conducted in northern Ethiopia found that mothers delivering at a health facility and births attended by skilled attendants were more likely to receive PMTCT services compared to those delivering at home (Lerebo, 2014). Another study conducted in southwest Ethiopia revealed that 55% of the 426 HIV exposed infant-mother pairs did not receive any ARV prophylaxis by the mother during ANC, and mothers without ANC follow-up were five times more likely to have an infant with HIV sero positivity than those who had ANC visits (Derebe 2014). The studies suggest that even HIV-positive pregnant women are identified through the ANC; many are being lost from follow up.

2.7.8 Availability of skilled health workers and staff motivation

Positive staff attitude can have a big impact on patients, making worker motivation a key component in delivering eMTCT, (Youngleson *et al* 2010). From levels of socio-economic development theory, it is known that individuals only choose to work if the overall financial and non-financial benefits of their labour outweigh the associated opportunity costs (Jaffee David

1998). This means that interventions for human resource for health (HRH) should consider the financial and non-financial motivation needs.

Youngleson *et al*, (2010), defined professional motivation as an individual's willingness to work towards the goals of an organization. In-order for health workers to be effective, they must be motivated and willing to implement the reforms proposed by health policy makers. HRH and support systems can increase motivation by improving working conditions and involving staff in management decisions.

Furthermore, without adequate enumeration, health-care workers are not unlikely to perform their tasks effectively, nor are they likely to commit to their jobs in the long term, regardless of their responsibilities and initial level of commitment, Youngleson *et al*, (2010). In addition, creating explicit financial incentives, by increasing salaries, or providing bonuses to those working in underserved communities or rural regions is of great benefit (Youngleson *et al*, 2010). Other important factors include professional fulfillment and opportunities for career advancement. Non-financial incentives may include compensation payments that improve living conditions, such as free housing, transportation or electricity, professional support and supervision, streamlined management, opportunities for continuing education and training, relocations, or promotions. However, it is important to note that non-financial incentives weigh as much as the financial ones and both need to be linked together, (Youngleson *et al*, 2010).

2.8 Factors affecting actual willingness of ANC mothers to uptake of eMTCT services

2.8.1 Demographic characteristics

2.8.1.1 Introduction

Although, there is little evidence to claim that age, marital status, education, and employment level contribute to adequate eMTCT of HIV, the researcher prefers to consider it as an important

variable to be assessed. Socio-demographic characteristics, type of marriage also influences uptake of eMTCT of HIV services. For instance, women in polygamous marriages may be reluctant to acquire adequate eMTCT services because none would want to be named as the source of infection in the family on implementing what is required in eMTCT (WHO 2010).

2.8.1.2 Age and Marital status

Age and marital status of the mothers may contribute to adequate or low uptake of eMTCT of HIV services in that; a young mother who is not married or has dropped out of school due to pregnancy related, will not be enrolled for the services if she has no spouse/family support. In addition women in polygamous marriages may as well be reluctant to acquire effective eMTCT services because none would want to be named as the source of infection in the family (WHO 2010). In the northern part of Nigeria early marriage and polygamy thrive and is supported by cultural and religious practices. The early marriage has its toll on the educational status of the girls that were given away in marriage at tender age (Nwakaego Ernestina 2014).

Similarly, age is considered to play a major role in HIV counseling and testing services. A study done among women in Sudan showed that older than 26 years had higher acceptance of VCT (Mahmoud *et al* 2010). Other studies have found that older age was actually associated with test refusal as they fear to be identified as the cause of HIV in the family (Dahl *et al* 2008).

2.8.1.3 Education level

Education level is a factor that is associated with having a positive attitude and willingness to take an HIV test. Pregnant women in the lowest wealth quintiles who reside in rural areas and have the lowest education levels are more likely to lack access to services than the other women with better education in resourceful countries (UNAIDS 2014). Whereas some studies have shown that a lower education is associated with higher likelihood to request for HIV testing, a

study by Bajunirwe (2015) also showed that those having at least a post primary education are more likely to choose to test compared to those with lower education. A study done by Dinh, (2015) in South Florida among Hispanic farm workers revealed that participants with at least 12 years of education were four times more likely to test compared to those without same education. Knowledge of pregnant women on PMTCT is high among the educated (69.2%) than none educated (47.1%). Education attainment can give individuals the opportunity to participate in development issues that can further expose and keep them informed on different issues (Katushabe 2007).

A study by Fjeld Falnes (2010) showed that of all the 426 mothers interviewed in Tanzania, 94.6% of them had knowledge about HIV from antenatal clinic, while 65.5% received infant feeding counsel. 98% accepted to test for HIV.

2.8.1.4 Employment status

Employment status as well may attribute to adequate eMTCT of HIV services in that, women who earn money for a living are able to afford the services and tend to make their own decision regarding their health, unlike women who are housewives or single and unemployed. This group of women has no rights on their own health, and the decisions regarding their own health are made by their husbands or care takers. This may in the end lead to failure in attending adequate service (Global Plan 2014). Pregnant women in rural areas with lowest income, and have the lowest education levels are more likely to lack access to services than other women. Secondly, pregnant adolescent women in resource-constrained communities are further disadvantaged by their youth and lack of experience. Efforts must be made to address HIV related needs, as well as bringing health services closer to the community, by decentralizing services to the lowest levels (Global Plan 2014).

2.8.2 Stigma and fear of disclosure

HIV-related stigma and discrimination are found in all societies and can lead to social isolation and even the support of partners, family and community. Fear of such prejudice can cause some women to refuse HIV testing, or to not return for their test results, and often their greatest worry is the reaction of their male partners. The lack of confidentiality among healthcare workers must be addressed in order to attain public confidence in the privacy of HIV testing (UNAIDS 2012). However, Owamazima (2011) also related the low ANC attendance because of stigma which has so far led to fear shown by HIV positive mothers as they tend to shy away from health workers.

Individual factors like fear for partner's reaction often forces women to continue living in the state of uncertainty since they assume that disclosure of positive results to their partners may result into battering or worse off divorce. Such fear strengthens one's desire not to know their sero status which in turn hinders them from accessing available services on eMTCT. (Kasenga *et al* 2010).

People's attitudes towards HIV are central to the success or failure of eMTCT. People living with HIV not only face difficulties related to treatment and management of the disease but also have to deal with AIDS related stigma and discrimination. A study carried out in Zambia showed a high level of stigma against HIV/AIDS patients. In addition, the community tends to shun persons who are known to be HIV infected or have symptoms of AIDs (UNAIDS 2010).

UNAIDS (2011) launched the goal of "eliminating new HIV infections among children by 2015 and keeping their mothers alive". This relies on overcoming many of the barriers that also make implementing EMTCT services a challenge; fear and stigma of testing, difficulty accessing healthcare services, a need for integrated services - particularly eMTCT and adult HIV treatment services. In addition to this, are difficulties expanding access to antiretroviral treatment to

universal levels, such as, lack of political commitment, lack of infrastructure and availability of funding (UNAIDS 2011).

An HIV positive pregnant woman who has not disclosed her diagnosis to her partner, family or friends is generally less likely to accept preventive drugs and to practice unconventional methods of infant feeding, for fear of revealing that she is infected (WHO, 2011). PMTCT programmes should therefore seek to make disclosure less difficult for their clients, for example by running support groups or anti-stigma campaigns. They might also try to identify and assist those who wish to avoid or defer disclosure (WHO, 2011).

According to a Rapid Results Initiative (RRI) approach carried out in five districts in Nyanza Province Kenya, it revealed that, ART uptake amongst all HIV-positive pregnant women increased by 40% and continued to improve while HAART uptake in HIV-positive infants remained stable at 30%. Significant improvement in PMTCT services can be achieved through introduction of an RRI, which appears to lead to sustained benefits for pregnant HIV-infected women and their infants (Dillabaugh 2012)

2.8.3 Unknown side effects of drugs

Although the community maybe a determining factor, there are many others which may hinder mothers to test; for example, their acceptability and willingness. Acceptability of HIV testing by pregnant women is the 'passport' or entry point for all HIV prevention interventions including PMTCT. Whilst Option B and B+ are more effective, and as a result of the one-pill approach easier to adhere to, some challenges remain surrounding these treatment options; for example research to monitor the safety of Efavirenz in early pregnancy, and the difficulty ensuring good adherence to treatment when placing women on treatment for life; many may not have any symptoms of HIV, and yet may experience treatment side-effects (WHO Treatment Guide 2013).

There is another assumption that women attending antenatal clinic (ANC) services and women in communities have fairly good knowledge about PMTCT of HIV; the same study stresses some of the reasons why ANC attendance is low which may on the other hand imply that they may not have adequate knowledge about PMTCT services (UNICEF, 2009). This is an obvious contradiction as observed by the study. It is a challenge that not all pregnant women attend ANC**.** This may not have anything to do with mothers' knowledge about PMTCT let alone the fact that they may not know their status even though they attend ANC. There has been a generalization that mothers who attend ANC seek PMTCT services, which may not be the case (UNICEF, 2009).

2.8.4 Poor Adherence to ARVs

Despite the biomedical potential to eliminate vertical HIV transmission, there are various factors influencing maternal and infant drug adherence to preventing MTCT drug regimens at delivery in sub-Saharan Africa. Factors most commonly associated with low adherence to antiretroviral therapy (ARV) prophylaxis for preventing MTCT at the health system level included; giving birth at home, quality and timing of HIV testing and Counseling, and late distribution of Nevirapine (NVP) to the babies. Socio-demographic and demand-side factors include; fear of stigma, lack of male involvement, fear of partner's reaction to disclosure, few antenatal (ANC) visits, young age and lack of education (WHO 2012). With the implementation of the newly published WHO guidelines recommending triple-drug ARV regimen during pregnancy and breastfeeding for all women with HIV, it is important that women are able to adhere to recommended drug regimens (WHO 2012).

Updating national guidelines to adopt the latest recommended treatment regimen, currently Option B+ involves purchasing more expensive drugs and adapting current PMTCT programmes

to distribute them including further staff training and increasing capacity. This is a major factor that deters low-income countries from distributing the most effective, available drug treatment regimens for EMTCT (WHO April 2012). However, it has been noticed that access to ARVs by HIV infected pregnant women and their new born babies' remains below 60%; this is far from the 80% universal access targets (Kivumbi 2011, UAC 2011)

2.8.5 Cultural beliefs

In some communities, women are not involved in decision - making and cannot therefore make decisions on their own, even when some decisions concern them as individuals. A study done in Kenya by Karia (2008), where women are marginalized and regarded as inferior even without HIV infection, lacking autonomy to make decisions on health issues and for those infected on HIV prevention. This is fuelled by male dominated cultures as also seen in Mbale region, Eastern part of Uganda were some of the cultures affecting PMTCT service utilization include like obtaining permission from the husband before accessing HIV testing (Katushabe 2007).

Furthermore, husband's permission is needed to attend antenatal clinic or deliver in the hospital during labour. This is made worse by the fact that the choice of replacement feeding by those who can afford it does not arise, because it is culturally not accepted since it is seen as a thing of pride to breastfeed, but with the advent of Option B and B+, this has been reduced as mothers can now breastfeed their babies under ART cover (Karia 2008).

Cultural beliefs constitute some of the more important factors influencing the acceptance and utilization of PMTCT services. It was discovered that in populations where breast feeding is the norm, like Uganda, it may account for 1/3 of all transmissions (UNAIDS, 2005).

In North-Central Nigeria, Pregnant women and women of childbearing age were reportedly preferred to deliver at home, mostly attended by a TBA or by another woman (perhaps a co-wife,

female neighbor). These practices are contributing to the increase in HIV-exposed babies as well as the infant morbidity/mortality rates. In addition, Factors that contribute to high vertical transmission of HIV included the social and cultural orientation, preference for TBA services, lower literacy level of the majority of adults (especially women), level of violence and attacks on government facilities and structures (insecurity), attitude of HCWs and inaccessibility of health care facilities (NACA 2014).

2.8.6 Socio-Economic factors

Socio- economic factors have an implication on barriers to effective eMTCT services. Majority of women especially in rural areas totally depend on their partners for financial support which constrains their ability to make informed decisions regarding their health. However, involvement of male partners in eMTCT services plays a significant role. On the contrary, long distances travelled by pregnant women to attend eMTCT services at specific locations coupled with no motivation for attendees could be one reason that deters majority from seeking adequate eMTCT services (WHO 2010).

The cost of PMTCT services is yet another inhibitive factor for the use of PMTCT services. However, other factors play a major role for example willingness of women to come forward to use the available services, then the challenge of taking the HIV test could also hinder them. Not only that, the pregnant mothers may as well fail to attend Antenatal care where eMTCT of HIV services are offered due to distance to facilities and frequency of visits required particularly in rural areas. In addition, perceived or real costs of maternity services and treatment are as well of great concern (Laher *et al,* 2012).

Similarly attitudes people perceive towards HIV/AIDS, the associated stigma, and the unknown side effects of the drugs possess a serious implication on effective eMTCT of HIV services. This

inter-play of factors ultimately plays a major role on factors affecting adequate eMTCT of HIV services and these has a serious implication on increasing numbers of HIV positive children (Kuonza *et al*, 2010).

For women living with HIV can be made safer by providing antiretroviral medicines throughout the nursing period by using option B+. However monitoring of antiviral coverage for mother during breastfeeding remains weak or non-existent in some countries, as well as follow-up of children exposed to HIV through the full breastfeeding period appears to be expensive and not feasible especially in resource constraint countries like Uganda (UNAIDS 2014). Similarly, Replacement feeding is not feasible and safe unless mothers have access to a reliable supply of safe water and fuel as well as the ingredients for the food itself, and even then it can be time consuming and expensive (WHO Breastfeeding Guideline 2013).

Furthermore, because HIV can be transmitted through breast milk, a mother's method of infant feeding has a strong influence on the likelihood that her baby will become infected. The only certain way to avoid transmission is to abstain from breastfeeding and provide replacement foods instead but this is not possible for a woman living in an area with unsafe water or inconsistent formula milk. In this situation, women should be recommended to exclusively breastfeed alongside taking an extended drug regimen (WHO PMTCT Guide line 2013).

2.8.7 Male involvement and Family support

Male involvement is critical not only as a means to good pregnancy care, but also as a way to improve reproductive and sexual health. Few men usually accompany their wives on visits to antenatal clinics for fear of being ridiculed by peers. However, it has been shown that when male partners are involved, both partners can get tested for HIV, know their status, and therefore improve the baby's chances of a healthy survival (Irin/Plus News Aug. 2009). Similarly,

Kagisulo who was once the Luwero District HIV focal person noted that although Uganda has made many interventions including designing the PMTCT policy by the Ministry of Health, only about 10% of the men accompany their wives for antenatal care (Owamazima, 2011).

A study conducted in Eastern Uganda to determine male involvement in PMTCT programme found that only 1 in 4 male partners were involved in the PMTCT programme. Though this appear to be low, but higher than what was reported from a study done in Mulago Hospital in Kampala, which showed male participation in the PMTCT activities as low as 16 percent. A similar study done in Nairobi antenatal clinic revealed male participation was low as only 15 percent (Byamugisha *et al*, 2010).

A related study done in Mbale Uganda, showed Cultural factors hindering male involvement in PMTCT programme as ANC and postnatal care services were perceived as women's affair, and therefore, as a convention in many African cultures for men not to accompany their partners to attend ANC and postnatal care services (Byamugisha *et al* 2010). King *et al,* (2008) identified the methods adopted by TASO Jinja in Uganda which helped to alleviate barriers associated to fear of disclosure to partners by sending special invitations to male partners, which increased VCT and uptake of PMTCT. While Peltzer, *et al,* (2011) stated that media campaigns can improve male participation in prevention of HIV programmes as shown in Botswana as well as financial incentives for any couple that attends HIV counseling.

In addition, HIV positive women face a lot of difficulties in accessing on-going care if they have not disclosed their status with their partner and received psycho-social support. The lack of male involvement in sexual and reproductive health services (SRH) is a known constraint and should be of no surprise, since comprehensive EMTCT programmes primarily targets women in reproductive age groups (WHO, 2010).

HIV status disclosure is known to relieve women from emotional stress and to enable them to receive psychological and material support from their social environment. In rural settings, disclosure can facilitate issues like obtaining approval from the husband as the main decision maker to seek healthcare. Transportation to the hospital or access to cash for transport costs is often controlled by the male/husband and has been reported as a particular factor preventing women from accessing eMTCT (Falnes, 2011 and Alusio, 2011). Across various studies, partner participation is associated with positive outcome. Similarly a study in Tanzania found that on the contrary, men are not resistant to their partners being tested, but rather they are often supportive (Falnes, 2011). However, very few men participate in ANC and testing and many remain unaware of their status as well as disapprove of their wife going for HIV Counseling and testing (Falnes, 2011 and Alusio, 2011).

Furthermore, it is not socially considered acceptable or effective for the woman to ask her partner to be tested and commonly reported that someone else ask (Aluisio, 2011) . The mother in-law or sister-in-law is another key family member for eMTCT more so in rural settings. On the other hand, ANC tends to be seen as a female arena and men want to be seen by few people as possible (Aluisio, 2011). In one of the studies done, routine testing for HIV of women at the ANC clinic was highly acceptable and appreciated by men, while other programme components, notably partner testing, condom use, infant feeding and survival recommendations were met with continued resistance (Falnes, 2011 and Aluisio, 2011).

The benefits of family centered care in line with the WHO PMTCT Strategic Vision (WHO, 2010), which asserts that priority will be given to strengthening linkages between PMTCT and HIV care and treatment services for women, their children and other family members in order to support an effective continuum of care. Family centered care has the potential to facilitate the

prevention of primary infection to prevent unwanted pregnancies, to ameliorate and protects the health status of the mother and child, and to enrich the capacity and functioning of an HIV affected household. Empowering men to participate by creating space within PMTCT programme that is male-friendly should be feasible and highly prioritized for a PMTCT programme to achieve its potential (Falnes, 2011).

In 2012, half of the partners tested for HIV, a remarkable improvement over the 28% recorded in 2009. However, there is still much work to be done to engage men in ANC and PMTCT activities (NUMAT 2012).

In North-Central Nigeria, husbands and partners are a higher priority audience due to strong cultural, religious and patriarchal structures and the economic reliance of wives/partners on husbands/partners. Use of ANC/PMTCT services is dependent on the willingness of husbands/partners to provide financial support for transportation or for incidental costs associated with clinic visits. Often, many husbands do not give permission or approve for their wives to visit health care facilities (NACA 2014).

2.8.8 Barriers to male involvement

In an attempt to find answers to the problems with partner disclosure of positive HIV result, King et al.(2008); Madiba *et al*, (2013) and Medley *et al*, (2004) conducted in-depth interviews and focus group discussions (FGDs) with pregnant women who tested HIV positive from ANC and with their male partners. The outcome of the interviews with the women revealed fear of their husbands‟ reaction and insecurity how to tell them about the results. Men mentioned fear as one of the barriers that prevented them from participating in ANC/PMTCT. They feared the reactions of their wives to the positive result and were also afraid of stigmatization which is also found by Turan, *et al,* (2013).

Ezeanolue, *et al*, (2013) found that most of the women interviewed for their study, said they would be more comfortable to share their HIV positive result with their husbands if they were tested together on the same day. Gender-based stigma has been identified as a barrier to reproductive health services for women in the literature as decision making and the generation of funds for treatment of women is still left to men. Increased involvement of men in reproductive care may lead to better utilization of health care by women or even increased decision-making power for women regarding their own health.

2.8.9 Attitudes of health providers towards eMTCT

The attitudes of service provider was seen as a barrier for pregnant mothers to attend ANC services in various health units in Uganda as noted by Byamugisha *et al*, (2010) who documented in a cross sectional survey in Uganda, the rudeness and hostility sometimes experienced by men from the health providers. Men described the overly aggressive nature of physical examinations of their wives. In many instances, the men were not allowed to enter the ANC clinics with their wives even if they wanted to. This finding was confirmed by Ditekemena, *et al* (2012) who noted the harsh treatment meted out to the men "discouraged them from returning or participating in PMTCT activities".

2.8.10 Health systems factor

2.8.10.1 Quality of Health services

Dropout from and delays in progression along the maternal ART cascade were also driven by problems in delivering HIV services in the context of ANC programs, including poor access to and quality of HIV testing, lack of quick CD4 testing, and lengthy, rigid or complicated treatment protocols that made caring for sick or late presenting women more difficult.

Furthermore, the way eMTCT services are programmed in terms of location, timing, staffing also influences factors affecting uptake. A distant location, longer waiting time, over worked and non-receptive staff could be a de-motivating factor to acquiring adequate eMTCT of HIV services (WHO 2010).

2.8.10.2 Availability/Accessibility to eMTCT/PMTCT Services

Pregnant women in low- and middle-income countries are often unable to easily access antenatal and PMTCT services. Besides caring for their children they are expected to work hard preparing food, fetching water or tending crops. Many live a long way from their nearest health facility and have little access to transport. Between 2005 and 2011 nearly a third of pregnant women, in South-East Asia Region, Eastern Mediterranean Region and African Region, did not attend an antenatal clinic (WHO Guide line 2013). Women who do visit an antenatal clinic often only do so once during their pregnancy. This greatly reduces the number of women that can be reached by PMTCT programmes (WHO Guide line 2013).

The WHO Guideline (2013) further noted that, many women visit clinics only once during pregnancy, and nearly two-thirds give birth unattended by a skilled health worker. This greatly reduces the number that can be reached by PMTCT programmes. The problem is compounded if women have to make follow-up visits to receive counseling, drugs or other services.

Larsson *et al* (2012) examined the willingness of women in rural Uganda to receive HIV testing and found that for women of all income levels, those who lived further than three kilometers from an HIV testing site were less likely to be tested. Long waiting times were identified as another major reason for refusing the test (Peltzer, 2010).

In 2013, there was high level advocacy by Uganda's First Lady and other political leaders; religious and cultural leaders, and by persons living with HIV to promote eMTCT. The overall

eMTCT service coverage by March 2013 was 2,138 health facilities (129 hospitals, 187 HC IV, 1,034 HC III and 733 HC II); 48 percent of all health facilities in the country. Most of these health centers are rural based community facilities that even those on a low income can access freely (HIV/AIDS Uganda Country Progress Report 2014)

The services accessed by pregnant women during their pregnancy are often situated across a number of locations. These can include: Maternal, neonatal, child healthcare facilities, labour and delivery, ART centres and laboratory diagnostic services; all services play a role in the prevention of mother-to-child transmission and the health of mothers. Coordinating and integrating these services can improve uptake and make the functioning of health clinics more efficient (UNICEF 2008).

In Uganda, the capacity of health systems delivering, coordination, and integration of PMTCT services varies significantly across the districts. The insufficiency in the health services is further amplified in newly created districts, with a substantial number of districts lacking infrastructure, staff shortages and senior level positions often filled by under-qualified individuals (MoH Uganda, 2010). Access to eMTCT services remains a challenge with only 32% of pregnant women attending four or more antenatal care visits recommended by UNICEF (WHO 2010). A study done in South Africa defines individual factors undermining access which encompass psychosocial concerns, such as fear of a positive test results or a partner's reaction and stigma (Sprague, 2011).

Access to ANC is affected by; transport and cost; language barriers; knowledge; stigma; mental health or depression. In addition, proximity to health centre was also a major determinant of access and difficult for those in the rural areas where only 26% of the population lives within 5km of the nearest centre (Tshabalala, 2012). Inadequate PMTCT services at health centre II

comprises the scale up of PMTCT services, and this worsens in places like Kasese district in Uganda, with a hilly mountainous difficult terrains where pregnant women face a challenge of moving to distant health facilities for PMTCT services (Babigye 2012).

A research done in Kigulu South, Iganga District on members living with HIV, who shared experiences about their enrolment in previous PMTCT programmes (Option A and Option B) and welcomed the new guidelines under Option B+. Under previous programmes some of them still gave birth to HIV positive children and/or did not receive adequate information about PMTCT which resulted in poor adherence to treatment. At the same time they noted that the Options A and B only sought to prevent the child from being infected but now Option B+ will cater for the good health of the mother as well (Esiru, 2012).

However, a study done in Malawi showed that challenges on EMTCT are still enormous and complex but adherence still remained a big challenge because some mothers find it difficult to disclose their HIV sero status to their spouses and yet there is need for partner support to effectively promote Option B+. Low and middle income country (LMIC) programmes, including Uganda, are still catching up in adopting the most effective EMTCT regimes (Esiru 2013, MoH Malawi 2012).

For example, half of HIV positive pregnant women are not on ARVs and more than 1000 infants globally are infected with HIV each day (UNAIDS 2011, Simonds 2012). To increase attendance, clinics should aim to be as accessible as possible. Improvements might include providing travel services or changing opening hours (WHO Guidelines 2013). Women who are HIV-positive should be encouraged to give birth at a clinic, as this reduces the risk of maternal mortality and MTCT. However, this is often not possible due to the distance between home and clinic. In some clinics, waiting mother's shelters provide accommodation for women nearing the

end of their pregnancy to ensure they deliver within a healthcare setting (WHO Guidelines 2013).

Although 94% of pregnant women in Uganda attend ANC at least once during pregnancy, 42% are actually delivered at health facilities and only 26% attend postnatal clinics. This limits access to eMTCT services (Mbonye *et al*, 2010). Deliveries conducted in health facilities are low at 39% and only 32% pregnant women made four antenatal care visits (MoH, 2011).

2.8.10.3 Staffing levels

Staff shortages in low and middle income countries (LMIC) settings are a major obstacle to the scale-up of HIV care and treatment services including eMTCT. Moreover, this shortage of trained health care providers in LMIC has been known as an obstacle for development indicators for decades. One possible reason is that people completing health-related training has not kept up with the increasing needs (Butera 2010). Other reasons include Government fiscal policies and others are related to motivation.

Low levels of HRH resourcing are also associated with; long waiting times; poor counseling; poor interaction with patients; lack of availability of services; delay in commencing treatment; sometimes until after birth; poor quality devices and many errors; and late opening and closure of some health facility (Barigy 2012, and Toure 2010).

Staff shortages in LMIC settings are a major obstacle to the scale-up of HIV care and treatment services including EMTCT. Moreover, this shortage of trained health care providers in LMICs has been known as an obstacle for development indicators for decades (Butera, 2010). One possible reason for this stalemate is that the number of people completing health-related training has not kept up with the increasing need. For decades now LMIC Governments and EMTCT

stakeholders have known that the added workload brought on by AIDS has increased the strain on an already fragile system and over-stretched health-workers (Butera, 2010).

Assessment Reports by UNFPA state that there was an estimated deficit of close to 2000 (36%) midwives in Government health facilities countrywide (Waninda, 2012). The shortage is coupled with absenteeism and late reporting to duty of the existing HRH. The situation worsens in rural and remote places like Karamoja where up to 91% of positions for midwives at health centre IIs, and 70% of posts at HC III are not filled (Waninda, 2012). The extensive association in the management of HIV infected women at the various stages of pregnancy, from labour and delivery to breast feeding posed a big concern. For each woman, the midwife requires skills, time and resources to provide adequate counseling, HIV testing, ARV therapy prophylaxis; Dry Blood Spot (DBS) collection and transportation etc. missing a step at any of these stages would compromise the quality of services (Barigye, 2012). One of the midwives also noted the workload being too much and the environment being so stressful as a result of the few numbers of qualified staff available compared to the large numbers of clients being attended to at the health facility (Nabiruma, March 2012).

2.8.10.4 Drug Stock outs

A number of studies also reported supply shortages and supply chain problems that affected maternal ART outcomes. Drug stock-outs or the absence of sufficient numbers of HIV testing kits led to drop-out at several points along the maternal ART cascade. Literature has also demonstrated that a single system or individual level delay reduces the likelihood of women accessing EMTCT interventions (Sprague, 2011).

In South Africa, a significant proportion of HIV-positive pregnant or postnatal women interviewed failed to receive an HIV test during their first visit, mainly due to shortages in staff

and supplies. All counseling and testing is provided by a single nurse who also had other duties. If the nurse is not available, the services are not available. This generally means that there is no HIV testing for women who attend in the afternoon, weekend or on public holidays. This problem is compounded by the high vacancy and turnover amongst staff (Sprague, 2011).

While in Zambia, 20% of patients tested did not return for their results which led to the development of same day reporting. In addition, stock outs of HIV testing kits resulted in the interruption of service provision. Addition training for health care workers was developed to facilitate better stock management (Torpey *et. al*, GHI Zambia 2010).

However, Lessons from the 2011 policy analysis for Uganda pharmaceutical supply system identified several issues that need further scrutiny to ensure best solutions and efficiency in supply chain systems which included Push/Pull distribution, that requires the best balance of central "pushing" of medical supplies and local "pulling" of supplies (MoH and SURE, 2011).

The report by MoH on logistics improvement was that for any supply chain system to work efficiently, a strong link must exist between forecasting, quantification, procurement, warehousing, inventory management, and the logistics management information system. The system should be as lean as possible and with effective coordination (MoH and SURE 2011).

2.8.10.5 Limited time/waiting hours

Long waiting times represented a particularly important barrier for HIV-infected pregnant women for three reasons. First, some studies reported that pregnant women were more likely to feel that their pregnancy made them less able to wait for long periods of time. Second, by contrast, many women, along with their families and healthcare workers, perceived pregnancy to be a time of health rather than illness, making long waiting times seem all the more unnecessary. Finally, given the widespread association between pregnancy and health, some women feared

that spending a long time at the clinic would raise questions among family and community members about whether they were seeking HIV care, (Colvin Christopher *et al*, 2014).

2.9 The gap

There was still a gap to identify views of ANC mothers on willingness to uptake of eMTCT services in Uganda especially in the rural and disadvantaged settings as a result of war like Gulu District. Not all HIV infected pregnant women access adequate services during pregnancy, delivery or postnatal care. Despite services being offered in various health units, of the 4,441 health centers in Uganda, only 1,596 were offering eMTCT services by June 2011 according to official figures from the Ministry of Health (2012). This showed that there were still low uptake of eMTCT services, not even half of the health centers are able to provide the services. In addition, of the 1,596 health centers, the services offered are not holistic in that, there were drug stock outs, reduced number of qualified staff to offer comprehensive services, and lack of standard technologies to handle HIV positive mothers and their babies during prenatal, Perinatal and postnatal care (KMCC 2012).

However, without treatment, it was estimated that half of the HIV infected children will die before their second birthday contributing to high infant and childhood mortality rates. Therefore, it was important to note that adherence and access to comprehensive HIV services reduces the risk of transmission to below 5% in communities that practice breastfeeding, and to 2% in the communities that do not practice breastfeeding (WHO, 2010).

This therefore called for a research which was done in order to identify the views of ANC mothers on willingness to uptake eMTCT services as well as factors affecting willingness of eMTCT of HIV services in GRRH Gulu district, and made necessary recommendations to the rightful authorities.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

The study was conducted in Gulu Regional Referral Hospital (GRRH) located in Gulu district Northern Uganda. This chapter therefore describes how the research was conducted. It gives the details of the target and study population, study design, sampling techniques, selection criteria, study variables, data collection, management and analysis, control measures that was taken to ensure study reliability and validity, study dissemination and ethical consideration that was undertaken.

3.2 Study design

This was a cross sectional study which employed mixed methods approach, the reasons being; it is relatively cheap, with little time to conduct, being a snapshot can assess many outcomes and risk factors as well as estimate prevalence and no loss to follow-up. The study was majorly a quantitative study with a minor qualitative data that was used to provide a more complete understanding of a research problem than either quantitative or qualitative data alone. The researcher used explanatory concurrent mixed method design by Creswell and Plano Clark (2011), whereby quantitative design method was used to employ a broad survey in-order to generalize the results to a population then built on the results to explain them in more detailed with qualitative research to collect some detailed views from the participants to help explain the initial quantitative survey.

3.3 Study population

The study population involved all pregnant mothers who attended ANC services in GRRH. The sampling frame included all mothers who came for ANC services in GRRH during the period of

data collection from the 4th July to 8th July 2016. They included ANC mothers who tested HIV positive and were enrolled for eMTCT, those who tested HIV positive but were not on eMTCT and mothers who tested HIV negative, including those who were HIV naive. The researcher came up with an estimated total number of 814 ANC mothers after getting the average of mothers who attended ANC in the last 12months (2015), with the highest number being 968 noted in August 2015 and the lowest being 578 noted in July 2015. The researcher made a total of all the numbers of ANC mothers for the 12 months (January 2015 to Dec 2015), which was 814 and divided it by 12 to get the average number as a representative from where the number of the respondents were calculated as noted below

3.4 Sample size determination

The determination of sample size in its respect was calculated using Kish formula (1965)

$$\mathbf{n = \frac{z^2 \times p \times q}{d^2}}$$

Where;

z Is the z-score for the 95% level of confidence, which is 1.96

p Is 0.5 because the researcher does not know the prevalence of favorable views about eMTCT among mothers attending ANC services in Gulu RR hospital.

q=1-p

q=1-0.5 = 0.5

d Is the precision of the estimate expected which is 0.05

n is the estimated sample size

$$\mathbf{n = \frac{1.96^2 \text{ X } 0.5\ (1\text{-}0.5) \text{x} 814}{1.96^2 \text{x}\ (1\text{-}0.5)\ \text{x} 814 \text{x} 0.052}}$$

$$n = \frac{3.8416 \times 0.5^2 \times 814}{3.8416 \times 0.5 \times 814 \times 0.0025}$$

$$n = 207$$

But the researcher expects 10% of the respondents not to respond and therefore the sample size will be 227 respondents.

The determination of sample size in its respect was purposive and consecutive until the researcher was able to generate a total of 227 pregnant mothers attending ANC services in GRRH. The researcher targeted the respondents at the beginning and during the season as they were waiting to be registered for ANC or examined. The researcher used purposive sampling method in order to interview all willing mothers (both HIV positive and HIV negative) attending ANC services to obtain their views on eMTCT services. The researcher estimated an average of about 50 mothers attended ANC services on a daily basis, and targeted a sample size of 227 mothers who were interviewed in a period of 5 working days, (Monday to Friday with exception of weekend). This estimated numbers considered all pregnant mothers attending ANC that was both new ANC attendants and those being followed up on appointment dates, and also considered non respondents.

3.5 Sampling technique, procedure and sample selection

The researcher carried out a cross sectional study and interviewed all pregnant mothers attending ANC services in GRRH. Purposive selection of the respondents was done during ANC services until 227 respondents attending ANC services in GRRH was generated. Any mother who attended ANC and was willing to consent for the study was interviewed using face to face interview with the help of the research assistants. All mothers who come in for ANC were purposively selected using Basic mixed method sampling in particular, purposive random

sampling by Patton (2002), and interviewed immediately so as not to interfere with the routine ANC services.

3.6 Inclusion criteria

All pregnant mothers who attended ANC services and accepted to participate in the study were included in the study. This was done by purposively interviewing all ANC mothers who attended ANC services during the period of data collection irrespective of their HIV status and were willing to participate in the research.

3.7 Exclusion criteria

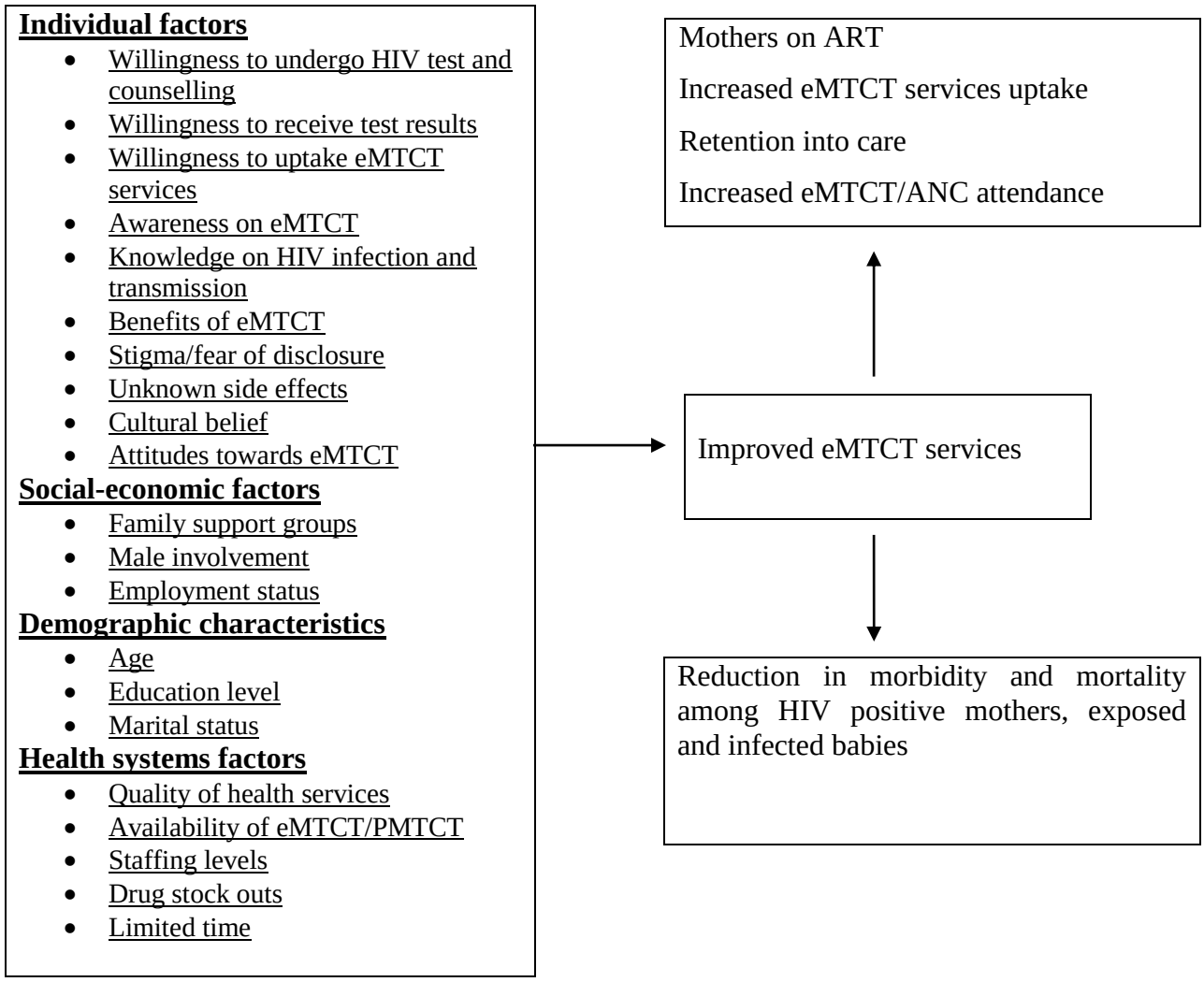
The sampling frame excluded any eligible ANC mother who had not consented for the study, those who were sick with other medical conditions that required immediate attention, and all facility based health workers who were providing services.

3.8 Study Variables

The researcher found out the different views of the mothers attending ANC about willingness to uptake eMTCT services, as well as factors affecting willingness to uptake eMTCT services, and reasons why some of the pregnant mothers who tested HIV positive were not enrolled for eMTCT services.

3.8.1 Independent variables

3.8.2 Dependent variables



3.9 Data collection and tools that was used

3.9.1 Data collection procedure

The researcher presented an introductory letter from the supervisor Uganda Martyrs University to the Director Gulu Regional Referral Hospital who gave a clearance and through the research committee the researcher obtained permission 3 days before commencement of data collection. The researcher contacted the Sister in charge of ANC about the intentions for carrying out the

research and handed over a copy of the permission letter from the research committee. This was important because it was through the sister in charge that the researcher and her team got access and were introduced to the respondents. The respondents were therefore willing to participate freely during data collection and as result; the researcher was able to obtain enough sample size within five working days.

Four research assistants were hired and trained in data collection. The research assistants paired up and then using the already structured question tool-guide, a pretest was done from Awich Health centre III by the researcher who asked the respondent questions and noted down the responds according to the answers given. Critiquing was done after the first trial and with subsequent trials the research assistants became familiar with the questions in the tools. This further improved their skills in collecting the intended information, and corrections were made on the data collection tool.

Data collection was done by the researcher following the approval of the research proposal, which took place between 1st July to 8th July 2016 with exception of weekends and public holiday. Two hundred and twenty seven structured questionnaires were used in the collection of both quantitative and a few qualitative data from ANC mothers. Upon arrival, the researcher introduced herself together with the research assistants, and the intentions for data collection. The questionnaires were in both English and Luo, and were self-administered to the participants which were clearly read to them to ensure that the respondents clearly understood the contents. The responses were recorded in the same way the responds answered without changing the meaning of the words or sentences.

The qualitative questions were made clear and easy for the participants to understand, and their answers written down exactly the way it was given without changing the meaning.

3.9.2 Tools for data collection

Standardized structured questionnaires were used in the collection of majorly quantitative with a bit of qualitative data. The questionnaires comprised of both closed and open ended questions which sought information on willingness of ANC mothers to uptake eMTCT services as well as factors affecting willingness of ANC mothers to uptake eMTCT services in GRRH.

The questionnaire was formulated in English and interpreted in Luo, first by the researcher and secondly by another Luo speaker who was fluent in both English and Luo language, then, back translation was done by an expert in Luo translation to ensure competence and correctness of the questionnaire in-order not to change the meaning of the words. Pre-testing was done on 05 pregnant mothers attending antenatal clinic at Awich health centre III, Aswa division Gulu district. This helped in identifying weakness and adjustment on the questionnaire was made prior to undertaking the actual study. A probe in form of structured question guide was used to obtain detailed information on the qualitative part of the data to get a clear understanding of the information given.

3.10Reliability and Validity of the Study tools

Reliability is the aspect that is concerned with the consistency of measures, while validity deals with what the researcher's tools intend to measure in the study (Neuman 2000). Though according to Neuman (2000) achieving perfect reliability and validity is virtually impossible; the researcher therefore aimed at increasing study reliability through piloting of the research instruments to ensure clarity, and increased validity; furthermore designed data collection tools in a manner that was able to capture the main constructs in the general and specific objectives, as well as carried out a spot check on all the questionnaires following completion.

3.11Data management and analysis

Qualitative and quantitative data were managed and analyzed separately. For quantitative data, the researcher immediately did a spot check upon completion to ensure there are no data collection errors and omitted questions.

3.11.1 Qualitative data analysis

Analysis of qualitative data was through narrative and by making direct quotations on some of the information given by the respondents without changing the meaning. The researcher looked for trends and patterns that occurred during the interview, and grouped the data into themes, and then coded the themes basing on research objectives.

3.11.2 Quantitative data analysis

Data was cleaned, coded, entered and analyzed using Statistical Package for Social Scientists (SPSS) version. Choice for this statistical package was due to the fact that data comprised of both quantitative and qualitative data, and SPSS provided the capability of analyzing such kind of data. Analysis was made basing on participant's demographic characteristics, willingness to uptake eMTCT services, factors affecting willingness of eMTCT services, actual uptake of eMTCT services, and factors affecting actual uptake of eMTCT services in GRRH. Findings were presented in frequency summary tables, figures, and, narrative format.

The nominal variables included independent variables like factors affecting willingness to uptake eMTCT services and factors affecting actual uptake of eMTCT, which included; individual factors, socio-economic factors, demographic factors, and health system factors.

3.12 Plan for dissemination of results

In order to share the information from the study, results will be presented to the school of post graduate as part of academic requirement, in form of a report. A report copy will as well be

delivered to the office of the Director GRRH for effective planning on the scaling up for implementation of elimination of Mother To Child Transmission of HIV/AIDS, as well as to plan on how to improve on the eMTCT services. The report will as well be accessible to all the stakeholders who are concerned with the care and eMTCT services both nationally and internationally.

3.13Ethical consideration

Following the approval of the proposal, an introductory letter from the University was obtained from the supervisor and presented to the Director of GRRH, who then directed the researcher to the chairperson of research committee and permission was obtained to conduct the study.

Ethical principles governing research were adhered to; the researcher presented a clearance letter to the in-charge of ANC clinic, who introduced the researcher and the team to the respondents. The purpose of the study, the entire procedures, the likely benefits and what is expected of the participants were clearly explained in a language (Luo) which was best understood. Withdrawing from participating in the research without any penalty was their right. Consent forms highlighting participants voluntariness to participate in the study was issued to prospective participants for acknowledgement of their willingness to participate. All information that was given by participants was treated with confidentiality.

3.14 Study Limitations

The researcher realized some of the shortcomings before carrying out data collection.

The researcher experienced a delay in obtaining permission from the research committee of GRRH.

The researcher experienced a financial constraint on transport accommodation, stationeries including printing, photocopying and binding cost.

Data collection, data entry, data coding and data analysis was a challenge as a result of large number of the respondents involved.

CHAPTER FOUR

4.0 PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

4.1 Introduction

This chapter presents findings from the field on factors affecting the willingness of ANC mothers to uptake eMTCT services in Gulu Regional Referral Hospital (GRRH). The results from the field are presented beginning with the demographic characteristic of participants followed by findings on the research objective as hereunder;

4.2 Demographic Characteristics of Participants

4.2.1 Age of respondent

The results showed that 90 (39.6%) of the participants were within the age range of 20-24 with the least respondents 3 (1.3%) being in the age range of 40 and above. The interpretation of this finding implies that majority of ANC mothers who participated in this study were of youth category with a few minorities in the adult age above 36 years (*see table 1*).

4.2.2 Marital Status

Majority 133 (58.6%) of the ANC mothers who participated in this study were married, and the least 1 (0.4%) was a widow (*see table 1*).

4.2.3 Religion

The majority 147 (64.8%) of the participants interviewed were Catholics, followed by protestants 54 (23.8%), and the least were other religions like seventh day Adventist and born again Christians, (*please see table 1*).

4.2.4 Occupational Status

The findings indicated that 73 (32.2%) of the respondents were housewives, while the civil servants represented the least 12 (5.3%). This implied that most participants in the study were at least engaged to some economically productive activity (*please see table 1*).

Table 1: The demographic characteristics of respondents

Age of respondents	Responses	
	Frequency	**Percentage**
20 – 35	169	74.4
25 -29	47	20.7
15 - 19	46	20.3
30 - 34	32	14.1
35 - 39	9	4.0
Above 35	12	5.3
Total	**227**	**100.0**
Highest education level attained		
Primary	108	47.6
Secondary	70	30.8
No formal education	28	12.3
Tertiary	13	5.7
University/college	8	3.5
Total	**227**	**100.0**
Marital status		
Married	133	58.6
Single	83	36.6
Divorced	10	4.4
Widowed	1	0.4
Total	**227**	**100.0**
Religion		
Catholic	147	64.8
Protestant	54	23.8
Others	16	7.0
Islam	10	4.4
Total	**227**	**100.0**
Occupation		
House wife	73	32.2
Farmer	63	27.8
Self employed	59	26.0
Others	20	8.8
Civil servant	12	5.3
Total	**227**	**100**

Source: Primary data

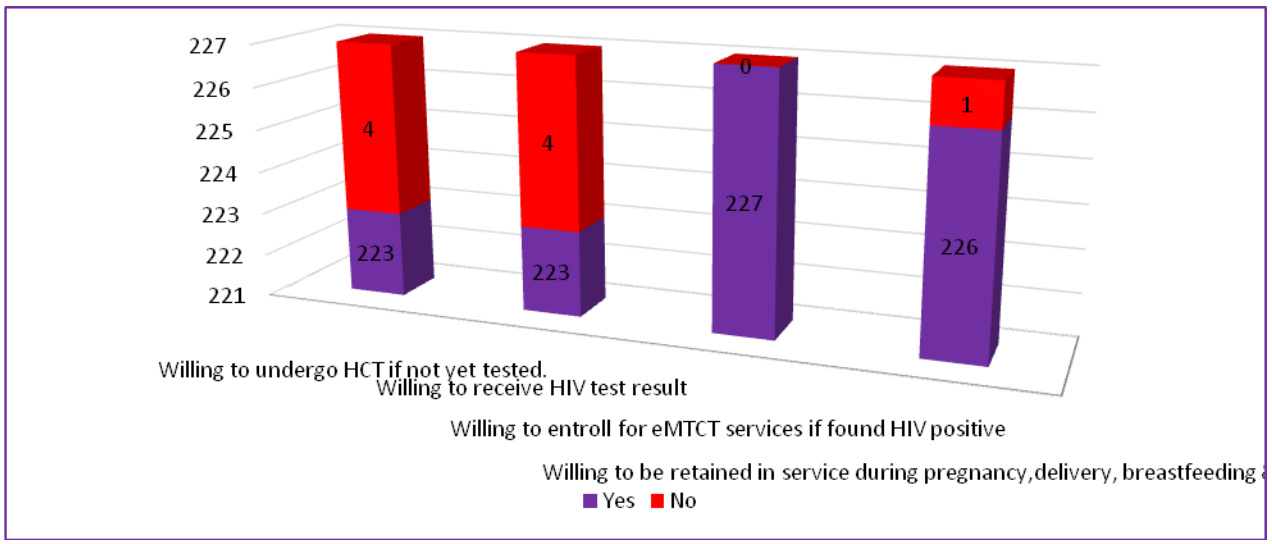
4.3 Willingness of ANC mothers to uptake eMTCT services

The study determined the willingness of ANC mothers to uptake eMTCT services in GRRH. Results indicated over whelming positive responses with ANC mothers willing to undergo HCT if not tested and receiving HIV test results. However one of the ANC mother interviewed said

"I am always busy and have no time to be coming regularly" (ANC mothers GRRH)

as shown in Figure 1 below

Figure 1: Willingness of ANC mothers to uptake eMTCT services in GRRH



Source: Primary data

4.4 Factors affecting willingness of ANC mothers to uptake eMTCT services

Under this objective, the result showed the majority of the respondents were satisfied with the way counseling was done. When the respondents were asked reasons why they were not willing to undergo HCT if not yet tested, they said:

"My husband was not around; I *had fear of having a positive HIV results" (ANC mothers GRRH).*

The majority 198 (87.2%) of ANC mothers also confirmed that there was some form of confidentiality, however, 36 (15.9%) said there was need to improve on eMTCT services. reasons given include:

"A quiet separate room should be provided so as to ensure confidentiality; male partners to get involved in eMTCT services; I had fear; I am not sure" (ANC mothers GRRH).

This finding implied that, though there was an overwhelming willingness of ANC mothers to uptake eMTCT services, the ideas given by the minority should as well be addressed as presented in table 2 below;

Table 2: Factors affecting willingness of ANC mothers to uptake eMTCT services

	Responses		Total
	Yes	No	
Satisfied with the way the counseling was done	209 (92.1%)	13 (5.7).%)	227 (100.0%)
Received pre-test counseling before undergoing HCT	204 (89.9%)	23 (10.1%)	227 (100.0%)
If there was any form of confidentiality when releasing the result.	198 (87.2%)	29 (12.8%)	227 (100.0%)
Whether or not there is need to improve on how HCT should be done.	36(15.9%)	191(84.1%)	227(100.0%)

Source: Primary data

4.4.1 Type of pre-and post-test counseling received by ANC mothers

Findings from the field indicated that majority received one-on-one counseling for both pre and post-test counseling. This is the ideal type of counseling commonly used in various hospital settings. The ANC mothers were also asked whether they were satisfied with the way counseling was done, the majority 209 (92.1%) were satisfied, while the remaining 13 (7.9) were not satisfied. The reasons given include:

> "*My husband was not around and I needed him to be present; I could not belief the results because I thought I was HIV negative; I did not undergo pre and post test counseling"* (ANC mothers GRRH).

Table 3: Type of pre and post test counseling received by ANC Mothers in GRRH

Form of counseling	Responses	
	Pre-test counseling	Post-test counseling
One on one	118 (52%)	126 (55.5%)
Group counseling	40 (17.6)	41 (18.1%)
Couple counseling	38 (16.7%)	36 (15.9%)
None	31 (13.7%)	24 (10.6%)
Total	**227 (100%)**	**227 (100%)**

Source: Primary data

4.5 Actual uptake of eMTCT services by ANC mothers

The actual uptake of eMTCT services by ANC mothers in GRRH was determined, focusing mainly on their knowledge on eMTCT of HIV and perceived benefits. The results are presented below;

4.5.1 Knowledge on eMTCT of HIV

The ANC mothers in GRRH were assessed on awareness of their HIV status, the majority 221 (97.4%) said yes, while 6 (2.6%) said no as shown in table 4 below.

Table 4: Awareness of HIV status of ANC mothers in GRRH

	Responses	
Response	**Frequency**	**Percentage**
Yes	221	97.4
No	6	2.6
Total	**227**	**100**

Source: primary data

Regarding the place where ANC mothers received HCT services, the majority 205 (90.3%) received the knowledge from the hospital as shown in table 5 below

Table 5: The place where ANC mothers received HCT

	Responses	
	Frequency	**Percentage**
Hospital	205	90.3
VCT centre	11	4.8
Others specify	11	4.8
Total	**227**	**100**

Source: Primary data

The ANC mothers were also asked whether they had heard about eMTCT of HIV and the results were analyzed and shown in table below.

Table 6: Whether the ANC mothers in GRRH heard about eMTCT of HIV

	Responses	
Response	**Frequency**	**Percentage**
Yes	179	78.9
No	48	21.1
Total	**227**	**100**

Source: Primary data

From where the respondents got information about eMTCT, the majority of the ANC mothers 141 (61.1%) received the information from the health care facility, the rest got information from various sources as shown in table 7 below.

Table 7: The source of information regarding eMTCT by ANC mothers in GRRH

	Responses	
	Frequency	**Percentage**
Health care facility	141	61.1
Radio	55	24.2
Friends	12	5.3
School teachers	11	4.8
Relatives	8	3.5
Total	**227**	**100**

Source: Primary source

Knowledge of ANC mothers on eMTCT of HIV in GRRH

The finding showed that, majority of ANC mothers had at-least some knowledge on eMTCT of HIV. However, the finding also revealed that the ANC mothers lacked adequate knowledge on the various intervention methods used to prevent eMTCT of HIV as presented in table 8 below.

Table 8: Knowledge of ANC mothers in GRRH on eMTCT of HIV

	Responses		I don't Know	Total
	Yes	**No**		
Whether HIV can be transmitted from mother to babies during delivery	210 (92.5%)	5 (2.2%)	12 (5.3%)	227 (100.0%)
Whether it is possible for every pregnant mother to be screened for HIV	202 (89.0%)	18 (7.9%)	7 (3.1%)	227 (100.0%)
If willing to have knowledge on the interventions used to prevent MTCT of HIV	196 (86.3%)	12 (5.3%)	19 (8.4%)	227 (100.0%)
whether able to pass information on eMTCT services to people in your community	196 (86.3%)	31 (13.7%)	0 (0%)	227 (100.0%)
Whether HIV can be transmitted from mother to babies during breastfeeding	188 (82.8%)	23 (10.1)	16 (7.0%)	227 (100.0%)
Whether HIV can be transmitted from mother to baby during pregnancy	121 (53.3%)	68 (30.0%)	38 (16.7%)	227 (100.0%)
Awareness of intervention that can prevent MTCT of HIV	97 (42.7%)	105 (46.3%)	25 (11.0%)	227 (100.0%)
Whether it is possible to tell if a mother is HIV positive or not by looking at her	75 (33%)	137 (60.4)	15 (6.6)	227 (100%))

Source: Primary data.

4.5.2 Perceived Benefits of eMTCT services by the ANC mothers

Findings from the field indicated that the majority 217 (95.6%) perceived utilization of eMTCT services as beneficial. Similarly 185 (81.5%) perceived that availability of skilled health workers contributed to actual uptake of eMTCT services. When the respondents were asked to explain how the availability of skilled health workers could contribute to actual uptake of eMTCT services, some respondents said:

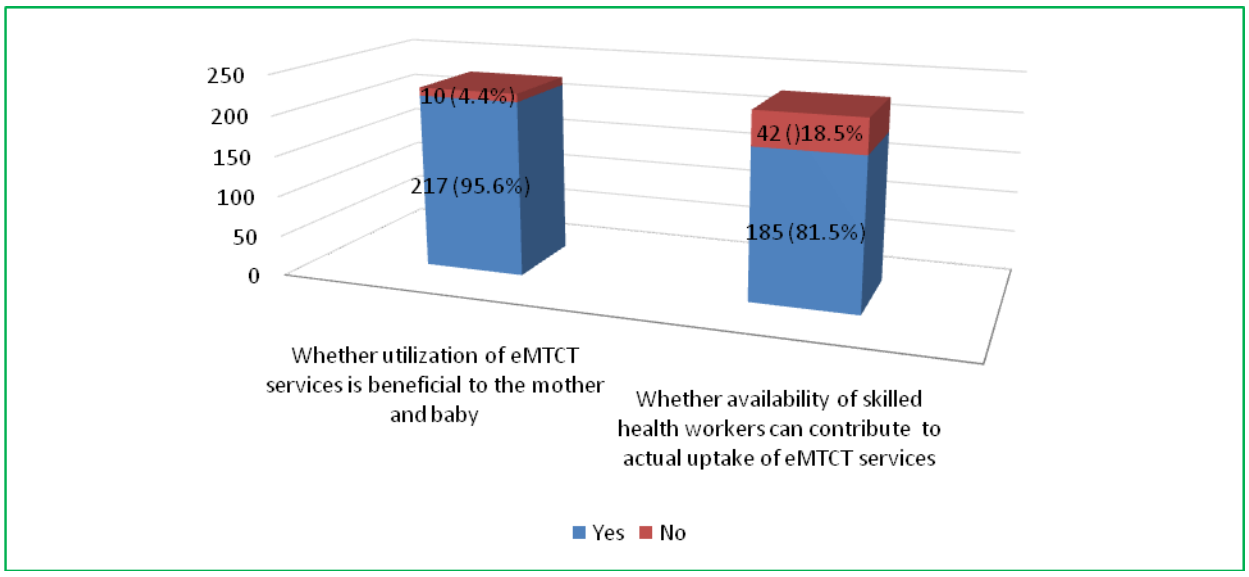
> "*By providing knowledge and giving necessary health talks to the patients; by giving the clients treatment and providing care"* (ANC mothers GRRH).

On perceived benefits of eMTCT, the reasons given included:

> *"eMTCT prevents transmission of HIV to the baby and creates awareness on HIV transmission among ANC mothers; eMTCT is beneficial, it keeps the baby free from HIV and healthy, improves the life of the mother and her baby"* (ANC mothers GRRH).

The interpretation of this finding indicated that ANC mothers in GRRH perceived eMTCT services as beneficial to both the mother and her baby as presented in figure 2 below.

Figure 2: Perceived benefits of eMTCT Services by ANC mothers in GRRH

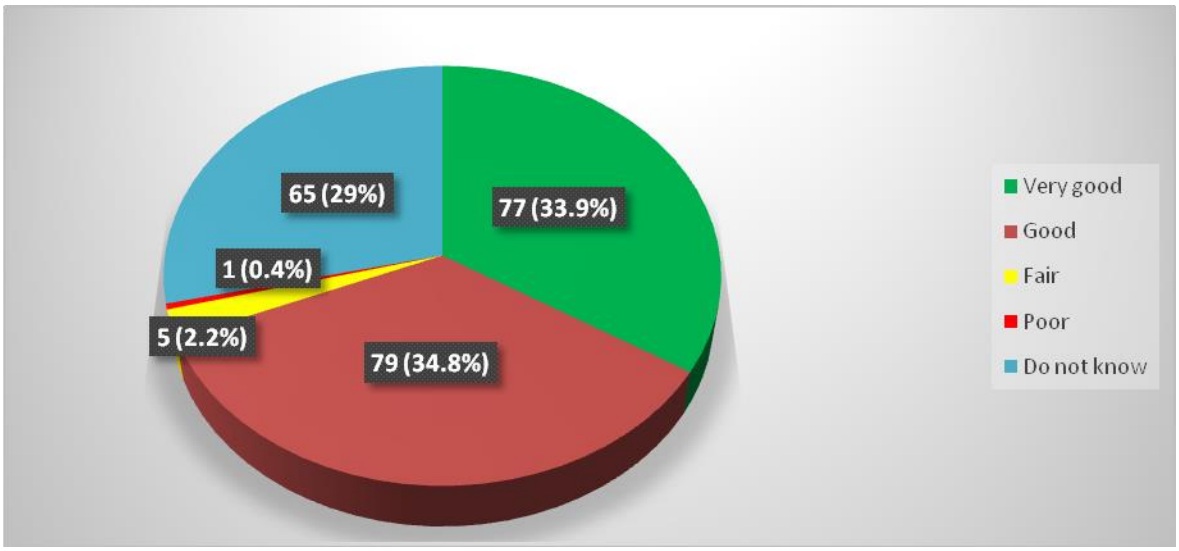


Source: Primary data

4.5.2.1 Opinion of ANC mothers about eMTCT services in GRRH.

The results from the field showed various answers as presented in figure 3 below;

Figure 3: Opinion of ANC mothers in GRRH about eMTCT services



Source: **Primary data**

Regarding the advice ANC mothers interviewed from GRRH would give to mothers who tested HIV positive and not enrolled in eMTCT services, they said:

> *"They should go to hospital and start ART in-order to have a negative baby; do not have fear but go to hospital and start treatment; follow doctor's advice"* (ANC mothers GRRH).

4.6 Factors affecting actual uptake of ANC mothers to uptake eMTCT services

The study determined the factors affecting actual uptake of eMTCT services in GRRH by ANC mothers. In order to realize results, several factors were tested as shown below.

4.6.1 Whether demographic characteristics affected eMTCT uptake by ANC mothers in GRRH

The researcher cross tabulated the marital status of the respondents to determined whether it had any effect on eMTCT uptake by GRRH. The results showed that, marital status had significant effect on eMTCT uptake at 99 percent confident level. Out of 227 mothers interviewed, 153 said yes, out of which 97 responses were from married couples followed by the single mothers as shown in table 9 below. Some of the reasons given included:

> *"Some women fear to disclose their HIV status because of possible divorce, fear of taking blames and abuse by their husbands*" (ANC mothers GRRH).

Table 9: Cross tabulation on whether marital status had effect on eMTCT uptake by GRRH

		Whether marital status of ANC mothers affected eMTCT uptake		
		Yes	**No**	**Total**
Marital status	Married	99	34	133
	Single	48	35	83
	Divorce	8	2	10
	Widowed	0	1	1
Total		**155**	**72**	**227**

Source: Primary data

However, regarding religion, findings showed that religion did not have any significant effect on eMTCT uptake at 99 percent confident interval, while the minority respondents said yes and reason given was that:

Table 10: A Cross tabulation on whether religion had any role on eMTCT uptake by ANC mothers in GRRH

		Whether religion had any role on eMTCT uptake		
		Yes	**No**	**Total**
Religion	Catholic	28	119	**147**
	Protestant	7	47	**54**
	Islam	3	7	**10**
	Others	5	11	**16**
Total		**43**	**184**	**227**

Source: Primary data

On regards to age, findings showed no significant effect on utilization of eMTCT services at 99% confident level as shown in the below. However, the minority responses said:

> "*Mothers below 18years may fear to come for eMTCT services due to stigma they may get from the community, while others fear to be seen pregnant"* (ANC mothers GRRH).

Table 11: Cross tabulation on whether age of the ANC mother affected utilization of eMTCT uptake in GRRH

		Whether age of the mother affected utilization of eMTCT uptake		
		Yes	**No**	**Total**
Age of respondents	15-19	7	39	**46**
	20-24	16	74	**90**
	25-29	8	39	**47**
	30-34	5	27	**32**
	35-39	1	8	**9**
	40 and above	1	2	**3**
Total		**38**	**189**	**227**

Source: Primary data

A Cross tabulation of the education level of the respondents with eMTCT uptake showed no significant effect at 99 percent of confident level as shown below. However, the minority reasons given included:

> *"Mothers who never obtained any form of education may not be able to understand well the explanation given to them by the health worker and that they may not be in position to take their medication correctly"* (ANC mothers GRRH).

Table 12: Cross tabulation on whether education level of the ANC mothers in GRRH affected eMTCT uptake.

		Whether education level of the mothers affected uptake of eMTCT services		
		Yes	**No**	**Total**
Highest education level attained	Primary	8	100	**108**
	Secondary	9	61	**70**
	No formal education	3	25	**28**
	Tertiary	2	11	**13**
	University/college	2	6	**8**
Total		**24**	**203**	**227**

Source: Primary data

However, when the researcher tried to relate the ideas of ANC mothers on whether demographic characteristics affected eMTCT services with the observation made during data collection, there was some correlation in that the ANC mothers who reported for ANC services were of various demographic characteristics and the majority were not accompanied by their spouses. One ANC mother was quoted saying:

> *"Some men do not want their wives to come for ANC, but it is up to the woman to decide because this is her life. If she dies the man will marry another woman. If I am the one, I will not wait for his permission"* (ANC mother GRRH).

4.6.2 Stigma and fear of disclosure

Findings on stigma and fear of disclosure, 151 (66.5%) revealed that ANC mothers did not need permission from their partners for HCT. The reasons given were:

> "*There was no need to ask for permission from their husbands but just inform him; it is the woman's life at risk but not for the man, and she will come for HCT whether he agrees or not*" (ANC mothers GRRH).

However, 76 (33.5%) said yes, they needed permission because:

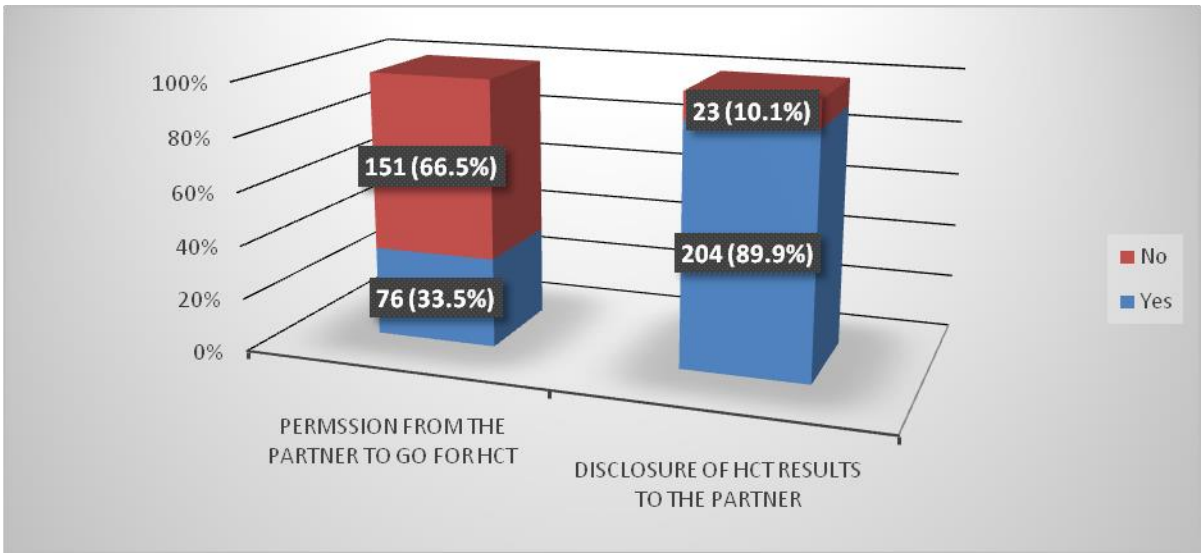
> *"The man is the one who takes care of me and also provide me transport"* (ANC mother GRRH).

The finding also revealed that ANC mothers were free to disclose their HCT results to their partners with a proportion of 204 (89.9%), whereas only 23 (10.1%) said no with reasons that:

> "*My husband sent me to hospital for HIV test and if found HIV positive that means him too is HIV positive and vice versa*; *my husband refused to come for HCT because he is still young and if he test and find out that he is HIV positive, his future plans will be ruined because of getting worried and may as well commit suicide"* (ANC mother GRRH).

The interpretation of this finding implies that ANC mothers were free to share information about their HIV results with their partners, and were free to take crucial decisions as presented in figure 4 below.

Figure 4: Response of ANC mothers in GRRH on stigma and fear of disclosure



Source: Primary data

4.6.3 Drugs (ARV) side effects

Findings from the field revealed that majority 170 (74.9%) of the respondents were not on ART, this included those who had tested HIV negative 164 (96.5%) and those who were HIV naïve 6 (3.5%) had their HIV test being done for the first time and were waiting for their HIV test results. Whereas 57 (25.1%) were HIV positive and already on ART. None of the respondents who had tested HIV positive and not on ARV were available. In addition, 39 (68.4%) out of the 57 who were on ART reported to have experience some sort of side effects to the drugs which included:

> *"Vomiting, loss of appetite, diarrhea and abdominal pain, lack of sleep; general body weakness, dizziness, loss of weight; bad dreams at night, rashes on the face headache and high blood pressure, heavy periods" (ANC mothers GRRH).*

However, 18 (31.6%) of ANC mothers who were HIV positive, and on ART, reported no side effects to ARV. The study also showed that, despite the side effects of the drugs, the drugs could be of great use with a proportion of 126 (55.5%) as others confessed that:

> "*It had improved their health and ways of life*" (ANC mother GRRH).

Whereas, 101 (44.5%) acknowledged the drugs may not be of great use as those who were on ART said:

> "*It had been difficult for them to get used to taking the medication because of unbearable side effects*; *this drugs required good feeding of which we are not able to get; they have never regained their full health since they started taking the medication but I cannot stop taking" (ANC mothers GRRH)*.

Those who had tested HIV negative and not on ART including those who were HIV naïve and not on ARV reported that*:*

> *"People told us ARV makes people weak with very serious reactions leading to death"* (ANC mothers GRRH)

Table 13: Experience of drugs (ARV) side effects

	Responses		Total
	Yes	No	
Despite the side effects of ART if any whether the drugs have been of great use	126 (55.5%)	101 (44.5%)	227(100.0%)
Whether ANC mother was on ART or not	57 (25.1%)	170 (74.9%)	227(100.0%)
Whether the ANC mother experience any side effects to ART	39(17.2%)	188(82.8%)	227(100.0%)

Source: Primary data

The respondents were also asked on what they would tell ANC mothers about ART. Various answers were given as follows:

> *"ANC mothers should follow instructions from the health worker; they should stick to medication and take it in time; ART will improve their health and ways of living; they should take courage and be strong hearted; should abstain from sex and be faithful to their husbands"* (ANC mothers GRRH).

4.6.4 Adherence to ART

The respondents were assessed for the gestation age at which they registered for ANC. Findings showed that majority 115 (50.7%) registered for ANC in their first trimester as shown in table 11 below.

Table 14: The gestation age at which the respondents in GRH registered for ANC

		Frequency	Percent
Valid	1-3 Months	115	50.7
	4-6 Months	105	46.3
	7-9 Months	07	3.0
	Total	**227**	**100.0**

Source: Primary data

Still on adherence to ART, the respondents were asked whether they received adherence counseling on ART if HIV positive or will be in position to receive adherence counseling if they had tested HIV positive. The results showed that 156 (68.7%) received adherence counseling or were in position to receive adherence counseling if they had tested HIV positive. Those who were on ART confessed that:

> "*They have been compliant or will comply with ART, and also admitted that it was necessary to receive adherence counseling because it will improve their health*" (ANC mothers GRRH).

Only 71 (31.3%) did not receive adherence counseling or were not willing to receive adherence counseling. The reason given was that:

> *"once a mother is tested HIV positive, it is her own effort to ensure that she fights for her rights and takes her medication as needed instead of being told what to do"* (ANC mothers GRRH).
>
> While others said:
>
> "*even those who underwent adherence counseling were not adhering to ART which showed wastage of time; we have seen mothers who are on ART but still deliver babies who are HIV positive why? Does it mean that the drugs do not work?"* (ANC mother GRRH).

Table 15: Reception of counseling on adherence to ART if they tested HIV positive

	Responses		Total
	Yes	No	
Whether it was necessary to receive adherence counseling	172 (75.8%)	55 (24.2%)	227 (100.0%)
Whether ANC mother has been compliant or will comply with ART if she had tested HIV positive	159 (70.0%)	68 (30.0%)	227 (100.0%)
Whether the ANC mothers received or will be in position to receive adherence counseling if had tested HIV positive	156 (68.7%)	71 (31.3%)	227 (100.0%)

Source: Primary data

4.6.5 Cultural Beliefs

The respondents were interviewed on whether they have got rights to make decision in their family. The majority 217 (95.6%) said yes, whereas only 10 (4.4%) said no, reasons included:

> *"my husband is the sole bread winner in the family and he is responsible for the health and wellbeing of the family; I need money for transport to hospital as well as paying for the hospital bills if necessary"* (ANC mothers GRRH).

Furthermore, the majority 180 (79.3%) of the respondents also admitted that if tested HIV positive, they would breastfeed their babies after delivery with reasons given that:

> *"breast milk is the best and would make my baby healthy; I am not able to afford other alternative feeds; since I will be on ART, my baby will be safe and not acquire HIV"* (ANC mothers GRRH). While those who said no gave their reasons:
>
> *"I do not want my baby to get my HIV; I will give cow's milk because that is what I used with my first baby"* (ANC mother GRRH).

Table 16: Influence of Cultural Beliefs of ANC mothers in GRRH on uptake of eMTCT services

	Responses		Total
	Yes	No	
Whether ANC mothers had any right to make decisions in the family	217 (95.6%)	10 (4.4%)	227 (100.0%)
Whether ANC mothers will breastfeed her baby after delivery if tested HIV positive	180 (79.3%)	47 (20.7%)	227 (100.0%)

Source: Primary data

4.6.5.1 Preferred delivery Place

The study indicated that the most preferred delivery place was the hospital with a proportion of 221 (97.4%) as presented in the table 14 below;

Table 17: Preferred delivery place of ANC mothers interviewed in GRRH

	Responses	
	Frequency	**Percent**
Hospital	221	97.4
Others specify	5	2.2
At home with TBA	1	0.4
Total	**227**	**100**

Source: Primary data

4.6.6 Male involvement and family support

Male involvement and family support were determined and findings from the field revealed that 206 (90.7%) of the respondents received support from their husbands during the time of pregnancy, whereas only 21 (9.3%) said no. When probed about the minority responses the answer was on drunkenness and negligence of which the respondents said:

> "*My husband is always drunk; play cards in the trading centre; some men just fear responsibilities because of the number of children at home, they prefer to go with single women leaving their wives with no support to the family"* (ANC mothers GRRH).

The kind of support given by the men to their wives included:

> *"Money, buying food and other necessary materials; accompanying them to hospital when they are sick,; and also cooking for them"* (ANC mothers GRRH).

Up to 220 (96.9%) admitted that it was necessary for a man to be involved in eMTCT/ANC services, while 7 (3.1%) thought it was not necessary. The reason given was that:

> *"Women should learn to be independent so that when their husbands are not around, they will be able to support themselves and their children; women should not rely on their men because they are unpredictable"* (ANC mothers GRRH).

Majority of the respondents 222 (97.8%) thought male involvement could improve eMTCT services, whereas 5 (2.2%) said no with reasons that:

"*the ANC mothers should continue attending ANC whether the man accompany them or not; women should take advantage of the weaknesses of their husbands and educate them more"* (ANC mothers GRRH).

Concerning the financial status of their husbands, the respondents believed that the financial status of their partners were strong enough to support the family with a proportion of 188 (82.8%). Only 39 (17.2%) said no with reasons that:

"It is women who struggle to look for money in order to support the family because some of the men were drunkards, some had divorced their husbands, while others were single mothers" (ANC mothers GRRH).

Table 18: Opinion of ANC mothers in GRRH on male involvement and family support

	Responses		Total
	Yes	No	
Whether the ANC mothers have support from their husbands and family during pregnant	206 (90.7%)	21 (9.3%)	227 (100.0%)
Whether it was necessary for a man to be involved in eMTCT/ANC services	220 (96.9%)	7 (3.1%)	227 (100.0%)
Opinion of ANC mothers on whether male involvement can improve eMTCT services	222 (97.8%)	5 (2.2%)	227 (100.0%)
Whether the financial status of male partner was strong enough to support the family	188 (82.8%)	39 (17.2%)	227 (100.0%)

Source: Primary data

The respondents were also assessed on what they would think could be the barriers men faced on utilization of eMTCT/ANC services. Various responses were given which included:

"Men are too busy with their work; fear of being tested for HIV and getting a positive results; eMTCT/ANC are women affairs as they are the ones who get pregnant; they do not want to be seen going for ANC with their wives because the community will say they are weak men being controlled by their wives" (ANC mothers GRRH).

4.6.7 Health system factors

4.6.7.1 Access to the hospital

The results revealed that the majority 215 (94.7%) said the hospital was accessible, while those who said the hospital was not easily accessible were asked how they get to hospital:

"By using boda boda, bicycles, and taxi" (ANC mother GRRH).

The Study also revealed the majority 223 (98.2%) said that the hospital had enough skilled staff to offer eMTCT/ANC services. On whether the health workers were friendly to ANC mothers, 216 (95.2%) said yes, while those who said no gave their reasons:

> *"some health workers are very rude to mothers; some do not explain well what the mothers need to do; some are not friendly, depending on whom you get at the hospital and the mood"* (ANC mothers GRRH).

When the respondents were interviewed on whether the attitudes of health workers affected utilization of eMTCT/ANC services, the majority 186 (81.9%) said no, while the minority said yes giving out their reasons:

> *They quarrel on women especially during labour and delivery sometimes mothers are left unattended to and others end up losing their babies; some mothers fear to ask the health worker about their condition and that creates some distances; for me, I will try another hospital if I get any problem here"* (ANC mothers GRRH).

When the ANC mothers were asked on what they thought would prevent other pregnant mothers from attending eMTCT/ANC services, their responses included:

> *"fear of being tested HIV positive, being humiliated; ignorance about the services; some men do not allow their wives to test for HIV; some mothers are too busy at home; no transport to hospital; shyness to be seen pregnant"* (ANC mothers GRRH).

Table 19: Access to the hospital facility by ANC mothers in GRRH

	Responses		Total
	Yes	No	
Whether the hospital was easily accessible	215 (94.7%)	12 (5.3%)	227 (100.0%)
Whether the hospital had enough skilled staff able to offer eMTCT/ANC service	223 (98.2%)	4 (1.8%)	227 (100.0%)
Whether health workers were friendly to ANC mothers	216 (95.2%)	11 (4.8%)	227 (100.0%)
Whether the attitudes of health workers affect utilization of eMTCT/ANC services	11 (18.1%)	186 (81.9%)	227 (100.0%)

Source: Primary data

4.6.7.2 Utilization of Family Planning Service

The researcher determined whether ANC mothers were informed about family planning (FP) during ANC services. The results showed that the majority 208 (91.6%) said yes, while those who said no gave their reasons:

"It is my first time in ANC clinic; may be the health workers are waiting for the right time to pass the information concerning FP" (ANC mothers GRRH).

On utilize FP service after delivery, the majority 189 (83.3%) said yes, while those who said no gave their reasons:

"*I need to be told first; I will know how to balance myself; I am single; I will want to have more kids; I will use natural methods; FP brings body pains and heavy bleeding; it has bad side effects like vomiting, loss of weight, weight gain"* (ANC mothers GRRH).

Table 20: Knowledge of ANC mothers in GRRH on FP

	Responses		Total
	Yes	No	
Whether ANC mother was informed about FP	208 (91.6%)	19 (8.4%)	227 (100.0%)
Whether the ANC mother would be in position to utilize FP service after delivery	189 (83.3%)	38 (16.7%)	227 (100.0%)

Source: primary data

4.6.7.3 ART stock out

The study established whether there was any ART stock out at any one point. The findings showed that out of the 57 who were on ART 42 (73.7%) said no while, 15 (26.3%) said yes. Out of those who said yes reported that it was once with a proportion of 38 (90.5%), and 4 (9.5%) said it was twice. When the respondents were asked on what should be done in-order to avoid stock outs, they said:

"The hospital should stock enough drugs and ensure that the drugs are always available; constant supply; raising voices to the government" (ANC mothers GRRH).

When the researcher went through the past 3years records, there was no stockout of ART registered.

CHAPTER FIVE

5.0 DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the discussion of the findings, conclusions and recommendations on the study done on factors affecting the willingness to uptake eMTCT services by ANC mothers in GRRH. The discussions are based on the findings from chapter four basing on the research objectives.

5.2 Discussion of findings

The overall objective of the study was to explore factors affecting the willingness of ANC mothers to uptake eMTCT services in Gulu Regional Referral Hospital (GRRH). In order to achieve this, specific objectives were set which were to explore willingness of ANC mothers to uptake eMTCT services in GRRH, identify the factors affecting willingness of ANC mothers to uptake eMTCT services, explore the actual uptake of ANC mothers to uptake eMTCT services and identify the factors affecting actual uptake ANC mothers to uptake eMTCT services in GRRH. These objectives guided in the development of the research tool which helped in discussing the findings below.

5.2.1 Willingness of ANC mothers to uptake eMTCT services in GRRH

The findings on willingness of ANC mothers to uptake eMTCT services showed overwhelming responses of ANC mothers at GRRH willing to be enrolled for eMTCT services if tested HIV positive, followed by being retained in the services for life. The majority were as well willing to undergo HCT if not yet tested. This finding agrees with various studies done which showed willingness of pregnant women to be tested for HIV in different countries. A Chinese study by Li

et al shows about 50% of respondents expressed willingness to be tested for HIV, while a study by Moges and Amberbir (2011) in Ethiopian reported a higher percentage more than 75% of the respondents expressed willingness to be tested for HIV. However, some African studies carried out in Sudan and Tanzania by Mohmoud (2007) and de Paoli (2004) respectively, demonstrated significant gaps between the willingness of pregnant women to receive HIV testing and their actual testing rates. Similarly, a South African study by Dube (2008) showed positive perceptions and good knowledge and understanding of pregnant mothers about HIV testing during pregnancy. The report is also in line with Kellerman (2014), which shows that HIV testing of pregnant women has been advocated by UNAIDS as one of the key strategies for preventing MTCT of HIV. Understanding the factors relating to women's willingness to be tested for HIV during pregnancy is critical for developing strategies to increase HIV testing rates among pregnant women. The target is that all pregnant mothers who register for ANC should undergo HCT in-order to create awareness about HIV in pregnancy and achieve eMTCT of HIV during pregnancy, delivery and breastfeeding. Furthermore, Baggaley *et al* (2012) also confirmed that at present, routine prenatal HIV testing is considered to be standard care in the United States and other developed nations. Nearly half of African countries have also adopted routine prenatal HIV testing policies, with 42.7% of them adopting these policies in 2006. In a study done by Eli F (2008), reported 100% acceptance of HIV testing among the antenatal mothers. While in contrast a report from the pilot of the PMTCT programme in Tanzania showed the voluntary opt-in strategy identified as a barrier to the testing rates. The finding disagrees, however, with literature from *Turan et al* (2011) who, stated that among pregnant women in rural Kenya, fear of their spouses, reaction and possible repercussions were a powerful influence on the willingness of women to be tested for HIV during pregnancy than were their concerns

regarding any other significant others. The study further suggested that because community members are easily able to identify if a woman was infected with HIV, women had less fear of receiving negative consequences from the whole community. The finding in this study disagrees with these studies because ANC mothers interviewed in GRRH were willing to uptake eMTCT service if found HIV positive which showed an indication of improvement and behavioural change.

However, relating to demographic characteristic with willingness to uptake eMTCT services, findings showed some disparity on marital status whereby the majority of the respondents said women in polygamous marriage were not willing to undergo HCT on the grounds that they would be blamed of being the cause of HIV infection in the family (GRRH). This is supported by WHO (2010) where women in polygamous marriages may as well be reluctant to acquire effective eMTCT services because none would want to be named as the source of infection in the family. The findings is further supported by Fabiani *et al* (2007) who found that being married was associated with lower VCT uptake but in contrast to a study by Matovu et al 2005), in which VCT acceptance was actually higher among married women. Similarly, Perez *et al* (2006) also found that women living with a partner were more likely to accept HIV testing because they feel that they can depend on their spouse to support them in the event of a positive test result. Matovu *et al* (2005) further states that some married women may perceive themselves as less susceptible to HIV because they trust their husbands.

In relation to economic factors, Moges and Amberbir (2011) found that employed pregnant women accepted VCT at higher rates than unemployed married women. Similar results were obtained in a Vietnamese study by Dinh (2005) showed that when working women have greater access to information about VCT compared to unemployed married women who spent most of

their time at home. This study contradicts the research findings in that the ANC mothers who were interviewed, majority were married and were housewives and farmers as compared to those who were employed. While, the rest of the demographic characteristics showed willingness in uptake of eMTCT services if found HIV positive.

5.2.2 Factors affecting willingness of ANC mothers to uptake eMTCT services

In the second objective the result indicated an overwhelming willingness of ANC mothers to be enrolled for eMTCT services if tested HIV positive. This finding concurs with the literature of Maedot et al (2008) who found that pregnant women who felt that they were capable of coping with a positive HIV test result were identified as being more likely to accept HCT. However, the majorities were willing to undergo HCT if not yet tested and also receive their test results, while the minority were not willing. The reasons given were related to fear of receiving a HIV positive test results. This study is in line with the literature of Peltzer, (2010) who found that fear of the test results was a major barrier to being tested for HIV during pregnancy. Dube and Nkosi (2008) also found that half of the women in their study felt that getting tested for HIV was emotionally stressful. Similarly Moges and Amberbir A (2011) found that pregnant women resist HIV testing because they are afraid to receive a positive result. The study also found that ANC mothers were willing to have pre-test counseling; they were satisfied with how it was done and sure of confidentiality. This implies that there is great improvement in the perception and behavior of ANC mothers unlike in the past where there was fear and distrust, and it is an indication in the reduction of MTCT of HIV as well as improvement of health care services.

5.2.3 Actual uptake of ANC mothers to uptake eMTCT services

Findings on the third objective indicated that actual uptake of eMTCT services by ANC mothers was very high. ANC mothers were actually willing to uptake eMTCT services as noted with their level of knowledge and awareness of their HIV status, as well as mode of transmission of HIV. Those who were on ART were found to be 57 (25.1%) out of the 227 ANC mothers interviewed. The findings showed that ANC mothers were aware of their HIV status, had some knowledge on how HIV can be transmitted from mother to baby during pregnancy, delivery and breastfeeding. Furthermore, ANC mothers also knew that it was important to be screened for HIV if not yet screened in-order to know your HIV status. In addition, the majority of the ANC mothers registered for ANC within 1-3 months of gestation. Though this finding differ from the national report where most pregnant mothers register for first ANC in the 3rd trimester, the findings showed a very good practice and indicates that mothers are aware of the importance of attending ANC early as this may improve on eMTCT uptake if HIV positive and therefore adherence to ART. These findings are in line with the Uganda AIDS indicator survey (UAIS) (2011), which was looked at as a campaign under the theme 'Stand Out, Participate, Protect and Have an HIV-Free Baby" (UAIS 2011). The finding also concurs with WHO Guideline, (2015) which says ART should be maintained by ANC mothers during pregnancy, delivery, and completion of breastfeeding as well as for life.

However the study also showed that ANC mothers were not well versed with all the various interventions used to prevent MTCT of HIV but were willing to have more knowledge on the intervention used to prevent MTCT of HIV. This finding concurs with the literature of Bajunirwe (2005) who stated that Education level is a factor that is thought to be associated with having a positive attitude and the willingness to take an HIV test, with those having at least a post-primary

education more likely to choose to test compared to those with lower education. This concurs with the findings in relation to the majority of the respondents attaining the highest educational standard being primary level followed by secondary with 70 (8.0%) with the list being university level 8 (3.5%)

Similarly, age is considered to play a major role in HIV counseling and testing services. A study done in Sudan by Mahmoud (2007) among pregnant women showed that women older than 26 years had higher acceptance of VCT. Similarly, in a study conducted in Burkina Faso by Pignatelli S (2006) showed that the uptake rate of VCT increased linearly with age, being particularly low among adolescents (15-19 years). In addition, Enosolease and Offor (2004) showed that older Nigerian women had higher rates of acceptance of HIV testing. It has been suggested that older women may be more aware of a higher cumulative risk of infection and are more likely to take autonomous decisions. Other studies by Perez *et al* (2006) and Dahl V (2008) have found that older age was actually associated with test refusal. Perez et al (2005) further suggested that women with less education also have less knowledge about and access to prenatal healthcare. Conversely, (Barragan *et al* 2005) found out that lower education sometimes leads to higher rates of test acceptance These findings were not related to the findings on research done among ANC mothers in GRRH were by age of the respondents was not related to the willingness to uptake eMTCT services.

This study found out that much as ANC mothers had the knowledge and perceived benefits of eMTCT services there is still a gap in knowledge of various interceptive measures used in the prevention of MTCT of HIV. The implication of this finding is that the knowledge gap among ANC mothers if not addressed, will affect uptake of eMTCT services.

5.2.4 Factors affecting actual uptake of eMTCT services by ANC mothers in GRRH

Findings on the fourth objective indicated that demographic characteristics like marital status, had some effect on actual uptake of eMTCT services with the majority of the respondents saying yes The reasons given as to why marital status affected eMTCT uptake was that: *mothers in polygamous families fear to take blame that they could be the cause of HIV infection in the family"* (ANC mothers GRRH). Others confessed that marital status affected eMTCT uptake in that: *"some women fear to disclose their HIV status because of possible divorce or abuse by their husbands"* (ANC mothers GRRH). while 74(32.6%) denied that marital status never affected eMTCT uptake as the majority of the respondents interviewed were married, though the maniority were HIV positive and in support of eMTCT services. This finding is in line with a study done by WHO (2010) which showed that women in polygamous marriages may as well be reluctant to acquire effective eMTCT services because none would want to be named as the source of infection in the family. In contrast, other than marital status the rest of demographic characteristics like age, educational level and religion did not have a significant effect on eMTCT uptake. In addition, stigma, fear of disclosure and ART side effects, adherence and cultural beliefs did not affect actual uptake of eMTCT services. These findings defer from studies by UNAIDS (2014) which showed that pregnant women in the lowest wealth quintiles who reside in rural areas and have the lowest education levels are more likely to lack access to services than the other women with better education in resourceful countries (UNAIDS 2014). Whereas some studies have shown that a lower education is associated with higher likelihood to request for HIV testing, a study by Bajunirwe (2015) also showed that those having at least a post primary education are more likely to choose to test compared to those with lower education. A study done by Dinh, 2015 in South Florida among Hispanic farm workers revealed that

participants with at least 12 years of education were four times more likely to test compared to those without same education. While a study done in Vietnamese by Okuonzi (2000) showed that low education was associated with not returning for results. However, male involvement, family support and health system factors affected uptake of eMTCT.

Regarding adherence to ART, the ANC mothers received adherence counseling or were in position to receive adherence counseling if they had tested HIV positive. Those who were on ART confessed that:

> "*They have been compliant or will comply with ART, and also admitted that it was necessary to receive adherence counseling because it will improve their health*" (ANC mothers GRRH).

This defer from WHO (2012) findings which showed various factors most commonly associated with low adherence to antiretroviral therapy (ARV) prophylaxis for preventing MTCT at the health system level which included; giving birth at home, quality and timing of HIV testing and Counseling, and late distribution of Nevirapine (NVP) to the babies. Socio-demographic and demand-side factors include; fear of stigma, lack of male involvement, fear of partner's reaction to disclosure, few antenatal (ANC) visits, young age and lack of education

The interpretation of this finding implied that though adherence counseling on ART is done there is still need to tell mothers about the safety precautions that will be required when they are on ART. This will help them to have more knowledge in case they turn to be HIV positive or pass information to others who may not want to attend eMTCT services. The implication of this finding is that less than 2% of the babies born from HIV infected women will be HIV free and therefore will be in line with WHO recommendation of having HIV negative population.

Regarding cultural beliefs, the findings showed that, the majority of ANC mothers had right to make decision in their families and they also prefer to deliver from the hospital as well as

breastfeed their babies if they test HIV positive. In contrast a study done in Kenya by Karia (2008), where women are marginalized and regarded as inferior even without HIV infection, lacking autonomy to make decisions on health issues and for those infected on HIV prevention. This is fuelled by male dominated cultures as also seen in Mbale region, Eastern part of Uganda were some of the cultures affecting PMTCT service utilization include like obtaining permission from the husband before accessing HIV testing (Katushabe 2007). The study furthermore disagrees with Karia (2008) who stated that husband's permission is needed to attend antenatal clinic or deliver in the hospital during labour. This is made worse by the fact that the choice of replacement feeding by those who can afford it does not arise, because it is culturally not accepted since it is seen as a thing of pride to breastfeed, but with the advent of Option B and B+, this has been reduced as mothers can now breastfeed their babies under ART cover (Karia 2008). This finding implied that cultural beliefs did not have much significant effect on uptake of eMTCT services as shown in the past literatures and it implies that the community getting rid of various cultures that tends to have negative impacts on the health of the individuals and embrace better ways of living.

On male involvement, the research findings showed factors that favoured male involvement in relation to eMTCT uptake such as: support given to the ANC mothers in terms of financial and material support. However, factors that did not favour eMTCT uptake by male involvement included lack of male involvement during eMTCT/ANC services, as the male partners where always not available. The researcher noticed less than 10% of the men accompanying their wives for ANC service. The reasons the ANC mothers gave for the absence of their male partners were that some were busy at work, others were drunkards and therefore do not care, while some said the male partners fear to undergo HCT because of getting a positive results. This is in line with a

research done by Yohana from Kilimanjaro Tanzania which showed that of the 138 respondents interviewed, 103(74.6%) were not willing to participate in PMTCT programs by simply accompanying their couples to the ANC. Furthermore, the study noted that the majority of male partners (61.4%) had never participated in PMTCT programs in Antenatal Clinics. Various reasons were given which included; being busy (25.2%), cultural reasons (21.4%), lack of knowledge on the importance of the programs (21.4%). This showed that much as the men gave financial and material support to their wives, their involvement in eMTCT/ANC is still very low. The implication of this finding shows that, if poor male involvement will continue, then uptake of eMTCT services by ANC mothers will not be 100% as the mothers confessed that male involvement would improve on eMTCT services.

5.3 Conclusion

In conclusion, findings from the field were presented and analyzed based on the research objectives. The results of the findings on the first objective indicated that ANC mothers were willing to uptake eMTCT services in Gulu regional referral hospital. From the variable attributes, the majority of the ANC mothers were willing to undergo HCT if not yet tested and to receive HIV test result, enroll for eMTCT services if found HIV positive and be retained in the service during pregnancy, delivery and breastfeeding. Regarding factors affecting eMTCT services the majority of the respondents received pre-test counseling before undergoing HCT and were satisfied with the way the counseling was done. They also said that there was confidentiality when releasing the result. The actual uptakes of eMTCT services by ANC mothers were very positive. Level of knowledge and awareness of HIV status, as well as mode of transmission of HIV was high. However, ANC mothers were not aware of the various interventions used to prevent MTCT of HIV, but were willing to have knowledge on the intervention used to prevent

MTCT of HIV. Demographic characteristics like marital status, affected actual uptake of eMTCT services as the majority said *mothers in polygamous families fear to take blame that they could be the cause of HIV infection in the family.*.

5.4 Recommendations

There is need to promote women's education in general, including the knowledge of HIV testing, various ways of MTCT of HIV, and eMTCT programs. More so a lot of emphasis should be put on HIV susceptibility as well as benefits of the HIV test. In addition, the various misconceptions and misperceptions should be corrected through proper counseling and continuous health talks including use of posters at various public places. Support and empowerment of women should be emphasized to reduce fear of the test and provide tools to cope with the HIV test results.

There is need to involve male partner in the process of prenatal HIV testing which should include HIV counseling for couples as well as testing with facilitated disclosure. There is need for the government to come up with a policy in regards to male involvement and strong implementation of the policy by the different stakeholder's in-order to improve on male involvement in eMTCT/ANC. In addition, there is also a need to advance strategies to address women's fear of negative repercussions from their spouses in response to a positive HIV test result. One of the strategies could be teaching prenatal healthcare providers to facilitate discussions between women and their spouses about HIV testing in order to improve their acceptance of testing. Women should also be equipped with tools to help them safely and effectively communicate with their spouses about HIV testing.

5.5 Suggestion for further research

This study was carried out in GRRH, however, there is need to diversify the coverage to health centers in the rural settings since conditions and experience with ANC mothers in such areas may be different with that of ANC mothers in Regional Referral hospital facilities.

APPENDIX

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ANNEXES

ANNEX 1: INTRODUCTION LETTER

Uganda
Martyrs
University

Making a difference

Faculty of Health Sciences
19th June 2016

The Director,
Gulu Regional Referral Hospital

Dear Doctor,

Re: Introducing Dr. Florence Laker

This is to introduce to you Dr. Florence Laker as a *bona fide* student of the Master of Public Health (Population & Reproductive Health - MPH PRH) from the Faculty of Health Sciences (FHS) of Uganda Martyrs University (UMU), doing research for her dissertation. The title of her study is:

"Factors affecting willingness of ante-natal mothers to uptake Elimination of Mother-to-Child Transmission (eMTCT) of HIV Services in Gulu Regional Referral Hospital"

The dissertation is a key component of the course requirements. Her topic and study protocol have been approved by the relevant authorities of UMU. We believe that it may contribute to better understanding of eMTCT services and improvement of the quality of HIV/AIDS care not only at your organisation but also in the entire country and at international level. We pray that you receive her and give her the relevant support and access.

Yours sincerely,

Dr. Everd Maniple
Senior Lecturer / Supervisor
Faculty of Health Sciences
Tel. 0772592506
e-mail: everdmaniple@umu.ac.ug

ANNEX 2: THE CONSENT FORM FOR PARTICIPANTS

Contact information:

Researcher's Name: Laker Florence

Background: Student of MPH-PR, UMU University Week-end program

Telephone number: 0772512439

E-mail: florencelaroker@yahoo.com

Research Supervisor's Name: **Dr Maniple Everd**

Telephone number: 0772592506

E-mail: maniple77@gmail.com

The purpose of the research is for the fulfillment of an award in MPH-PRH of Uganda Martyrs University Nkozi

Research contents

The research will be on Factors affecting the willingness of ANC mothers to uptake elimination of mother to Child transmission (eMTCT) of HIV services in GRRH. I would like to know your views on willingness to uptake eMTCT services as well as factors affecting eMTCT services. With your help eMTCT services in GRRH will be improved so that many more lives of children can be saved as well as the wellbeing of the mothers.

The right to withdraw consent

You can choose whether or not to participate in this research and stop at any time. The questionnaire will be self administered and face to face interview will be conducted and no name of the respondents will be required or mentioned in the report. We hope you can be honest in your response and be assured that all information given will be kept confidential.

I understand this information and agree to participate fully under the conditions stated above, and that the information obtained can be used in future studies without seeking for permission again.

Signature of participant ----------

Date ----------

ANNEX 3: DATA COLLECTION INSTRUMENT FOR PREGNANT MOTHERS ATTENDING ANC CLINIC

Section 0: General information

S/No	Item	Response	Code
001	Health Facility		
002	Department	Antenatal clinic	
003	Starting time of interview		
004	Finishing time of interview		

Section 1: Socio demographic characteristics of the participants

S/No	Item	Response	Code
011	Age of respondent	15-19 20-24 25-29 30-34 35-39 40 and above	1 2 3 4 5 55
012	Marital status	Single Married Divorced Widowed	1 2 3 4
013	Religion	Catholic Protestant Islam Others specify ...	1 2 3 55
014	Highest Education level attained	No formal education Primary Secondary Tertiary institution University/colleges	1 2 3 4 5
015	Occupational status	Housewife Farmer Self employed Civil servant Others specify ...	1 2 3 4 55
016	No of children alive	None 1-5 >5	1 2 3
017	Husband's occupation	Civil servant Farmer Self employed Casual labourer Others specify ...	1 2 3 4 55

SECTION 2: A). Willingness of ANC mothers to uptake eMTCT services

S/No	Item	Response	Code
021	Will you be willing to undergo HCT if not yet tested?	Yes No	1 2
022	If no why?		
023	Will you be willing to receive your HIV test results?	Yes No	1 2
024	If no why?		
025	If found HIV positive, will you be willing to enroll for	Yes	1

	eMTCT services?	No	2
026	If no explain why?		
027	Will you be willing to be retained in the services during pregnancy, delivery, breastfeeding and for life?	Yes No	1 2
028	If no give reasons why?		

B). Factors affecting willingness of ANC mothers to uptake eMTCT

029	If you underwent HCT did you receive any pre-test counseling?	Yes No	1 2
030	If yes which type of pre-test counseling did you receive?	Group counseling One on one None	1 2 3
031	Which type of post-test counseling did you receive?	Group counseling One on one Couple counseling None	1 2 3 4
032	Where you satisfied with the way the counseling was done?	Yes No	1 2
033	If no give reasons why?		
034	Was there any form of confidentiality when releasing the results?	Yes No	1 2
035	If no what was the problem?		
036	Do you think there is need to improvement on how HCT should be done?	Yes No	1 2
037	If yes, explain how HCT should be improved?		

C): Actual uptake of eMTCT services by ANC mothers in GRRH

i) Knowledge on eMTCT of HIV

S/No.	Question item	Response	Code
038	Are you aware of your HIV status?	Yes No	1 2
039	If no why?		
040	From where did you receive the HCT?	hospital VCT Centre Others specify ...	1 2 55
041	Have you ever heard about eMTCT of HIV?	Yes No	1 2
042	If yes from where did you get the information?	Friends Relatives School teachers Health institution Radio Others specify ...	1 2 3 4 5 55

043	Can HIV be transmitted from Mother to Baby during pregnancy?	Yes No Do not know	1 2 9
044	Can HIV be transmitted from mother to baby during delivery?	Yes No Do not know	1 2 9
045	Can HIV be transmitted from mother to baby during breastfeeding?	Yes No Do not know	1 2 9
046	Is it possible to tell whether a mother is HIV positive or not by looking at her?	Yes No Do not know	1 2 9
047	Do you think that every pregnant woman should be screened for HIV?	Yes No Do not know	1 2 9
048	If no why?		
049	Are you aware of interventions that can prevent MTCT of HIV?	Yes No Do not know	1 2 9
050	If yes, what are they?		
051	If no, will you be willing to have knowledge on the interventions used to prevent MTCT of HIV?	Yes No	1 2
052	If no why?		
053	If yes, will you be able to pass information about eMTCT services to the people in your community?	Yes No	1 2
054	If no why?		

ii) Perceived Benefits of eMTCT

055	Do you think utilization of eMTCT services is beneficial to the mother and baby?	Yes No	1 2
056	If yes explain how?		
057	If no why?		
058	What will you say about eMTCT services here in the hospital	Very good Good Fair Poor Do not know	1 2 3 4 9
059	Do you think availability of skilled health workers can contribute to actual uptake of eMTCT services?	Yes No	1 2
060	If yes explain how?		
061	If no why?		
062	What advice will you give to mothers who tested HIV positive and not enrolled in eMTCT services?		

D). Factors affecting actual uptake of eMTCT services

i) Demographic characteristics

S/No	Item	Response	Code
063	Do you think the age of the mother can affect utilization of eMTCT?	Yes No	1 2
064	If yes, explain how?		

065	Which age group do you think may not be willing to uptake eMTCT services?		
066	Do you think educational level of the mothers can affect uptake of eMTCT services?	Yes No	1 2
067	If yes explain how?		
068	Do you think marital status of ANC mothers can affect their eMTCT uptake?	Yes No	1 2
069	If no why?		
070	Does religion have any role in eMTCT uptake?	Yes No	1 2
071	If yes how?		

ii) Stigma and fear of disclosure

072	How would you prefer to have your HIV test done?	Alone As a couple Others specify	1 2 55
073	Give your reasons to the option given above		
074	Do you need permission from your partner for HCT?	Yes No	1 2
075	If yes why?		
076	Have you disclose your HCT results to your partner?	Yes No	1 2
077	If no why?		
078	How will your relatives reaction, if they get to know you are HIV positive		
079	what does the community say about pregnant mothers who are living with HIV?		

iii) Drugs (ARV) side effect

080	Are you on ART?	Yes No	1 2
081	If yes have you experience any side effects with the ARV drugs you are taking?	Yes No	1 2
082	Is yes, what are they?		
083	Despite the side effects of the drugs if any, has this drugs been any use?	Yes No	1 2
084	If no give your reasons		
085	What will you tell the ANC mothers about ART?		

iv) Adherence to ART

086	At what month of pregnancy did you register for ANC?	1-3 Months 4-6 Months 7-9 Months	1 2 3
088	If HIV positive, did you receive adherence counseling on ART? (HIV Positive only)	Yes No	1 2

089	If yes, have you been compliant? / If no will you comply with ART if you had tested positive?	Yes No	1 2
090	Reasons for non compliance		
091	Do you think it is necessary to receive adherence counseling?	Yes No	1 2
092	If yes why?		
093	If no give your reasons		

v) Cultural beliefs

094	Do you have any right to make decision in your family?	Yes No	1 2
095	If no give reasons?		
096	If tested HIV positive will you breastfeed your baby?	Yes No	1 2
097	If yes why? If no why?		
098	Where do you intend to deliver from?	Hospital At home with the TBA Others specify...	1 2 55

vi) Male involvement and family support

099	Do you have support from your husband and family during this time that you are pregnant?	Yes No	1 2
100	If no why?		
101	If yes, what kind of support?		
102	Do you think it is necessary for a man to be involved in eMTCT/ANC services?	Yes No	1 2
103	If no why?		
104	In your opinion, do you think male involvement can improve eMTCT services?	Yes No	1 2
105	If no why?		
106	What barriers do you think men may face in utilization of eMTCT/ANC services?		
107	Is the financial status of your partner strong enough to support his family?	Yes No	1 2
108	If no how does he manage to give the necessary support to the family?		

vii) Health systems factors

109	Is this hospital easily accessible?	Yes No	1 2
110	If no, how do you access services in the hospital?		
111	Does the hospital have enough skilled staff able to offer eMTCT/ANC services?	Yes No	1 2
113	Are the health workers friendly to the mothers in ANC?	Yes No	1 2
114	If no why?		
115	Do the attitudes of the health workers affect utilization of eMTCT services?	Yes No	1 2
116	If yes how?		

117	What do you think prevents other Pregnant mothers from accessing service?		
118	Were you informed about family planning (FP) services in this facility?	Yes No	1 2
120	If yes will you be in position to utilize FP services after delivery?	Yes No	1 2
121	If no give your reasons		
122	At any one point, has there been any ARV stock out in this hospital? (eMTCT mothers only)	Yes No	1 2
123	If yes, how often?	Once Twice Others specify....	1 2 55
124	What should be done to avoid the ART stock outs?		
125	Do you belong to any support group? (eMTCT mothers only)	Yes No	1 2
126	If yes, do you feel that it is helpful to you in this condition?	Yes No	1 2
127	If no why?		

ANNEX 3:

JEMI MA KITIYO KWEDE ME NONGO NGYEC KI BOT MON MA YAC IOT PIME PA MON

SECTION 0: NGYEC WENG

S/No	JAMI	LAGAM	CODE
001	Ot yat		1
002	Jang gang tic ma pat pat	Ot pime pa mon ma oyac	1
003	Cawa me cako peny		
004	Cawa me giko peny		

SECTION 1: NGEC IKOM LAGAM LAPENY

S/N	Lapeny	Lagam	Code
012	Mwaka pa lagam lapeny	< 20 21-25 26-30 31-35 36-40 >40	1 2 3 4 5 55
013	In inyome?	Atye kena Anyome Apoke ki cwara Daa-too	1 2 3 4
014	Dini ni kono?	Katoli Protanti Islam Mukene waci	1 2 3 55
015	I kwano ioo ikilasi adi?	Pe akwano Praimari Ciniya Tertiary Univaciti	1 2 3 4 5
016	Itiyo tic ango?	Dako ot Latic pa gamente lapur atiyo tic mamega mukene waci	1 2 3 4 55
017	Itye ki lutino adi?	Peke 1-5 >5	1 2 3
018	Cwari tiyo tic ango?	Latic pa gamente lapur atiyo tic mamega tic pakacha mukene waci	1 2 3 4 55

Dull me aryo 2: A). Niyee pa dako ma oyac me mede tic ki yoo mapat pat me gengo kobo pa two jonyo ikum latine

S/No	Item	Response	Code
021	Itwero yee me pima pi kwidi two jonyo ka pud no piya ipime?	Eyo atwero kuu	1 2
022	Pe itwero pingo?		

023	Ibiyee gamo adwogi ne ka gipimi pi two jonyo?	Eyo kuu	1 2
024	Ka kuu pe itwero pingo?		
025	Ka kinongo ni itye ki kwidi me two jonyo, iyee me donyo idul ma miyo kony mapat pat wek two jonyo pe omak latini?	Eyo Kuu	1 2
026	Ka kuu, Pe itwero pingo?		
027	Iyee ni ibi mede me nongo kony man ikare ma nongo pud itye ki ic, kare me nywal, kare ma nongo itye ka doto latin, ni mede ikare me kwo ni weng?	Eyo Kuu	1 2
028	Ka kuu, Pe itwero pingo?		

B). Jami ma twero gengo dako ma yac ma obino ka pime me tic ki yoo mapat pat ma gengo kobo pa two jonyo wek pe omak latin ne

029	Ka onongo ipime pi two jonyo, inongo pwony ma pud peya ipime?	Eyo Kuu	1 2
030	Ka eyo, pwony ango ma inongo?	Pwony lumuku Pwony ki ngat acel acel peke	1 2 3
031	Pwony ango ma inongo inge pime pi kwidi jonyo?	Pwony lumuku Pwony ki ngat acel acel Pwony pa dako ki lacoo Peke	1 2 3 4
032	I yeng ki yoo me pwony ma inongo?	Eyo Peke	1 2
033	Ka kuu, ci pingo?		
034	Inongo adwogi me pime ni iyo me mung?	Eyo Kuu	1 2
035	Ka kuu, gin ango nongo marac?		
036	Itamo ni mite me yubu kit me pime ki miyo pwony ikom kwidi ma kelo two jonyo?	Eyo Kuu	1 2
037	Ka kumeno iromo Waco kit ma ki romo yubu kwede pwony ikom kwidi ma kelo two jonyo?		

C): Yoo atir mapat pat ma gengo kabo pa two jonyo ki boy min latin ikum latin

S/No.	Lapeny	Lagam	Code
038	Itye ki ngec ikom adwogi me pime pi two jonyo?	Eyo Kuu	1 2
039	Ka kuu, pingo?		

040	Inongo pwony ki pime pi kwidi ma kelo two jonyo ki kwene?	Ot yat Ka pime pi two jonyo Mukene maci ...	1 2 55
041	Tika dong iwinyi pi yoo mapat pat ma gengo kobo pa kwidi two jonyo ki bot min latin ikum latin ne?	Eyo Kuu	1 2
042	Iwinyo ki kwene?	Lurema Wadi na Luponye me gang kwan Ot yat Radio Mukene waci ...	1 2 3 4 5 55
043	Itami ni two jonyo twero kobo ki bot min latin ikom latin ne ikare me yacu?	Eyo Kuu Pe angeyo	1 2 9
044	Itami ni two jonyo twero kobo ki bot min latin ikom latin ne ikare me nywal?	Eyo Kuu Pe angeyo	1 2 9
045	Itami ni two jonyo twero kobo ki bot min latin ikom latin ne ikare me doto latin?	Eyo Kuu Pe angeyo	1 2 9
046	Itwero Waco ka min latin tye onyo peke ki kwidi ma kelo two jonyo?	Eyo Kuu Pe angeyo	1 2 9
047	Itamo ni mon weng ma yac omyero kipim gi pi kwidi ma kelo two jonyo?	Eyo Kuu Pe angeyo	1 2 9
048	Ka ku, pingo?		
049	Ingeyo yoo mapat pat ma gengo kobo pa kwidi me two jonyo ki bot min latin ikum latin ne?	Eyo Kuu Pe angeyo	1 2 9
050	Ka ingeyo wac yoo ne mapat pat		
051	Ka pe ingeyo itwero bedo ki miti me nongo ngec iyo ma patpat ma twero gengo kobo pa kwidi me two jonyo wek pe omak latini,?	Eyo Kuu	1 2
052	Ka kuu, pingo?		
053	Ka ada, itwero miyo ngec iyo mapat pat ma kelo kwidi me two jonyo bot dano mukene ma tye icaro ni?	Eyo Kuu	1 2
054	Ka ku, pingo?		

iii) Kony ma yo mapat pat ma gengo kobo pa two jonyo kelo

055	Itamo ni tic ki yoo mapat pat ma gengo kwidi two jonyo twero kelo knoy bot min latin ki latin ne?	Eyo Kuu	1 2
056	Ka ada wac yoo mapat pat ma twero kelo kwede kony?		
057	Ka kuu, pingo?		
058	Iwaco ni ngo ikom yoo ma kitiyo kwede me gengo kobe pa kwidi two jonyo i ot yat kany?	Tye maber adada Tye maber Pe ber tutwal Tye marac Pe angeyo	1 2 3 4 9

059	Itamo ni tye pa lutic daktari ma gi tye ki ngec twero weko tic ki yo mapat pat me gengo two jonyo bedo maber?	Eyo Kuu	1 2
060	Ka eyo, waci?		
061	Ka kuu, pingo?		
062	Tam ango ma itwero miyo ki mon ma yac ma gi tye ki kwidi two jonyo ma gi pe ka tic ki yoo mapat pat ma gengo kobo pa kwidi two jonyo i kom latin?		

D). Jami magengo tic ki yoo mapatpat me gengo kobo pa two jonyo

viii) Gnec ikum lagam lapeny

S/No	Lapeny	Lagam	Code
063	Itamo ni mwaka pa min latin twero gengo tic ki yoo mapat pat ma gengo kobo pa kwidi two jonyo?	Eyo Kuu	1 2
064	Ka eyo waci kit ma mwaka pa min latin twero gengo yoo mapat pat pi kobo pa two jonyo?		
065	Itamo ni mwaka mene pa min latin ma twero weko gi bedo pee ki miti me tic ki yoo mapat pat ma gengo kobo pa two jonyo?		
066	Itamo ni rwom kwan pa min latin twero weko gi bedo pee ki miti me tic ki yoo mapat pat ma gengo kobo pa two jonyo?	Eyo Kuu	1 2
067	Ka ada, waci?		
068	Itamo ni nyome twero gengo mon ma yac pe me tic ki yoo mapat pat ma gengo kobo pa two jonyo?	Eyo Kuu	1 2
069	Ka kuu, pingo?		
070	Dini twero gengo tic ki yo mapat pat me kobo pa kwidi two jonyi?	Eyo Kuu	1 2
071	Ka ada, twero gengo nining?		

ix) Cimo tok ki lworo me kati atye

072	Yoo ango ma itamo ni ber piri me pime pi two jonyo?	Kena Dako ki lacor Mukene waci	1 2 55
073	Mi tami iyoo ma iyero malo ni		
074	Itamo ni omyero inongo twero ki bot cwari me pime pi two jonyo?	Eyo Kuu	1 2
075	Ka eyo waci?		
076	Dong iwaco ki cwari adwogi me pime pi two jonyo?	Eyo Kuu	1 2

077	Ka kuu, pingo?		
078	Wadi ni obitamo ni ngo ka gungeyo aduki me pime ni pi two jonyo?		
079	Dano ma ikin gang waco ni ngo ikum mege ma yac ma gi tye ki two jonyo?		

x) Adwogi me munyu yat me two jonyo

080	Itye ka munyo yat me gengo kobo pa two jonyo?	Eyo Kuu	1 2
081	Ka eyo, inongo adwogi mo marac ma yat okelo ikomi ?	Eyo Kuu	1 2
082	Ka eyo, waci?		
083	Ma pat ki adwogi me munyo yat kace onongo tye, tye kony mo ma yat me gengo two jonyo okelo in kumi?	Eyo Kuu	1 2
084	Ka ku pingo?		
085	Gin ango ma itwero Waco ki mon ma yac iot pime pi yat me gengo kobo pa two jonyo?		

xi) Tic ki yat me gengo two jonyo labongo keng

086	Icako pime ki dwee adii?	Dwe 1-3 Dwe 4-6 Dwe 7-9	1 2 3
087	Ikare ma icako pime iot yat, onogo dong ingeyo adwogi me pime ni pi two jonyo?	Eyo Kuu	1 2
088	Ka onogo ingeyo inongo pwony me bedo iyat labongo keng kadi nino acel? (pi jo matye ki two jonyo keken)	Eyo Kuu	1 2
089	Ka inongo pwony, ibedo kalubu cik pa daktar?/ka kuu itwero lubu cik pa daktar me munyo yat labongo keng?	Eyo Kuu	1 2
090	Ka kuu ci pingo?		
091	Itamo ni pire tek me lubu cik me munyu yat labongo keng?	Eyo Kuu	1 2
092	Ka eyo, pingo?		
093	Ka kuu mi tyen lok ango?		

xii) Yoo me tee kwaro

094	Itye ki twero iot ti me miyo tam i oti?	Eyo Kuu	1 2
095	Ka kuu, pingo?		
096	Ka ginongo ni itye ki kwidi me two jonyo, ibi doto latini?	Eyo Kuu	1 2
097	Ka eyo, pingo? Ka kuu pingo?		
098	Itamo ni ibi nywal ki kwene?	Iot yat Ki gang bot lacolo Mukene waci ...	1 2 55

xiii) Kony pa laco ki jo ma gang mukene

099	Itye ka nongo kony bot cwari ki jo gangi ikare man ma itye ki ic?	Eyo Kuu	1 2

100	Ka kuu, pingo?		
101	Ka ada kony ango ma inongo?		
102	Itamo ni pire tek ki lacoo me ribe ka nywako tam kacel ki mon ma yac iyo mapat pat ma gengo kobo pa kwidi two jonyo?	Eyo Kuu	1 2
103	Ka kuu, pingo?		
104	Ka itami, nywako tam kacel ki coo twero kelo kony me tic ki yoo mapat pat ma gengo kobe pa two jonyo?	Eyo Kuu	
105	Ka kuu, pingo?		
106	Itamo ni lageng ango ma coo nongo iyoo mapat pat ma gengo kobo pa kwidi two jonyo?		
107	Itamo ni cwari tye ki cente muromo ma twero gwoko in kacel ki ot ne?	Eyo Kuu	1 2
108	Ka kuu ci en gwoko dano ma iot ne nining?		

xiv) Jami ma lupe ki otyat?

109	Ot yat eni oo iye yot?	Eyo Kuu	1 2
110	Ka kuu cii ioo iot yat kany nining?		
111	Itamo ni ot yat eni tye ki daktari ma gi tye ki ngec muromo ma gi twero miyo kony iyoo mapat pat mageno kobo pa kwidi two jonyo?	Eyo Kuu	1 2
112	Ka kuu, pingo?		
113	Daktari matiyo ikom mon ma yac gi tye ki mar ikom mon muyac iot pima man?	Eyo Kuu	1 2
114	Ka kuu, pingo?		
115	Itamo ni kit pa daktari iot yat kany twero gengo yoo mapat pat me gengo kobo pa kwidi me two jonyo bot mon ma yac?	Eyo Kuu	1 2
116	Ka kuu, pingo?		
117	Itamo gin ango ma gengo mon mukene ma guyac pe me nongo kony mapat pat ma gengo kobo pa kwidi jonyo?		
118	Kimiyo iti ngec iyo me lago nyal iot yat man?	Eyo Kuu	1 2
119	Ka kuu, pingo?		
120	Ka inongo nyec iyo me lago nywal, itwero tic ki yo me lago nywal ingee nywali?	Eyo Kuu	1 2
121	Ka kuu, pingo?		
122	Tye nino mo ma yat ma gengo kobo pa kwidi two jonyo obedo peke iot yat kany? (pa megi matye ki two jonyo keken)	Eyo Kuu	1 2
123	Ka ada, obedo tyen adii?	Kicel Kiryo Mukene mapat waci....	1 2 55
124	Gin ango mamyero kitim wek pe yat me two jonyo obed peke iot yat?		
125	Itye idull pa mon ma oleyo kwedgi tam ilok ma lube ki two jonyo?	Eyo Kuu	1 2
126	Itamo ni dullni tye ka mini kony?	Eyo Kuu	1 2
127	Ka kuu, pingo?		

ANNEX 4: PROBES

Willingness of ANC mothers to uptake eMTCT services

1. How did you react to the HCT results when it was given to you?
2. Give reasons why you will be willing to enroll for eMTCT services?

Factors affecting willingness of ANC mothers to uptake eMTCT services

1. What happened when you found that you were HIV positive?

Actual uptake of eMTCT services by ANC mothers

1. Could you please explain more on the reasons why all pregnant mothers should be screened for HIV
2. How can eMTCT services be improved?

Factors affecting actual uptake of eMTCT services by ANC mothers

1. Explain why age of the mother does not affect utilization of eMTCT services
2. How can information on eMTCT be improved?

ANNEX 5: Map of Gulu district locating GRRH