MEN'S PERSPECTIVES ON ANTIRETROVIRALS IN PREVENTING PERINATAL HIV TRANSMISSION IN SUBA EAST, MIGORI DISTRICT.

BY

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DECLARATION

I declare that this thesis is my original work and has not been presented in any other university.

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DEDICATION

This thesis is dedicated to my late sister Beatrice, her late husband Edwin and to their late daughter Tanja whose lives could have been prolonged if only antiretroviral drugs had become readily accessible a little earlier. May God rest their souls in eternal peace.

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CHAPTER THREE: STUDY METHODLOGY

CHAPTER FOUR: STUDY FINDINGS

CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome.
ANC	Antenatal clinic.
ART	Ante retroviral therapy.
ARV	Antiretroviral.
AZT	Azidothymadine (zidonudine or ZDV).
CDC	Centers for Disease Control and prevention.
CD4	T helper cells.
CI	Confidence intervals.
CS	Caesarean section.
DDP	District Development Plan
FP	Family planning
FGD	Focus Group Discussions
Fig.	Figure
HAART	Highly active ante retroviral therapy.
HIV	Human immunodeficiency virus.
i.e	That is
ICASA	International conference on AIDS and Sexually Transmitted Infections in Africa.
JAMA	Journal of the American Medical Association.
KAP	Knowledge, attitudes and practices
KCSE	Kenya Certificate of Secondary Education
KDHS	Kenya Demographic and Health Survey
Kg	kilogramme
Km	Kilometre
MCH	Maternal and Child Health
MOH	Ministry of Health.
MTCT	Mother to child transmission.
NASCOP	National AIDS and STD Control Programme
OR	Odds Ratio
Q	Question
PMTCT	Prevention of mother to child transmission.
STD	Sexually transmitted diseases.
STI	Sexually transmitted infections
TAC	Treatment Action Campaign.
UNAIDS	Joint United Nations Program on HIV/AIDS.
UNICEF	United Nations Children's Fund.
VCT	Voluntary counseling and testing.
WHO	World Health Organization.
ZDV	Zidovudine (Azidothymadine or AZT)

OPERATIONAL DEFINITIONS

Antiretrovirals

Medicines used for treatment of HIV infection. In this study reference has been made to nevirapine, which is the most common, the simplest regimen to deliver and the most preferred in resource poor settings.

Perception

It is an idea, a belief or an image you have as a result of how you see or understand something (Hornby, 2000)

Perinatal

Pertaining to the period immediately before and after birth. Is a hybrid of the Greek "peri"-meaning "around" or "about" and "natal" from the Latin "natus" meaning" born"

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ABSTRACT

Mother to child transmission of HIV/AIDS accounts to almost 90% percent of HIV infections in children. Scientific research has shown that this mode of HIV transmission can be reduced through use of antiretroviral drugs among other interventions. These interventions are currently provided through PMCT programs most of which attract women as their clients since they are the ones who are involved in the actual delivery of the babies. Some programs realized that the uptake of this service was low and some studies established that the women feared the reaction of their partners especially as regards results disclosure. HIV positive status was feared could lead to the women being blamed of having brought the disease.

A descriptive cross-sectional study was carried out in November 2004 to determine the perceptions and knowledge of men on antiretrovirals in preventing mother to child transmission of HIV. The study also aimed at determining the acceptance of men on use of antiretroviral drugs by HIV infected women and their newborn infants in preventing perinatal HIV transmission. Both qualitative and quantitative data was collected. Multistage sampling procedure was employed to select the sampling units.

The findings of the study showed that slightly half (55.3%) of the respondents had adequate knowledge on PMCT. After controlling for possible confounders only education remained a strong predictor of possessing adequate or inadequate knowledge on PMCT of HIV/AIDS (OR=1.721, 95% CI: 1.359-2.180, p= 0.000).

Whereas Majority of the respondents (75%) had good PMCT perceptions, less than half (48%) of all the respondents had good PMTCT practices. Protestants were more likely to have good perceptions on prevention of MTCT of HIV/AIDS compared to catholics (OR= 1.81, 95% CI: 1.01-3.22, p=0.03). However, when logistic regression was done to determine the effect of each variable independent of the other regarding perceptions on PMCT of HIV/AIDS components, no socio demographic factor was found to be significantly related to having good perceptions on PMCT. Only level of education (OR=1.359, 95% CI: 1.086-1.701, p=0.007) and type of occupation (OR=0.826, 95%

CI: 0.708-0.963, p=0.015) were found to be significantly related to good PMCT practices after controlling for confounding factors.
Majority of the respondents in the study (90%) stated that they would recommend women to take nevirapine prophylaxis for the purpose of PMCT.

In conclusion, there is still knowledge gap among men on issues of PMCT. There is however positive attitude towards the interventions only that knowledge and good perceptions have not been translated into expected good PMCT practices.

In the recommendations, the government should try to change the image of Maternal Child Health (MCH) clinics to make them more male friendly. This may include orientation and sensitization of health workers to appreciate male as equal partners with women in seeking family related health services like PMTCT. Current information on PMCT of HIV/AIDS needs to be disseminated to all members of the community not forgetting men. Further studies are required to continuously monitor and evaluate the PMCT services and determine the level of involvement of men and how this has impacted on uptake of the services. This is in view of the fact that ever since the study period, PMTCT services in the district have been rolled out to more sites. A similar study needs to be carried out in a different geographical and socio-cultural set up to identify other factors that could affect men's perceptions on PMCT of HIV/AIDS.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Human immunodeficiency virus (HIV) that causes Acquired Immune Deficiency Syndrome (AIDS) has become a household name in most countries in sub- Sahara Africa. HIV/AIDS pandemic has had devastating impact that has transcended race, age, sex, marital status, religious affiliation, socioeconomic status and geographical boundaries.

In 2004, an estimated 640,000 children (under 15 years) worldwide became infected with HIV, mainly through mother to child transmission (MTCT). About 90% of these MTCT infections occurred in Africa where AIDS is beginning to reverse decades of steady progress in child survival (AIDS Update, 2004).

Prevention of mother to child transmission of HIV/AIDS programs have realized that the uptake of PMCT services depended on the extent to which men are involved. Men have been viewed as either facilitators or impediments to the PMCT efforts. Partner participation in VCT and couple counseling has been shown to increase uptake of nevirapine and formula feeding (Farquhar, 2004).

Most information regarding men's attitude to the PMCT program have been provided by women and may not necessarily reflect the views of men. This study has therefore exclusively targeted men to establish their perspectives on the program and their acceptance of antiretroviral drugs in the prevention of mother to child HIV transmission.

1.2 Background information

1.2.1 MTCT of HIV/AIDS situation in Kenya

In Kenya, HIV prevalence in 2003 among antenatal women ranged between 10% to 26% in urban sentinel sites and 1% to 41% in rural areas. The sites with over 20% prevalence are mainly in Nyanza Province. Suba in Migori district had the highest prevalence of 41% (NASCOP, 2003).

The government of Kenya developed PMCT guidelines with the first edition being produced in 2001. Health providers caring for pregnant women with HIV infection and their newborns use these guidelines. These guidelines include justification for specific management of HIV positive care before, during and after pregnancy, antiretroviral therapy (ARV) and finally, care for the newborn infant.

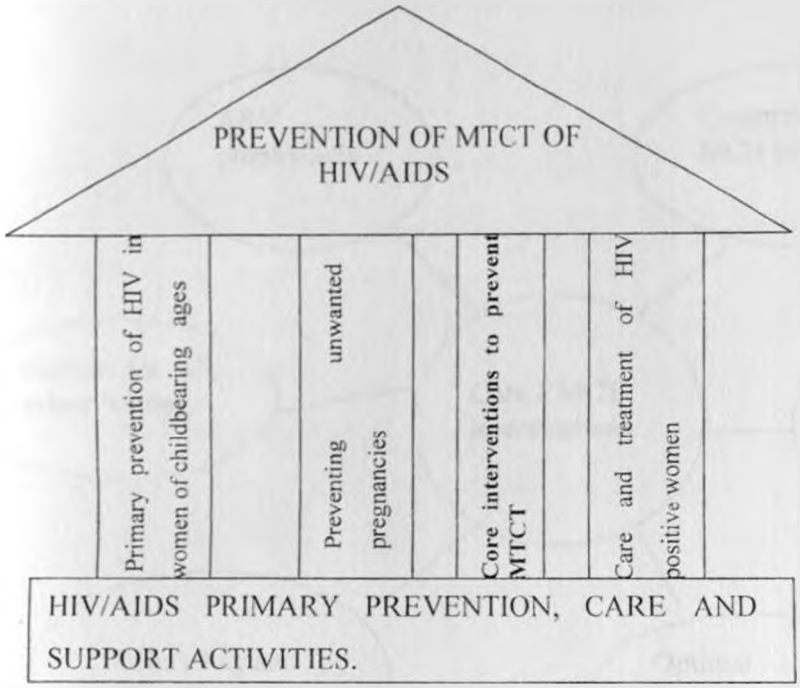
In August 2002 the PMCT program in the country was officially launched and since then PMCT intervention programs have been rolled to over 700 sites within the country (NASCOP, 2003).

1.2.2 The Pillars of PMTCT

These are interventions to reduce mother to child transmission of HIV/AIDS. These approaches (Fig 1) are implicit in the four pillars of safe motherhood, the foundations of which are primary healthcare and greater equity for women. The goal of safe motherhood initiative is to reduce both maternal and child morbidity and mortality. HIV/AIDS is currently one of the conditions threatening maternal and child survival. Current efforts are gravitating towards preventing mother to child HIV transmission based on the four pillars of PMCT, which are:

1. Primary prevention of HIV in women of childbearing age.
2. Preventing unwanted pregnancies.
3. Core interventions to prevent MTCT.
4. Care and treatment of HIV positive women.

Fig 1. The pillars of PMCT

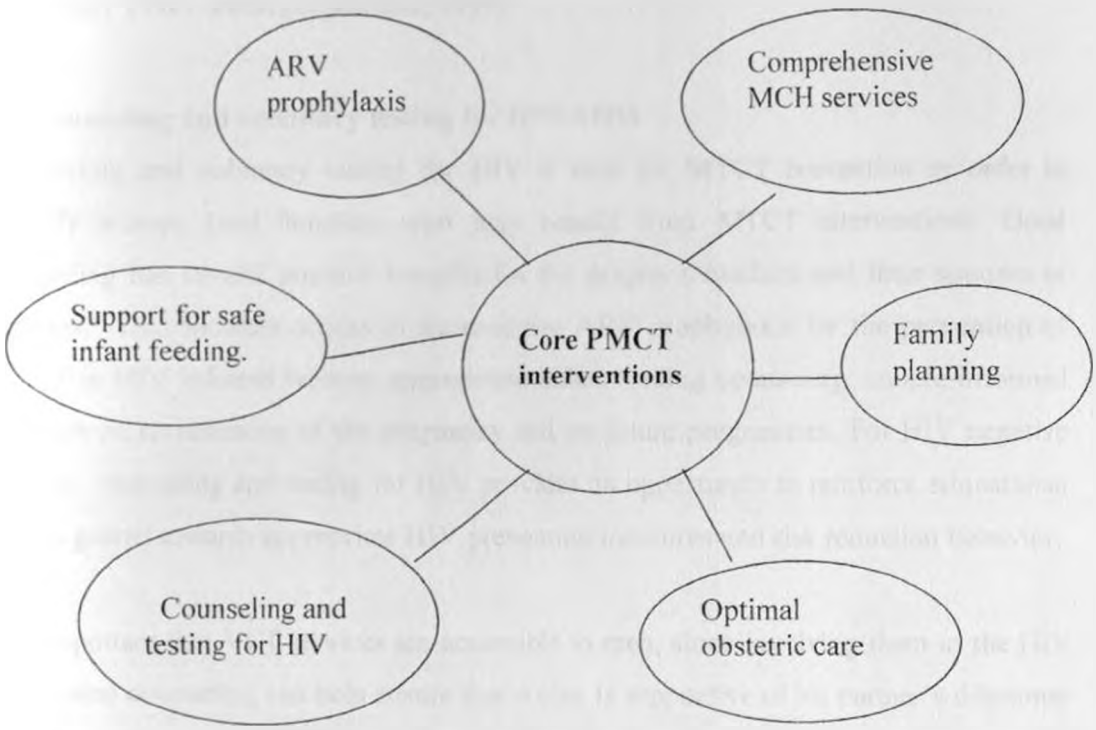


1.2.3 Core interventions to prevent MTCT.

Prevention of mother to child HIV transmission efforts should be viewed within the whole spectrum of HIV/AIDS primary prevention, care and support activities. For instance, core interventions to prevent MTCT should be introduced within broader HIV/AIDS prevention, child survival, reproductive health, family planning, and food security programs. The core MTCT prevention interventions are those that directly prevent mother to child HIV transmission during pregnancy, labor and delivery and during postpartum period for women who are already HIV infected (Preble, 2001).

Figure 2 portrays the core PMCT interventions, which include comprehensive MCH services; Counseling and voluntary or diagnostic HIV testing; improved breastfeeding and alternative infant feeding, counseling & practices; optimal obstetric care; short-course ARV prophylaxis and family planning.

Fig 2. Core PMCT interventions



a). Comprehensive MCH services

Access to good quality health services during antenatal period, during labor and delivery, and after birth is of prime importance if intentions of preventing MTCT of HIV/AIDS are to be realized. A full antenatal service package should include: Counseling and voluntary testing for HIV/AIDS; STD screening and treatment; iron and folate supplementation; maternal tetanus toxoid immunization; malaria preventive intermittent treatment; tuberculosis treatment where appropriate; basic obstetric care; and information on HIV prevention, infant feeding, and family planning (Dabis *et al*, 2000).

An HIV-infected woman's chances of avoiding or delaying conditions that will compromise her health and survival can be improved by reducing the incidence and severity of malaria, tuberculosis, reproductive tract and other infections. It has been

shown that improving antenatal care will ameliorate birth outcomes thus reducing chances of stillbirths, low birth weight, preterm births, and infant mortality irrespective of the mother's HIV status (Liljestrand, 1999).

b). Counseling and voluntary testing for HIV/AIDS

Counseling and voluntary testing for HIV is vital for MTCT prevention in order to identify women (and families) who may benefit from MTCT interventions. Good counseling has several positive benefits for the pregnant mothers and their spouses or partners. That includes access to short-course ARV prophylaxis for the prevention of MTCT in HIV infected women; appropriate infant feeding counseling; couple informed decision on continuation of the pregnancy and on future pregnancies. For HIV negative women, counseling and testing for HIV provides an opportunity to reinforce educational efforts geared towards appropriate HIV prevention measures and risk reduction behavior.

It is important that VCT services are accessible to men, since involving them in the HIV test-related counseling can help ensure that a man is supportive of his partner's dilemmas and choices related to HIV, infant feeding, family planning, etc. Concrete decisions regarding the future of the family can thus be made based on known HIV status.

c). Safe infant feeding

Infant feeding counseling is an important intervention for the prevention of mother-to-child transmission of HIV. More than one-third of HIV transmission to infants occurs through breastfeeding, and up to 20 percent of infants born to HIV-infected mothers acquire the virus from breast milk in countries where extended breastfeeding of children is the norm (WHO, 2001). The World Health Organization advises that HIV-positive mothers should be offered nondirective counseling on various infant feeding options that are feasible, affordable, safe, sustainable, and effective in the local context.

Local guidelines developed for PMTCT in Kenya recommend that pregnant mothers be informed about the risks of mother-to-child transmission during infant feeding and that infant feeding options be discussed. In Kenya, women who are HIV negative and those

of unknown status are recommended to breastfeed their infants exclusively. Women who are HIV positive are counseled about the risks of breast milk transmission of HIV and informed of three optimal choices: exclusive breastfeeding, replacement feeding with formula, and replacement feeding with modified cow's milk. HIV positive women who choose to exclusively breastfeed are supported with appropriate information and skills and counseling on good breastfeeding techniques. HIV-positive mothers who choose not to breastfeed receive education and support on safe preparation and storage of chosen milk; given demonstrations on cup feeding, they receive counseling on the care of breast to avoid engorgement and should also be provided with reliable family planning method by four weeks (2004, MOH).

d) Optimal obstetric practices

Sub Saharan countries still experience some of the highest maternal mortality rates in the world. Chances of survival thus become slimmer for those infants whose mothers die from delivery-related complications. Efforts to improve obstetric care will therefore provide broader benefits than just preventing MTCT. It is important to ensure a safe delivery and to minimize procedures that increase infants' exposure to mother's body fluids and thus increasing risk of MTCT of HIV such as artificial rupture of membranes and episiotomy in cases where there is no obstetrical indication. Safe delivery plan and a contingency plan for referral should be available.

Handling of the newborn infant in the first hours after delivery should include thorough drying to minimize heat loss as well as to remove any remaining maternal blood and amniotic fluid. Vigorous suctioning of the infant's mouth and pharynx right after delivery may cause trauma to the mucus membranes and should be avoided unless absolutely necessary. Umbilical cord cutting and care should be handled in a way that minimizes the infant's and the health provider's exposure to blood.

Elective Cesarean section delivery before onset of labour and before rupture of membranes can play a role in preventing MTCT but the cost and lack of surgical facilities hinders this form of delivery for most women in resource-limited settings in Africa.

Moreover, cesarean section delivery poses risks of complications of major abdominal surgery such as infection, hemorrhage, organ injury, and anesthetic complications.

e). Short-course antiretroviral (ARV) prophylaxis

Several antiretroviral prophylaxis regimens have been shown to substantially reduce the risk of perinatal HIV-1 transmission in clinical trials (Connor, 1994; Shaffer et al, 1999; Dabis et al, 1999). Antiretroviral drugs reduce the cost of caring for an HIV-positive infant to both the health care system and the family structure. These drugs reduce the number of HIV infected infants and thus the burden they impact on time commitment, energy and resource for the caretakers.

The choice of an ARV regimen for use in a given setting must take into account feasibility, efficacy, and cost. Specific considerations include the proportion of women attending antenatal care; the timing and frequency of their antenatal visits; the availability and acceptability of antenatal VCT; the ability of ANC services to deliver the drugs to women; and the acceptability of ARV prophylaxis among infected women and families (WHO, 2000).

Single dose nevirapine, which is the simplest regimen to deliver, is the preferred regimen in settings with limited capacity for delivering health services and an important option when HIV infection is identified late in pregnancy or during labor.

f). Family planning counseling and services

Safe and effective contraception is crucial in giving women direction on their reproductive health. Contraceptives together with high-quality reproductive health counseling, can help a woman practice safer sex, determine her future childbearing patterns on a more responsible and informed basis, and potentially reduce the numbers of HIV infected births. Women who learn that they are HIV-infected may harbour a strong desire to avoid giving birth to more children who may be born HIV-infected and later become orphaned at an early age. Moreover, since the risk of MTCT increases as the

mother's own infection progresses, the risk of MTCT may grow with subsequent pregnancies. VCT services provide an excellent opportunity to offer family planning counseling and referral while informing HIV-infected women and couples about the MTCT risks inherent in current and future pregnancies (Preble, 2001).

CHAPTER TWO

LITERATURE REVIEW

2.1 Timing of MTCT

Transmission of HIV from mother to child can occur in utero, during or after delivery (McGowan *et al*, 2000). Most transmission occurs late in pregnancy or at the time of delivery (Rouzioux *et al.* 1995). The table below indicates that most of perinatal HIV transmission occurs during delivery. Breastfeeding contributes to 10-15% of HIV infections due MTCT of HIV/AIDS (De Cock).

Table 1: Timing of MTCT of HIV

Timing	No breastfeeding		Breastfeeding	
	Absolute rate	Proportion of total MTCT	Absolute rate	Proportion of total MTCT
Antepartum	5-10%	(33%)	5-10%	(20%)
Intrapartum	10-20%	(67%)	10-20%	(40%)
Postnatal	--	--	10-15%	(30-40%)
Total	15-30%	(100%)	25-45%	(100%)

Adapted from De Cock KM, Fowler MG, Mercier E, deVincenzi I, Saba J, Hoff E, Alnwick DJ, Rodgers M, Shaffer N. Prevention of mother to child HIV transmission in resource poor countries: translating research into policy and practice. JAMA 2000 Mar 1; 283 (9): 1175-82.

2.2 Risk factors of MTCT of HIV/AIDS

2.2.1 Antepartum factors

Human immunodeficiency virus in most HIV infected women does not cross the placenta from mother to fetus since the placenta shields the fetus from HIV (Anderson, 1997). The following situations may lead to breakdown of the placenta and thus enhance HIV transmission from an infected mother to the fetus:

a) If the mother has a viral, bacterial, or parasitic placental infection during pregnancy.

b) If the mother becomes HIV-infected herself during the pregnancy, and hence develops a very high level of the HIV virus for a short time.

c) If the mother has severe immune deficiency associated with advanced AIDS (WHO, 1999).

d) Malnutrition during pregnancy may indirectly contribute to MTCT (Semba, 1997). Maternal nutritional factors, such as serum vitamin A levels have been correlated with the risk of transmission in a Malawi study (Semba *et al*, 1994). This study found out that the mean vitamin A level in mothers who transmitted virus to their children was significantly lower than those who did not transmit the virus. The mechanism of transmission is however uncertain, but it has been suggested that vitamin A may maintain the integrity of the vaginal mucosa or placenta and may have immune stimulatory properties thus offering protection. In the event of a deficiency, the mucosal integrity is jeopardized and this may enhance HIV transmission. Alternatively, low vitamin A levels may be a marker for other deficiencies or behavioral factors, which influence transmission of HIV.

However, a randomized clinical trial that was conducted later on concluded that vitamin A supplementation showed a lack of efficacy in preventing mother to child transmission (Coutsoudis *et al*, 1999).

2.2.2 Intrapartum risk factors

Infants of HIV-infected mothers are at great risk of becoming infected with HIV during childbirth. Between 10 and 20 percent of infants acquire HIV infection around this period if no interventions are available to prevent the infection.

Possible mechanisms of transmission during this intrapartum period include transfusion of the mother's blood to the fetus during labor contractions, infection after the rupture of

membranes, and direct contact of the fetus with infected secretions or blood from the maternal genital tract (The International Perinatal HIV Group, 1999).

Obstetric factors that increase the baby's contact with the mother's blood are therefore important determinants of transmissions during this period. Several factors have been implicated, although results are not consistent across studies with regard to their relative significance. These include premature delivery; intrapartum hemorrhage; mode of delivery; vaginal lacerations; instrument delivery; invasive fetal monitoring and episiotomies (European Mode of Delivery Collaboration, 1999). The duration of labor does not appear to be as important as the duration of rupture of membranes. Babies born to mothers with membranes ruptured for more than 4 hours prior to delivery had a high risk of infection of 25% v/s 14% (Landesman *et al*, 1996).

2.2.3 Postpartum risk factors

HIV transmission to infants can occur after birth through contact with infected blood, blood products, or unsterile medical equipment, but these channels of transmissions are thought to be relatively rare, even in Africa. Efforts to improve the safety of the blood supply, to avoid unnecessary delivery-related blood transfusions, and to improve infection control practices have probably further reduced the incidence of non-MTCT transmission in infants (Preble, 2001).

The main mode of postnatal mother to child HIV transmission is breastfeeding. The risk of postnatal transmission through breastfeeding starts at birth. Breastfeeding accounts for the higher rate of mother to child transmission of HIV in developing countries. This is less common in the developed world where most HIV positive women do not breastfeed. The estimated annual risk of late postnatal transmission of HIV-1 after 2.5 months of age was 3.2 cases per 100 breastfed children born to HIV infected women (CI 3.1-3.8) in data collected before the use of ARV (Leroy *et al*, 1999).

HIV is present in breastmilk, although the viral concentrations in breastmilk are significantly lower than those found in blood.

Recent studies suggest that the risk of MTCT through breastfeeding depends on a number of factors. Factors that could probably be associated with HIV transmission through breastfeeding are shown in table 2.

Table 2. Factors associated with breastfeeding HIV transmission

Maternal
RNA viral load in milk
RNA viral load in plasma
Clinical or immunologic (CD 4 count) disease progression
Breast health (sub-clinical or clinical mastitis, abscess, cracked nipples)
Local immune factors in breast milk
Infant
Duration of breastfeeding
Mode of breastfeeding
Morbidity related to less vigorous suckling, milk stasis and increased leakage of virus across milk ducts

Adapted from John-StewartG, Mbori Ngacha , Ekpini R *et al.* Breast-feeding and Transmission of HIV-1 *J Acquir Immune Defic Syndr* 2004; **35(2):** 196-202,

i). Maternal factors

Elevated maternal RNA viral load in plasma and breast milk is strongly associated with increased risk of HIV transmission through breast-feeding. High levels of virus in plasma, and probably also in breast milk, are seen in primary HIV infection, when the rate of postpartum transmission has been estimated to be nearly 30% (Dunn *et al*, 1992).

Low maternal CD4 cell count has been documented to be a risk factor for breastfeeding transmission independent of plasma RNA viral load. In a clinical trial in West Africa, the cumulative postnatal transmission risk of HIV at 2 years of age was higher among

mothers with CD4 cell counts of less than 500 cells/mL than among those with CD4 cell counts of above 500 cells/mL (Leroy *et al*, 2003).

Breast health has also been associated with the risk of transmission through breast-feeding, with breast pathologies such as clinical and sub clinical mastitis, nipple bleeding, abscess, or fissures relatively common in both the general and HIV-infected population. Sub-clinical mastitis could also be possibly associated with an increased risk of mother to child transmission independently of the maternal plasma HIV viral load as shown among HIV infected women in Malawi (Semba *et al*, 1999) and in South Africa (Willumsen *et al*, 1999).

Maternal nutritional status may influence risk of HIV transmission in general as well as breast-feeding transmission. Data from a randomized trial investigating the effect of multivitamins and vitamin A on the risk of transmission showed that multivitamins excluding vitamin A had no effect on the overall risk of transmission, but vitamin A alone was associated with a slight increase in transmission overall, and increased postnatal transmission. Multivitamins were associated with a non-significant reduction in breast-feeding transmission and mortality in the first 2 years of life (Fawzi *et al*, 2002).

ii) Infant factors

The mode of infant feeding may be significant in determining rates of breastfeeding transmission of HIV. Exclusive breast-feeding has been considered to be the optimum for maternal and child health although exclusive breast-feeding for up to 6 months is rare (Nicoll *et al*, 2000). Studies have indicated that that exclusive breast-feeding could be associated with lower rates of breast-feeding transmission than mixed feeding of both breast and other milk or feeds. A study done in South Africa showed that children who had received both breast milk and other feeds were more likely to be infected by 15 months of age (36%) than those who were exclusively breast-fed for at least 3 months (25%) or those who had been exclusively formula fed (19%) (Coutsoudis *et al*, 2001).

Duration of breastfeeding has been identified as a risk factor for HIV transmission through breastfeeding. Prolonged breast-feeding nearly doubles the overall infant HIV-1

infection (Nduati *et al*, 2000). In a study done in Malawi (Miotti *et al*, 1999), it was found that postnatal HIV transmission risk due to breastfeeding was high in the early months of life but remained substantial as long as the infant continued to breastfeed.

2.3 Clinical Trials on interventions to reduce MTCT of HIV/AIDS

2.3.1. Antiretroviral drugs

Several prophylactic regimens, using different drugs and varying periods of treatment, have been proven to be effective in reducing perinatal HIV transmission in clinical trials. The extent of risk to the fetus and infant from antiretroviral prophylaxis will likely vary by duration of exposure as well as number of drugs to which the infant is exposed. The clinical trials have been done in both breastfeeding and non-breastfeeding populations.

i) PACTG clinical trials.

In 1994, a clinical trial in the USA and France (Paediatric AIDS Clinical Trials Group Protocol 076) demonstrated the efficacy of zidovudine prophylaxis in the absence of breastfeeding in reducing perinatal transmission of the human immuno-deficiency virus HIV from 25.5% to 8.3%. In this study, a three-part zidovudine (AZT) regimen administered to infected women after the first trimester of pregnancy, intravenously during labor, and orally to their infants for 6 weeks was shown to reduce perinatal HIV transmission by two thirds (Connor *et al*. 1994). These results were subsequently confirmed in the PACTG trial 185 (Stiehm, 1999)

The PACTG 076 AZT regimen is complex and expensive making it an unrealistic preventive regimen for most resource-poor countries. Additionally, it requires prolonged antenatal and neonatal administration of antiretroviral drugs, which could be associated with an increased risk for adverse effects.

ii) The THAI-CDC Regimen

A trial in Bangkok, Thailand demonstrated in March 1998 that a relatively simple and inexpensive intervention, short course antenatal zidovudine, can reduce the risk of

mother to child HIV infection by half among non-breastfeeding HIV infected women (Shaffer *et al*, 1999). In this randomized, double-blind, placebo controlled trial, HIV infected pregnant women at two Bangkok hospitals were randomly assigned placebo or one zidovudine 300mg tablets twice daily from 36 weeks' gestation and every three hours from onset of labor until delivery. Mothers were given infant formula and asked not to breastfeed. The main outcome was babies' HIV infection status at birth, 2 months and 6 months. Results showed that adverse events were similar in the study groups. The estimated transmission risk were 9.4% on zidovudine and 18.9% on placebo, efficacy was 50.1%. The regime was thus well tolerated and reduced the risk of mother to child HIV transmission by half. Although the decrease was significant, it is somewhat lower than the relative reduction in the risk of transmission of 67.5% reported for protocol 076 (Connor *et al*, 1994).

iii) Combined therapy (AZT and 3TC lamivudine)

A study was carried out to assess the safety of combined perinatal lamivudine (3TC) and zidovudine (AZT) therapy, especially in children, and its effects on viral load, acquisition of drug resistance, and maternal-infant transmission of HIV in a non-breastfeeding population. The study cohort received lamivudine in addition to the standard Pediatric AIDS Clinical Trial Group 076 Study zidovudine prophylaxis regimen. Lamivudine was initiated in women at 32 weeks' gestation through delivery at 150 mg twice per day orally; children received lamivudine, 2 mg/kg twice per day for 6 weeks. Results indicated that transmission rate in the study group was 5-fold lower than in controls. The most frequent serious adverse events observed in children were neutropenia, anemia and mitochondrial toxicity manifested as lactic acidosis. Much as lamivudine-zidovudine may be effective in preventing perinatal HIV transmission, severe adverse effects and emergence of resistance to lamivudine may obscure its role (Mandelbrot, 2001).

In the Petra study, 3 several zidovudine and lamivudine (3TC) regimens were assessed in a multicentre trial in Uganda, Tanzania, and South Africa. Intrapartum zidovudine and

lamivudine plus postpartum zidovudine and lamivudine to mother and baby reduced mother-to-child transmission to 8.9%, compared with 15.3% in placebo recipients (Petra Study team, 2002).

iv) Short course zidovudine

a) DITRAME Study Group

In 1995, Dabis *et al* (1999) embarked on a study to determine the acceptability, tolerance and six months efficacy of a short regime of oral zidovudine in Africa population practising breastfeeding. A randomized double-blind placebo controlled trial was done in West African countries of Cote d'Ivoire and Burkina Faso between 1995 and 1998. Consenting HIV positive women of age 36-38 weeks gestation were randomly assigned zidovudine 300mg twice daily until labor, 600mg at beginning of labor and 300mg twice for seven days post-partum or matching placebo. The primary end point was diagnosis of HIV infection in infants at days 1-8, 45, 90 and 180. The probability of HIV infection in the infant at 6 months was 18.0% in the zidovudine group and 27.5% in the placebo group. No major adverse biological or clinical event was reported in excess among women and children of the zidovudine group. The regimen was well accepted and well tolerated and led to a 38% reduction in early vertical transmission of HIV-1 infection despite breastfeeding. The main limiting factor for intrapartum treatment was that 40% of the women did not reach the study clinic to give birth.

b) Project RETRO-CI, 01 BP 1712, 01 Abidjan Cote D'Ivoire

A similar study without post partum dose was done which aimed to assess the safety and efficacy of short course perinatal oral zidovudine among HIV-1 positive breastfeeding women in Abidjan (Wiktor *et al*, 1999). All consenting eligible HIV seropositive pregnant women attending a public antenatal clinic in Abidjan were enrolled at 36 weeks gestation between 1996 and 1998. They were randomly assigned placebo or zidovudine (300mg tablet), one tablet twice daily until the onset of labor and one tablet every three hours until delivery. All babies were breastfed.

lamivudine plus postpartum zidovudine and lamivudine to mother and baby reduced mother-to-child transmission to 8.9%, compared with 15.3% in placebo recipients (Petra Study team, 2002).

iv) Short course zidovudine

a) DITRAME Study Group

In 1995, Dabis *et al* (1999) embarked on a study to determine the acceptability, tolerance and six months efficacy of a short regime of oral zidovudine in Africa population practising breastfeeding. A randomized double-blind placebo controlled trial was done in West African countries of Cote d'Ivoire and Burkina Faso between 1995 and 1998. Consenting HIV positive women of age 36-38 weeks gestation were randomly assigned zidovudine 300mg twice daily until labor, 600mg at beginning of labor and 300mg twice for seven days post-partum or matching placebo. The primary end point was diagnosis of HIV infection in infants at days 1-8, 45, 90 and 180. The probability of HIV infection in the infant at 6 months was 18.0% in the zidovudine group and 27.5% in the placebo group. No major adverse biological or clinical event was reported in excess among women and children of the zidovudine group. The regimen was well accepted and well tolerated and led to a 38% reduction in early vertical transmission of HIV-1 infection despite breastfeeding. The main limiting factor for intrapartum treatment was that 40% of the women did not reach the study clinic to give birth.

b) Project RETRO-CI, 01 BP 1712, 01 Abidjan Cote D'Ivoire

A similar study without post partum dose was done which aimed to assess the safety and efficacy of short course perinatal oral zidovudine among HIV-1 positive breastfeeding women in Abidjan (Wiktor *et al*, 1999). All consenting eligible HIV seropositive pregnant women attending a public antenatal clinic in Abidjan were enrolled at 36 weeks gestation between 1996 and 1998. They were randomly assigned placebo or zidovudine (300mg tablet), one tablet twice daily until the onset of labor and one tablet every three hours until delivery. All babies were breastfed.

The infection status was tested at birth. 4 weeks and 3 months. Results showed that this short course zidovudine was safe, well tolerated and decreased MTCT of HIV at age 3 months. The estimated risk of HIV-1 transmission in the placebo and zidovudine groups were 21.7% and 12.2% at 4 weeks and 24.9 %15.7% at 3 months respectively. The efficacy of zidovudine was 44% at age 4 weeks and 37% at 3 months.

v) Nevirapine

a) HIVNET 012 randomised trial

Between 1997 and 1999, a study was carried out in Uganda to compare the safety and efficacy of short-course nevirapine or zidovudine during labour and the first week of life. Mothers were randomly assigned nevirapine 200mg orally at onset of labor and 2mg/kg to babies with 72 hours of birth, or zidovudine 600mg orally to the mother at onset of labor and 300mg 3 hourly until delivery and 4mg/kg orally twice daily to babies for 7 days after birth. Nearly all babies were breastfed (98.8%).

The two regimens were well tolerated and adverse events were similar in the two groups. The estimated risk of HIV transmission in the zidovudine and nevirapine groups was 25.1% and 13.1% respectively by age 14-16 weeks. The efficacy of nevirapine compared with zidovudine was 47% up to age 14-16 weeks. According to the study, nevirapine lowered the risk of HIV transmission during the first 14-16 weeks of life by nearly 50% in a breastfeeding population not receiving antiretroviral therapy (Guay *et al*, 1999).

b) HIVNET 012 trial follow up

Longer period of follow up to the HIVNET 012 study was done by Jackson and others (2003). Results showed that both regimens were well-tolerated with few serious side-effects. Estimated risks of HIV-1 transmission in the zidovudine and nevirapine groups were and 25.8% and 15.7% by age 18 months respectively. Nevirapine was associated with a 41% reduction in relative risk of transmission through to age 18 months. The absolute 8.2% reduction in transmission at 6–8 weeks was sustained at age 18 months.

Intrapartum/neonatal nevirapine was found to significantly lower HIV-1 transmission risk in a breastfeeding population in Uganda compared with a short intrapartum/neonatal zidovudine regimen.

vi) Post-exposure prophylaxis: NVAZ randomised clinical trial

Most women in sub-Saharan Africa present late for delivery with unknown HIV status and this tends to limit the use of intrapartum nevirapine to prevent mother-to-child transmission of HIV. A study was thus carried out in Malawi (Taha *et al*, 2003) to determine whether postexposure prophylaxis of nevirapine plus zidovudine given to babies only reduced transmission of HIV more than did a regimen of nevirapine alone.

Babies of women with HIV-1 who presented late (within 2 hours of expected delivery) were assigned to either nevirapine alone or nevirapine and zidovudine. Both drugs were given immediately after birth: one dose of nevirapine (2 mg/kg weight) was given as a single dose; babies in the nevirapine plus zidovudine group also received zidovudine twice daily for 1 week (4 mg/kg weight).

The overall rate of mother-to-child transmission at 6–8 weeks was 15.3% in babies who received nevirapine and zidovudine and 20.9% in babies who received nevirapine only.

Adverse events were mild and of similar frequency in the two groups. It was thus concluded that post exposure prophylaxis could offer protection against HIV infection to babies of women who missed opportunities to be counseled and tested before or during pregnancy. The nevirapine and zidovudine regimen is safe and easy to implement.

2.3.2. Ceaserian section

The results of a meta-analysis prospective cohort studies by the International perinatal HIV group (1999) suggested that elective cesarean section reduces the risk of HIV transmission from mother to child independently of the effects of treatment with zidovudine. The study was done to evaluate the relation between elective cesarean section and vertical HIV transmission.

North American and European studies of at least 100 mother–child pairs were included in the meta-analysis. Uniform definitions of modes of delivery were used where

elective cesarean sections were defined as those performed before onset of labor and rupture of membranes. The likelihood of vertical transmission of HIV-1 was decreased by approximately 50% with elective cesarean section, as compared with other modes of delivery after adjusting for other factors known to be associated with vertical transmission. The likelihood of transmission was reduced by approximately 87 percent with both elective cesarean section and receipt of antiretroviral therapy during the prenatal, intrapartum, and neonatal periods, as compared with other modes of delivery and the absence of therapy.

2.3.3. Micronutrients

Micronutrient supplementation has been proposed as a low-cost intervention for reducing perinatal HIV transmission in developing countries where specific antiretroviral and prophylactic drugs are not available.

Starting April 1995, a randomized, double-blind, placebo-controlled trial was conducted to examine the effects of the supplementation of vitamin A or multivitamins (excluding vitamin A) on the vertical transmission of HIV-1 and other health outcomes among pregnant women infected with HIV in Dar es Salaam, Tanzania. It was reported that multivitamin supplements (excluding vitamin A) resulted in large and significant reductions in the risks of adverse pregnancy outcomes (Fawzi *et al*, 1998) but had no statistically significant effect on transmission through the intrauterine or intrapartum and early breastfeeding routes established at birth and 6 weeks postpartum, respectively (Fawzi *et al*, 2000).

A follow-up of the same population was done to examine the efficacy of the supplements on HIV transmission through breastfeeding after six weeks of age, and on child mortality in the first 2 years of life. In this study, multivitamins were associated with non-statistically significant reductions in transmission through breastfeeding, and mortality by 24 months among those alive and not infected at 6 weeks. Vitamin A alone increased

breastfeeding transmission but had no effect on mortality by 24 months (Fawzi et al, 2002)

2.3.4 Prevention of breastmilk transmission of HIV

Identification of interventions that will help reduce postnatal transmission of HIV through breast milk is the focus of most researches in this field currently. Effective interventions that reduce in utero and intrapartum transmission are now available.
Infant feeding choice is currently a dilemma for an HIV-infected woman in resource-poor setting. Much as breastfeeding offers protection against mortality caused by diarrhoeal and respiratory diseases, these benefits have to be weighed against the risk of transmitting HIV to the infant.

Given the need to avoid HIV transmission to infants through breast-feeding while at the same time avoiding the increased risk of other morbidity and mortality associated with formula feeding, current United Nations recommendations state that "When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended. Otherwise, exclusive breast-feeding is recommended during the first months of life and should then be discontinued as soon as it is feasible." HIV-1-infected women should thus make a decision regarding formula feeding on the basis of safety, feasibility, and affordability of formula (WHO, 2000). For women choosing to breastfeed, exclusive breast-feeding is recommended for 4 months, with cessation as rapidly as possible thereafter.

A randomized clinical trial was carried out in Nairobi, Kenya to evaluate the relative efficacy of artificial feeding from birth compared with breastfeeding in the absence of ARV prophylaxis in the prevention of postnatal HIV infection. Results indicated a 44% reduction of the overall risk of MTCT estimated at the age of 2 years in the artificially fed group compared with the breastfed group. The overall additional risk of transmission attributable to breastfeeding, 16.7% may be an underestimate because compliance in the formula fed group was only 70%. No difference in mortality was observed between the two groups during the first two years of follow up, but the overall figure was high, 22% (Nduati *et al*, 2000).

In the SAINT trial from South Africa (which compared intrapartum and 1-week postpartum AZT/lamivudine to 2 doses nevirapine (NVP) to women and 1 dose to their neonate), Moodley *et al* (2000) reported that transmission risk for breast-fed infants across treatment arms was two fold higher at 4 weeks compared with formula fed infants. The risk of new acquisition of HIV infection between the time periods from week 4 to week 8 became seven-fold higher risk for breastfed infants compared with formula fed infants. There was about an 8% increase in infant HIV infection during the first two months of life compared with a 2.5% increase among formula fed infants. However, the findings on feeding mode were observational in this trial as infants were not randomly allocated to breast or formula feeding.

A study in Durban found out that neither morbidity nor mortality was increased in the year after delivery in breast-feeding (mostly exclusively) women compared with non-breastfeeding women (Coustoudis, 2001).

2.4 Evaluation of implementation of PMCT programs.

Recent scientific developments have led to feasible and effective interventions to reduce the risk of MTCT of HIV/AIDS in resource-limited settings. These research findings have to be applied to the deserving population and their effectiveness evaluated in the real field set-up. This leads to identification of factors that influence acceptance and use of PMCT services. Availability of interventions alone may not necessarily lead to utilization of the services. It is important to also have trained and motivated personnel who will administer the services. In addition, target clients should also desire to use the services. PMTCT interventions may be new and poorly understood by women attending prenatal services, their partners and families. Educational materials on the risks of MTCT and the benefits of PMTCT services should be made available at MCH/ANC clinics implementing PMTCT programs. Site monitors should assess availability and appropriateness of such materials.

A variety of studies have looked at the issues affecting uptake of PMCT services for instance acceptability HIV testing, acceptance of interventions and role of male partners.

Ekouvi *et al* (2004) carried out a study on acceptability and uptake of a package to prevent mother to child transmission using rapid HIV testing in Abidjan, Cote d'Ivoire. Their findings showed that 89.4% of the pregnant women accepted HIV testing. The return rate for results was 74.2%. Low level of women education, refusal to believe the result given by the counselor and high risk of social stigmatization were believed to have contributed to low uptake of prevention of MTCT package. To increase uptake of the services, they recommended community mobilization and the strengthening of male involvement.

Another study done in Kenya (Kiarie *et al*, 2003) showed that compliance with the Thai-CDC and HIVNET-012 regimens was comparable to the compliance in efficacy trials. They had also emphasized that partner involvement, support and education on perinatal HIV prevention could increase uptake of PMCT intervention package and thus increase the number of infants protected from HIV infection.

Timmerman *et al* (2003) carried out a study whose objective to measure the coverage of the HIVNET 012 regimen in a real life situation in Mombasa, Kenya, one year after it had been introduced. Their data showed a high take-up testing rate (97%) while the coverage rate of the program was low. Only 20% of HIV seropositive women went back to get the medication at 34 weeks. Many women probably did not go back to collect the nevirapine because of the fear and stigma associated with HIV.
New policies have been established in the hospital (Coast General Hospital) to deal with the low return rate for the drugs and now medication for both mother and child is supplied during the post-test counselling session, irrespective of the gestational age.

A study was done in Zambia (Stringer *et al*, 2002) to establish whether uptake and adherance to nevirapine is high using universal nevirapine therapy (provision of the drug

without HIV testing) or using targeted NVP therapy (provision of the drug to seropositive patients identified through voluntary HIV counseling and testing) for perinatal HIV prevention in low-resource, high-prevalence settings.

Their data showed increased uptake but low adherence to the single-dose NVP intervention among women offered universal rather than the targeted strategy. Failure to adhere was thus correlated with participation in the universal strategy and illiteracy. But overall, uptake of NVP using both approaches appeared comparable in high prevalence settings with adequate VCT services. They recommended that programs that desire to save the greatest possible number of infants from perinatal HIV acquisition should consider a combination approach, in which women who desire HIV testing can access NVP through a targeted strategy, and women who do not desire testing can access NVP through a universal strategy.

Later, the same researchers, Stringer *et al* (2004) carried out another study to assess the uptake of and adherence to nevirapine among women of unknown HIV serostatus presenting in labour. Two fifths (40%) of women accepted nevirapine without testing upon presentation in labour. Adherence was very high since the therapy was directly observed and it was suggested that labour ward dosing should be considered as an adjunct to antenatal nevirapine administration for prevention of MTCT of HIV.

2.5 Men's involvement in reproductive health

The term "men's involvement" is used to describe ways in which men relate to reproductive health problems, programs, rights and behaviour (UNPF, 1995). Until recently, most reproductive health programmes for instance family planning had focused exclusively on women. This is probably due to the fact that women world-wide are perceived to contribute more towards the reproductive process especially in the antenatal period, the birth process and lactation. The forgotten man while accounting for 50% of biological parenthood, usually also hold the authority to FP acceptance and initiation among many couples (Ezeh, 1993).

Currently, reproductive health programs recognize that men have an important influence on women's and children's health and also have distinct reproductive health needs of their own. In many cultures, men also may serve as gatekeepers to women's access to reproductive health services. Research and program experience are demonstrating that many men care about and are willing to make positive contributions to the reproductive health of their partners and well-being of their families. Men already do participate in women's reproductive health-seeking behavior. However, their degree of participation is relative with less attention being paid to pregnancy and delivery. This is because of cultural perception of pregnancy and delivery as being normal states rather than disease unique to women and hence do not necessarily require male participation. The study showed that 89% of the male respondents would desire to see more male involvement in postpartum visits (Muia *et al*, 2000).

Despite the upsurge of interest in this area of male involvement, there has been a lack of consensus about what it means to involve men in reproductive health programs and uncertainty about how such involvement will affect women's health and status. Some programmes promote communication and respect between men and women on reproductive health issues, and aim to build the negotiating skills of both sexes. Good communication between partners ensures that women receive the reproductive health care they need (Ndong *et al*, 1998). A number of programs focus on young and unmarried men whose ideas about gender roles and sexuality are still evolving.

2.5.1 Men as facilitators of PMCT program uptake

A study conducted in a tertiary hospital antenatal clinic in Nairobi further revealed that partner involvement and support, knowledge on use of antiretrovirals to prevent mother to child transmission of HIV and attitudes of care givers were correlated with non compliance with antiretroviral regimens to prevent perinatal HIV transmission (Kiarie, 2003). In this study it was found that women who complied with the nevirapine regime were more likely to have informed their partners of their HIV results.

PMCT programs have also realized that the uptake of these services depended on the extent to which men as partners to women are involved. Success stories have been told in programs where men were positively involved. Partner participation in VCT and couple counseling has been shown to increase uptake of nevirapine and formula feeding. Nevirapine use was reported by 88% of HIV infected women who were couple counseled, 67% whose partners came but were not couple counseled, and 45% whose partners did not present for VCT. HIV sero positive women receiving couple counseling were 5 fold more likely to avoid breastfeeding compared to those counseled individually. Partner notification of HIV positive results was reported by 64% of the women and was associated with 4 fold greater likelihood of condom use (Farquhar, 2004).

2.5.2 Men as barriers to uptake of PMCT services

Fear of male partners was also identified as on of main barriers to utilization of PMCT services in Botswana. This study was carried out to determine factors contributing to suboptimal utilization of PMCT intervention strategies from clients and health workers' view points. Much as all women had some knowledge on MTCT/PMCT only 55% of them discussed with their partners and most of those who discussed were of higher education level (Maule, 2003).

Another study done in Zimbabwe also showed that inhibitors to VCT and ART prevention include fears and perceived consequences of being positive, the prevalence of poor couple communication and related disempowerment of women and denial about HIV. These factors influenced uptake of VCT and ART acceptance (Montgomery *et al*, 2003).

In Kenya, only a third of HIV positive women informed their partners of their test results because of fear of stigma, domestic violence and disruption of the relationship. Women under the age of twenty-two years were more likely to inform their partners of their test results. Of the partners informed, 73.3% were understanding. However,

6.6%of the HIV positive women who informed their partners experienced violence and disruption of the relationship. (Gaillard *et al*, 2002).

Attitude of men who tend to view PMCT as a service for women and therefore do not want to actively participate in it was also identified as one of the barriers to PMCT services utilization in Kenya. There are those who fail to support their spouses when the spouse decides to take up the service and since men are the key breadwinners in the communities there is lack of support for alternative feeds for the infant (Kenya PMCT Program Evaluation Report, 2003).

2.5.3 Promotion of men participation in PMCT interventions

Male participation is crucial for uptake of PMCT interventions. The Network for AIDS Researchers in East and Southern Africa (NARESA), in their 2002 progress report documented that male involvement was still low as far as uptake of PMTCT services was concerned. NARESA was coordinating PMTCT program in the pilot districts of Karatina and Homa Bay (NARESA, 2002).

A study by Marido (2003) on promoting male involvement in antenatal care as part of an HIV risk reduction strategy in Zimbabwe indicated that attitudes supportive of male involvement during pregnancy have been shown to be high at baseline for women and men. Actual male involvement in pregnancy (for example attend ANC clinic, help partners at home) as reported by women increased from baseline to follow up. However while women's attitudes towards male involvement remained positive, men's support for male involvement decreased significantly at follow up. Men and women exposed to more intervention components reported more positive attitudes and behavior than those exposed to less of the intervention. Data suggests that the intervention increased male involvement during pregnancy. However why male attitudes became more negative between baseline and follow up was not clear.

To prevent negative reactions of men, Gaillard *et al* has recommended couples counseling and enhanced partners' involvement in MTCT prevention programs

(Gaillard *et al*, 2002). This is because antiretroviral therapy and formula feeding are perceptible interventions requiring partners' support & agreement. This recommendation was confirmed in a study done by Farquhar *et al* (2004) where they found that partner participation in VCT and couple counseling to increased uptake of nevirapine and formula feeding.

Information, education and communication (IEC) strategy that emphasizes on importance of protecting the health of the baby has been shown to increase male participation in prevention of MTCT of HIV/AIDS interventions. In one of the pilot projects in Harare, HIV negative mothers and their partners were informed how important it is to avoid new infection during pregnancy and breastfeeding to protect the baby. The report from health workers indicated that some men responded well to this strategy, agreeing to use condoms (Chitsike, 2001).

2.6 Cultural practices hindering the fight against HIV/AIDS in Migori district.

Most of the inhabitants of Migori district are of Luo ethnic background.

Among the Luo people, a man's funeral rites are incomplete until his widow has been inherited. This traditional practice requires her to remarry or at least be "cleansed" through sexual contact with a member of the deceased's clan. If she refuses, she is confined to her home and prevented from planting crops on her husband's farm, or even visit her neighbours' homes, because people fear she will bring a curse to the clan.

Even in the face of HIV, cultural practices like sexual cleansing, wife inheritance and polygamy still thrive (Achieng, 1999)

2.7 Problem statement

Mother to child transmission of HIV virus has been recognized as a great threat to child survival. Effective interventions for prevention of perinatal HIV transmission have been developed. In Kenya, most maternal child health clinics are now offering PMCT services. However, low uptake of these services limits their effectiveness. Currently, about 60% of women offered antenatal HIV testing learn of their status and only 50% of those requiring PMCT take up services. Male partner participation and especially when

there is couple counseling has been one of the factors associated with high uptake of PMCT interventions. Male partner involvement is also associated with increased uptake of prevention activities, which are particularly important for discordant couples (Farquahar, 2004).

Most intervention measures have mainly focused on women leaving out the men yet reproduction involves both men and women. Moreover, men are the main decision makers. They are more economically endowed than their female counterparts. Therefore, focusing on men might increase the uptake of PMTCT services.

So far there is knowledge gap in perceptions of men regarding use of antiretroviral in preventing mother to child transmission of HIV/AIDS and how their views influence utilization of PMTCT services in general. This study aimed to establish the knowledge and perceptions of men on prevention of mother to child transmission of HIV/AIDS interventions in general and on their awareness and views on antiretrovirals in preventing this mode of transmission.

2.8 Study justification

Nyanza province has the highest prevalence of HIV in Kenya (14%) compared to the national level of 6.7% (CBS, 2003). At least 86.6% of mothers in the province receive antenatal care from health professional yet only 38.2% deliver in a health facility.

Migori district has been selected for the study because of the high HIV prevalence and also because comprehensive HIV care services are provided. Unlike Kuria district, Migori district has two sites offering comprehensive PMTCT program. The two sites can capture a wider population because one, which is Migori District Hospital, is owned by government while the other site, St Joseph Ombo Mission is a private institution managed by the Catholic Church. The district was one of the few pilot sites offering comprehensive PMTCT services in Kenya. These services which began in 2002 August are offered free of charge in Migori District Hospital and Ombo Mission Hospital through technical assistance of GTZ. From August 2003, PMTCT Plus was included

where partners and children of the affected women are offered HIV care including ARVs.

2.9 Research questions

Provision of antiretrovirals is one of the components of PMTCT. Male partner has been shown to increase utilization of PMTCT services (Farquhar, 2004). The research questions to be addressed in this study are the following:

1. What are the perceptions held by men in Migori district concerning antiretrovirals?
2. What factors contribute to these perceptions?
3. How do men view antiretrovirals in the context of preventing mother to child transmission of HIV/AIDS?
4. Do their perceptions vary with respect to age, religion, level of education or Socio-economic status?

2.10 Objectives

2.10.1 Broad objective

To assess the knowledge and perceptions of men on prevention of mother to child transmission of HIV in Migori District.

2.10.2 Specific objectives

1. To determine the men's knowledge on different aspects of PMTCT of HIV in Migori district.
2. To determine the perceptions of men in Migori district on different components of
   PMTCT of HIV.
3. To determine the practices of men in Migori district on the various facets of PMTCT of HIV.
4. To determine men's acceptance of antiretroviral use by HIV infected women and their newborn infants in preventing perinatal HIV transmission.

CHAPTER THREE

STUDY METHODOLOGY

3.1 Study design

A descriptive cross-sectional study was carried out to determine the knowledge and perceptions of men towards antiretrovirals for preventing mother to child transmission of HIV.

3.2 Study variables

The variables in the study were as follows:

Independent Variables

- Age
- Marital status
- Religion
- Educational level
- Having children under five years of age
- Occupation

Dependent Variables

- Knowledge
- Perception
- Practice
- Acceptability of antiretroviral use in preventing perinatal HIV transmission

3.3 Study area

3.3.1 Background Information

The study was carried out in Migori district. Migori district is one of the 12 districts in Nyanza Province. It is located between latitudes 0°24" and 0°40"south and longitudes 34° and 34° 50"East. To the north it borders Homa Bay district; its Southern boundaries are shared with Kuria and Trans Mara districts and the Republic of Tanzania. Suba district and Lake Victoria are on its Western boundaries. The district was carved out of the formally South Nyanza district in 1992.

The total area of the districts is 2, 505sq Km. Including 475 sq. km. of Lake Victoria. The district is divided into eight administrative divisions. Nyatike division is the largest (502 sq. Km) followed by Uriri (380 sq. Km) and Suba West (283 sq. Km). The smallest divisions are Karungu (138 sq. km) and Muhuru (47 sq. km). Lake Victoria occupies 475 sq. km and its shoreline runs along Muhuru, Nyatike and Karungu divisions with Nyatike having the largest portion.

The lake towns of Karungu and Muhuru, benefit from lake transportation using boats. Kenya railway has been offering outboard services for goods and passengers between Kisumu, Karungu and Muhuru through to Homa Bay and Mbita offering limited transport services.

Agriculture is main source of income in the district, followed by wage earnings, livestock production and fishing. About 99% of total incomes from the agricultural sector are earned from the sale of sugarcane and tobacco, which are the main cash crops in the district. Agriculture on small holders' basis provides employment for more than 71% of the labour force while the few large farms absorb a comparatively small proportion of the labour force.

Wage employment in the district is estimated at over fifty thousand, with the main towns having forty thousand plus. This indicates that most of the wage labor is found in towns rather than in rural areas. The highest concentration of the wage labor force are found in Migori Town, Awendo and Rongo Divisions.

Rural self employment is mainly fishing and mining, mostly found in Muhuru, Nyatike and Karungu divisions which border the lake.
Child labor is evidenced in lakeshore region in fishing activities and in the sugarcane zone where they work as houseboys and maids or self- employment in hawking.
(Republic of Kenya, 2003).

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3.3.2 PMCT Programs in Migori District

PMCT programs were initiated in Migori district in 2002. This was through technical assistance of the German Technical Assistance (GTZ) in partnership with the Ministry of Health (Government of Kenya). The two sites that began offering PMCT services are Migori District Hospital and St. Joseph Ombo Mission Hospital. Initially the program targeted women attending antenatal clinics. All women are offered general information on HIV/AIDS and PMCT. They can then opt to join the PMCT program. Those enrolled in the program are given confidential HIV counseling and testing. Posttest counseling is further provided to those who undergo testing. Women who test positive are issued with nevirapine to take at the onset of labour. They are also given nevirapine syrup to give to the newborn within 72 hours. It is assumed that not all women who attend antenatal clinics in the health facilities will finally deliver in those facilities. For this reason it was felt that women from 26 weeks gestation should be given infant's and mother's nevirapine take home. Counseling on infant feeding options is also offered in these sites.

One year later, PMTCT Plus component was introduced in the program. This is where the spouse and the children of the women enrolled in the program are given comprehensive HIV care and treatment.

3.4 Study Population

Adult males from the general population

3.4.1 Eligibilty Criteria

a) Inclusion criteria

1. Men aged 18 years to 54 years.
2. Must have been residing in Migori district for at least six months preceding the study.

b) Exclusion criteria

1. Men who met the inclusion criteria but were not in their right state of mind at the time of interview (mentally ill, drunk).
2. Men who met the inclusion criteria but declined to participate.

3.5 Sampling

3.5.1 Sample size

The sample size was determined using sample size formula for descriptive studies (Woolson, 1987).

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

Where n= .... Desired sample size of men ages 18-54

Z=.... Reliability coefficient at ά (0.05) level of significance

=1.96 (at ά of 0.05)

p=.....Percentage of men in Nyanza Province who know that the risk of MTCT can be reduced by mother taking drugs in pregnancy (estimated at 45.3%, CBS, 2003)

p= 0.453

q= ..... 1.0-p= 0.547

d=..... degree of precision (5%)

Therefore, $n = \frac{(1.96)^2 \times 0.453\ (0.547)}{(0.05)^2} = 380$ persons

Overall, a total of 400 subjects were studied.

3.5.2 Sampling units

Adult males in the houses aged 18 to 54 years. Age was established by first asking the respondents their year of births and then their ages at last birthday. The two information were compared and in the event of disparity, then proof of date of birth

like identity cards, birth certificates and baptismal certificates were requested. In the event that any of these lacked then the individual was excluded from the study.

3.5.3 Sampling procedure

a) Quantitave data

Multistage sampling procedure was employed to select the sampling units as follows:

Stage 1: Purposive selection of the study division.

Since the two sites offering PMTCT services were in Suba East division of Migori district, the division was selected for study.

Stage 2: Selection of the study locations.

The division has seven locations. The seven locations were listed down alphabetically and each assigned a number. Each number corresponding to a location was noted down on a separate piece of paper. A table of random numbers was used to select three locations to be included in the study.

Stage 3: Selection of the study sub locations

Since every location in Suba East division has two sub-locations each, all the sub-locations in the three selected locations were included in the study.

Stage 4: Selection of the villages

The villages in each selected sub-location were listed down alphabetically and assigned a number. A table of random numbers was used to select 5 villages from each sub-location.

Stage 5: Selection of the households and study subjects.

Selection of households to be enlisted in the survey was done by moving to the center of the cluster (village). The centre of the cluster was determined with the assistance of the locals. The area that was generally agreed as the central site of the village by the first three people we met from that village was taken to be the center of the cluster. A

random direction was chosen by spinning a pen on a flat surface from the centre of the cluster. The tip of the pen indicated the direction of movement. The research assistant went in that direction from the centre of the village to the border of the village interviewing all the eligible men in the households.

At least thirteen men from each selected village were interviewed. When the research team reached the end/perimeter of the village before getting the required number of respondents, they would move back to the centre to spin the pen and then take the next different direction visiting all households until the required number of men was identified. If the required number of men was not obtained by the time the perimeter was reached, then a pen was spun again and the process repeated until the required number was reached.

In case a household had an absent man who satisfied the criteria, the research assistant made a maximum of three consecutive visits. If this failed, the man was excluded from the interview.

b) Qualitative data

Focus group discussions were held to elicit in depth information that might not have been captured in the structured questionnaire. Participants were volunteers who had not participated in answering the questionnaires. They were selected according to desired levels of marital status and age groups.

There were three focus groups consisting of between 6 and 8 participants.
Group 1. Men ages 18-35 never been married
Group 2. Men ages 18- 35 currently married or have been married before
Group 3 Men ages 36-54 married and unmarried

The focus group participants were selected from Migori shopping centre on market day. It was assumed that most people from other parts of the district visit the town on market days. In order to have a representative sample, there was random selection of venues to

recruitment in the focus group discussion. The commercial buildings on each side of the main street were listed down. Random start of the first building was done. Every second building was selected from where the participants were drawn. These participants were mainly clients who had gone to the various shops.

Two adult males per building selected were approached and those who satisfied the inclusion criteria were included in the focus group discussion.

After selection the participants were requested to meet at a particular venue. They were later placed in the three groups according to ages and marital status. A repeat selection was done for the married who were aged over thirty-five years of age because most of them did not turn up.

3.6 Interview process

3.6.1 Quantitative survey

After obtaining informed consent, eligible men were interviewed regarding the socio-demographic characteristics that included age, marital status, highest level of education attained, current occupation and whether they were parents. They were then subjected to structured questions regarding their knowledge, perception and practices of PMTCT including access and utilization of antiretroviral drugs for prevention of MTCT of HIV, VCT and disclosure of HIV status to partner.

3.6.2 Qualitative study

Eligible clients were enrolled in the FGD. Themes on HIV/AIDS and PMTCT knowledge, attitudes and practices guided the discussions. Participants were engaged in interactive process until the subject/theme at hand was completely exhausted. This was easily detected when participants started repeating already raised issues. Other themes probed included acceptance of antiretroviral use in PMTCT and the role preventive measures despite availability of antiretroviral drugs.

3.7 Data collection Procedures

Data was collected in November 2004. Research assistants with minimum of KCSE level of education were recruited from the community. They were trained for one day on the contents of the questionnaires. To ensure validity, the questionnaire was pre-tested in one

of the villages not included in the study. Structured interviews were conducted in the language best understood by the interviewee. The languages were limited to English, Kiswahili and Luo.

The questionnaire was divided into five different sections (appendix 2). Socio-demographic profile of the respondent was captured in section A, subsequent sections B, C, D dealt with knowledge, perceptions and practices of men on different aspects of PMTCT package respectively. The final section E was designed to provide information on acceptability of antiretroviral use in preventing perinatal HIV transmission.

One of the research assistants who had participated in administering structured questionnaire was selected to conduct focus group discussions because of his flare for the local language. General guide questions (appendix 3) for the discussions were designed to elicit information on knowledge, attitude/perceptions and practices on the different aspects of PMCT program. In depth information on their views on antiretroviral drugs for use in preventing mother to child HIV infection was probed. The principal investigator moderated the sessions. The remaining research assistants wrote down the proceedings of the FGDs in notebooks since the participants declined use of audiotapes for recording the sessions.

3.8 Data Management and Analysis

3.8.1 Quantitative data

The questionnaires were coded and entered on SPSS version 3.0 software. The data was then analyzed on SPSS version 10.0 windows as per the objectives. Epi info version 6 was used for univariate analysis. The results were presented using pie charts, bar graphs and frequency tables.

One of the study objectives was to determine men's knowledge on PMTCT. Assessment of knowledge was based on thirteen questions (appendix 4) extracted from section B of the questionnaire. The scores varied depending on the question and a maximum of 18 points was possible. Respondents who obtained 9 points and above were considered to have adequate knowledge while those who scored less than 9 had inadequate knowledge.

Five questions from section C gave basis for determining perceptions on PMTCT. Each question scored a maximum of 2 points each and maximum score was 10. Respondents with good perceptions scored 5 points and above while those with poor perceptions scored less than 5 points.

To assess PMTCT practices, 5 categories of questions derived from section D of the questionnaire were scored. Each response aligned to good practices scored 2 points while responses pointing to poor practices scored 0. This meant that the scores could only be in even numbers. Those with good practices scored above 4 points while those with 4 points and below had poor practices.

3.8.2 Qualitative data

Qualitative data was transcribed by two research assistants in English while a third one wrote the proceedings in Luo, which was the language mostly, used in the three FGDs. The three transcripts were compared for accuracy. The data collected was analyzed along the relevant thematic areas and as per the objectives.

Questions 1, 2 and 3 of the FGD guide captured the theme on knowledge of PMTCT. The questions were probing on general HIV knowledge and PMTCT of HIV/AIDS.

Participants were considered to have good knowledge if more than a half of them responded positively to the factual questions.

Perception as a theme is addressed in questions 4d, 6, 5, 7, 8 while questions 4a, 4b, 4c focused on PMTCT practices. Question 6 tackled the theme of acceptance of antiretroviral use in PMTCT.

3.9 Minimization of Errors

- Random selection of clusters was carried out.
- Training and supervision of all enumerators was done.
- Pre-testing of the questionnaires was done.

3.10 Ethical considerations

Research approval was sought from the KNH Ethical and Research Committee and also from the National Council of Science and Technology. Informed consent was obtained from the study participants. This was after the purpose of the study had been fully explained to them. Those willing to take part in the research were interviewed. Information given was kept confidential and no names were used to refer to the respondents.

3.11 Study limitations

Selection bias came to the fore in that only those willing to participate were included in the study. It is challenging to establish whether willing respondents are true representative of the entire eligible study population and whether their responses differ from those persons who declined to participate yet were eligible. This limits the extent to which the results can be generalized.

Another limitation was experienced in one of the villages selected for study. When we went there, we didn't find most men at home. We were informed that they had been away for at least three months preceding the study period. Their area borders masaai land and so they had gone there to farm. Nobody knew exactly when they would return. This could also have introduced selection bias in that those who went to maasai land could have had different socio-demographic characteristics from those who remained behind.

Misclassification of the study subjects with respect to type of occupation could have introduced bias. In this study occupation was defined as a way of spending time in order to earn income for daily living. In situations where one was both engaged in professional work and business, he was classified under skilled/professional category instead of business/self employed. We had to establish in which job he spent most of his time and so this was considered his occupation.

CHAPTER FOUR

STUDY FINDINGS

Both quantitative and qualitative methods were employed in data collection. A total of 400 subjects responded to structured questionnaire. Three categories of men were interviewed in a more interactive manner through focus group discussions (FGDs). These included younger men specifically single men between 18 to 35 years, married men in the same age bracket and older men above 35 years. The findings are outlined in this chapter.

4.1 Socio-demographic characteristics of the study population

A total of 400 subjects responded to the structured questionnaires. Their socio-demographic characteristics are summarized in Table 3.

The ages of the study subjects ranged from 18 to 54 years with a mean age of 32.6, median age of 30 years and a standard deviation (SD) of 10.99. There were 58(14.5%) respondents who were aged between 18 and 20 years, 145(36.3%) aged 21 to 30 years, 79(19.8%) were aged 31 to 40 years, 85(21.3%) were 41 to 50 years while only 32(8%) were above 50 years.

Majority of the respondents 276(69%) were Protestants, 87(21.8%) were Catholics, 25(6.3%) were Legio Maria faithfuls, while Hindu, Muslim and other religions shared the remaining 2.3%.

Thirty three percent (133) of the respondents were single, 246 (61.5%) were married, 9(2.3%) widowed, 6(1.5%) were separated/divorced and 6(1.5%) were cohabiting. The ever married who included married and cohabiting, widowed, separated/divorced were 267(66.8%) while the never married comprising of the single were 133(33.3%). The currently married (married, cohabiting) were 252(63%) while the currently single (single, divorced/separated and widowed) were 148(37%).

Sixty-six (i.e. 16.5 %) of the respondents had no formal education. 171 (42.8%) had gone up to primary school level, 110 (28%) up to secondary school level, while 53(13%) had gone up to tertiary level. Overall, majority of the subjects had completed at least some level of education 334(83.5%) while a small percentage 66 (16.5%) had no formal education.

Less than half (42%) of the respondents had no children under the age of five, 118(30%) had one, 86(22%) had two, 21(5%) had 3 children, and 6(1%) had more than 3 children under the age of 5 years.

A third (33%) of the respondents were farmers, 99(25%) were in unskilled employment, 58(14.5%) were skilled/professionals, 32(8%) were in business or self employed, while 79(20%) had no occupation.

Different samples of men were interviewed in a more interactive manner through focus group discussions (FGDs). Three FGDs were conducted. The first FGD comprised of single men of ages 18 to 35 years. There were six participants in this category. Married men of ages 18 and 35 years were in the second FGD and they were 8 in number. The third FGD had six men above 35 years of age with upper limit being 54. It was assumed that most people in this category are most likely to be married. During introduction time, all the participants in this group were married.

The FGD participants were from various socioeconomic backgrounds and educational levels. All the members declined to tape recording and so two assistants had to write everything they said in English while the third assistant transcribed the proceedings in Luo. The participants were more comfortable in using English and Luo languages

Table 3. Socio-demographic characteristics of the respondents

Characteristic	Frequency	Percentage
Age		
Upto 20 years	58	14.5
21-30	145	36.4
31-40	79	19.8
41-50	85	21.3
51-60	32	8.0
Total	***399***	**100.0**
Religion		
Catholic	87	21.9
Protestant	276	69.5
Legio maria	25	6.3
Islam	6	1.5
Hindu	2	0.5
Others	1	0.3
Total	***397***	**100.0**
Educational Level		
None	66	16.5
Primary	171	42.8
Secondary	110	27.5
Tertiary	53	13.3
Total	***400***	**100.0**
Marital status		
a) Single	133	33.3
Married	246	61.5
Widowed	9	2.3
Separated	6	1.5
Cohabiting	6	1.5
Total	***400***	**100.0**
b) Never married	133	33.3
Ever married	267	66.7
Total	***400***	**100.0**
c) Currently married	252	63
Currently single	148	37
Total	***400***	**100.0**
Occupation		
None	79	19.8
Unskilled	99	24.8
Skilled/professional	58	14.5
Business/self employed	32	8.0
Farmer	132	33.0
Total	***400***	**100.0**

4.2 Knowledge on PMCT of HIV/AIDS

On HIV/AIDS awareness, 99% of the subjects who responded to the structured questionnaire had heard of the disease. The focus group participants were asked on what they thought HIV/AIDS was. The participants in all the three focus groups identified HIV/AIDS as a disease that is acquired mainly through sexual intercourse with an infected person and currently has no cure. Majority said that the disease makes someone become weak.

However, there were differing views among some participants who thought that the disease is 'chira' which is a Luo term for a curse as a result of not following some cultural rituals/customs. Some said that it is like a game brought by white men to clear the black race then later they pretend to bring drugs to treat it. It was likened to a cold war whereby deaths of the enemies take place without really going to the battlefield.

There were some who admitted confusion especially as regards the origin of the disease. They thought it could have been a laboratory preparation or that it was a disease of the chimpanzee which man could have acquired by having sex with the said animal. Some still had doubts and wondered why the disease is killing the human race while people have been having sex from time immemorial. Box 1 illuminates views of some participants.

Box 1

- *"It is a game brought by white people to kill us black people then bring drugs to treat us. It is a kind of cold war."*
- *"We need to know the origins before we can say what it is. It could be a laboratory preparation because it came recently and yet people were having sex before. May be someone had sex with a chimpanzee then acquired the infection."*

A majority (86%) of the interviewees believed that a pregnant woman can transmit HIV infection to the child if she is positive. Table 4 gives the respondents' views on when infants acquire HIV infections from mother. Forty-seven percent of them believed this happens during pregnancy followed by 33% and 14% during labour and during breastfeeding, respectively. Overall, 126 (33%) subjects mentioned at least two channels of MTCT of HIV. Fifty-eight (15%) respondents gave all the three ways of MTCT of HIV. Twenty-two (5.8%) respondents mentioned other responses that included 'I don't know', through blood transfusion and during the cutting of the umbilical cord when blood could mix.

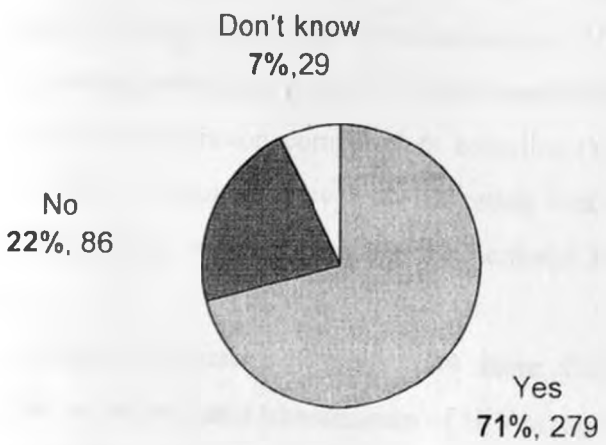
Table 4. Knowledge on when infants acquire HIV infection from the mother.

When transmission occurs	Frequency	Percent
During pregnancy	179	47.0
During labour	126	33.0
During breastfeeding	54	14.2
Others	22	5.8
Total	**381**	**100.0**

Participants of the focus group discussions were also asked on how a child under five years of age could get infected with HIV. They mentioned blood transfusion with infected blood, unsterilized sharp objects, breastfeeding especially when a child has wounds in the mouth and at birth through the umbilical cord as possible ways of transmitting HIV/AIDS to children.

Most (71%) of the subjects who responded to the structured questionnaire believed that men can be responsible for transmission of HIV to the baby, 22% didn't believe while a small proportion (7%) of them did not know if men can transmit the virus to the baby (Figure 3).

Fig 3. Knowledge on men's responsibility in perinatal HIV transmission.



Most of participants of the FGDs who were married and aged 18 to 35 years agreed that children can acquire infections directly from the mother and indirectly from a male

partner. They said that a pregnant woman can infect the unborn child if she has sexual relations with an infected partner. One participant however thought that once a woman is infected then automatically the baby also gets infected. This he believed is because the mother and the baby share the same blood in the womb. It was also stated that the infection could occur through the umbilical cord when the food is passing from the mother to the child.

There was a participant who did not think that breastmilk can transmit HIV. He stated that HIV can only be transmitted through blood. But this was just a minority view.

Socio demographic factors in relation with acceptance that men have a role in perinatal HIV transmission.

Table 5 presents the relationships between socio-demographic characteristics and acceptance that men have a role in perinatal HIV transmission.

Respondents' religious affiliation, level of education (χ^2=12.011, p=0.007) and occupation (χ^2=9.789, p=0.044) were statistically significantly related to knowledge regarding men being responsible in transmission of HIV to children. All other religious groups including protestants were 1.74 times more likely to accept that men have a role in perinatal HIV transmission compared to catholics (Weighted OR=1.74, 95% CI: 1.09-2.77, p= 0.02). Secondary level of education was less likely to be associated with acceptance of men being responsible for perinatal HIV transmission compared to no education.

Self employed/ businessmen were 3.84 more likely to know that men can be responsible in the perinatal transmission of HIV compared to those who were not in any occupation (OR=3.84, 95% CI: 1.12-14.43, p=0.01). In comparison, those engaged in some form of occupation were 1.5 times more likely to acknowledge that men have a role in perinatal HIV transmission than those with no occupation (weighted OR= 1.55, 95% CI: 1.07-2.23, p=0.02).

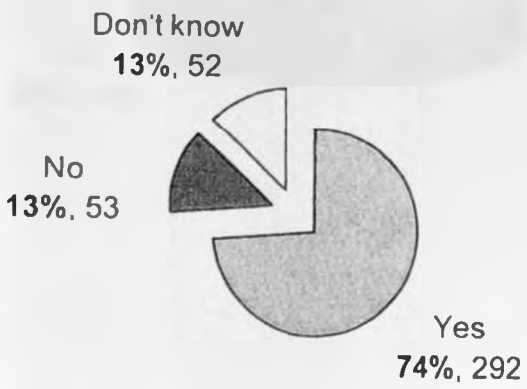
Table 5. Bivariate analysis of the relationship between socio-demographic characteristics and knowledge of men's responsibility in perinatal HIV transmission.

Characteristics	Accept that men have a role in perinatal HIV transmission	Do not accept that men have a role in perinatal HIV transmission	Mantel Haenszel Odds ratio (95% Confidence interval	P-value	Overall association
Age					
≤20 years	41 (14.7%)	16 (13.9%)	1 (Ref group)		χ^2= 5.133
21-30	94 (33.7%)	49 (42.6%)	0.75 (0.36, 1.54)	0.39	
31-40	54 (19.4%)	23 (20.0%)	0.92 (0.40, 2.08)	0.82	p=0.274
41-50	63 (22.6%)	22 (19.1%)	1.12 (0.49, 2.54)	0.77	
≥51	27 (9.7%)	5 (4.3%)	1.64 (0.47, 5.97)	0.39	
Total	*279 (100%)*	*115 (100%)*	*0.97 (0.65, 1.45)	0.95	
Religion					
Catholic	54 (19.4%)	33 (29.2%)	1		
Protestant	201 (72.0%)	72 (63.7%)	1.71 (0.9, 2.93)	0.03	χ^2= 0.054
Others	24 (8.6%)	8 (7.1%)	1.83 (0.68, 5.05)	0.18	
Total	*279 (100%)*	*113 (100%)*	*1.74 (1.09, 2.77)	0.02	p=0.74
Education level					
None	51 (18.2%)	14 (12.2%)	1		χ^2=12.011
Primary	115 (41.1%)	53 (46.1%)	0.6 (0.29, 1.23)	0.13	
Secondary	69 (24.6%)	41 (35.7%)	0.46 (0.21, 0.99)	0.03	**P=0.007**
Tertiary	45 (16.1%)	7 (6.1%)	1.76 (0.60, 5.35)	0.26	
Total	*280 (100%)*	*115 (100%)*	*0.67 (0.43, 1.05)	0.08	
Marital status					
Never married	86 (30.7%)	43 (37.4%)	1		χ^2=1 65
Ever married	194 (69.3%)	72 (62.6%)	1.35 (0.83, 2.18)	0.19	
Total	*280 (100%)*	*115 (100%)*			P=0.199
Currently married	181 (64.6%)	70 (60.9%)	1		χ^2=0.501
Currently single	99 (35.4%)	45 (39.1%)	0.85 (0.53, 1.36)	0.48	
Total	*280 (100%)*	*115 (100%)*			P=0.479
Occupation					
None	51 (18.2%)	28 (24.3%)	1		χ^2= 9.789
Unskilled	63 (22.5%)	33 (28.7%)	1.05 (0.54, 2.05)	0.88	
Skilled/professional	46 (16.4%)	11 (9.6%)	2.30 (0.96, 5.56)	0.04	**P=0.044**
Business/Self employed	28 (10.0%)	4 (3.5%)	3.84 (1.12, 14.43)	0.01	
Farmer	92 (32.9%)	39 (33.9%)	1.30 (0.68, 2.45)	0.39	
Total	*280 (100%)*	*115 (100%)*	*1.55 (1.07, 2.23)	0.02	
Parental status					
No child under five years	110 (39.3%)	56 (48.7%)	1		χ^2=2.963
≥1 child under five years	170 (60.7%)	59 (51.3%)	1.47 (0.93, 2.33)	0.08	
Total	*280 (100%)*	*115 (100%)*			p=0.085

* Mantel-Hanzel weighted odds ratio for the category.

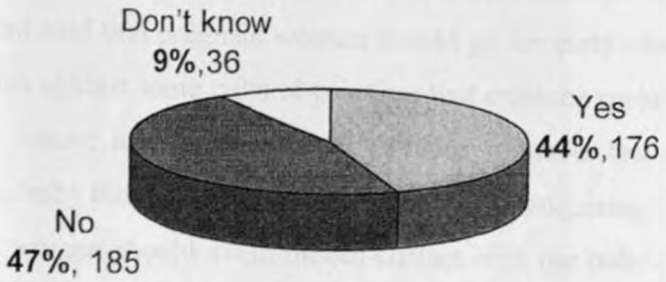
Respondents were asked if there is a way of preventing a mother from transmitting infection to the baby. Majority (74%) of them responded in the affirmative believing there was a way, 13% of them did not know while 13% believed there was no way of preventing the child against infection (Fig.4)

Fig 4. Knowedge on existence of methods to prevent perinatal HIV transmission.



The respondents when asked whether all children born to HIV infected mothers do become sero-positive, 46.6% of the respondents said that not all children born of HIV sero-positive mothers become HIV positive while 44% said that all children born of HIV positive mothers become infected with the virus. About 9% of the respondents didn't know whether or not children born to HIV positive mothers become infected with the virus (Figure 5).

Fig 5. Knowledge on whether all children born to HIV infected mothers do become sero positive



Of the 278 men who knew of an intervention to prevent MTCT of HIV/AIDS, 184 (66%) mentioned primary prevention of HIV in women. One hundred and thirty respondents (46.8%) believed that voluntary, confidential counseling and testing for HIV/AIDS is crucial in PMCT. Eighty respondents (29%) said that avoidance of breastfeeding could prevent perinatal HIV transmission. Only 14 (5%) of the respondents mentioned that antiretrovirals given to infants could prevent MTCT of HIV/AIDS. Forty-four (15.8%) respondents thought that antiretrovirals given to pregnant women could prevent MTCT. Only 8 of the respondents mentioned exclusive breastfeeding for six months as an intervention to PMTCT of HIV/AIDS (Table 6).

Participants of the FGDs were also asked on measures to be taken to prevent women from passing HIV/AIDS to the babies. Majority agreed that women who are HIV positive should not breastfeed and that these babies should be given alternative foods like cows milk. Some even suggested that the baby should be separated from the mother at birth and other relatives should take care of the baby. They further suggested use of

drugs given by GTZ to HIV infected pregnant women but they were not sure whether they work. They could not give the name of the drugs.

Use of condoms. being faithful to one's partner and abstinence when one is unmarried were also suggested. They further said that precautions should be taken during delivery especially when the baby is being separated from the mother so that their blood does not mix. They also said that pregnant women should go for early check-ups and HIV tests. They were also against some cultural practices that enhance spread of HIV. For instance in situations where a pregnant woman decides to have sex with another man to strengthen the baby thus exposing herself to the risk of acquiring HIV.
HIV positive women should avoid mouth contact with the baby especially they should avoid sucking soap from baby's eyes using mouth. HIV positive women should be well fed to gain more immunity.

Box 2 below expresses the view of one of the participants.

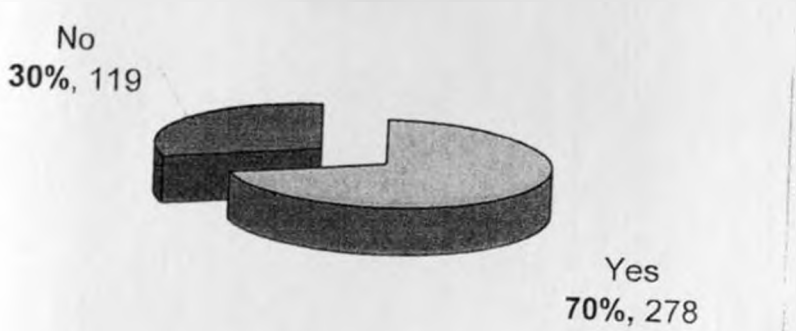
> *'Widows should be inherited because if they are not they tend to become promiscuous thus infecting more people as opposed to just one man (the inheritor)'.*

Table 6. Reported interventions to prevent mother to child transmission of HIV/AIDS.

Interventions	frequency	Percent of responses	Percent of cases (n=278)
Prevention of HIV transmission in women	184	31	66.2
Preventing unwanted pregnancies in HIV positive women	47	7.9	16.9
Voluntary, confidential counseling and testing for HIV	130	21.9	46.8
Comprehensive antenatal, post-natal and child health services	54	9.1	19.4
Optimal obstetrical care.	33	5.6	11.9
Nevirapine for HIV infected mother at the onset of labour	44	7.4	15.8
Nevirapine for new born within 72 hrs of birth.	14	2.4	5.0
Avoidance of breastfeeding.	80	13.5	28.8
Exclusive breastfeeding for six months	8	1.3	2.9
TOTAL	**594**	**100**	

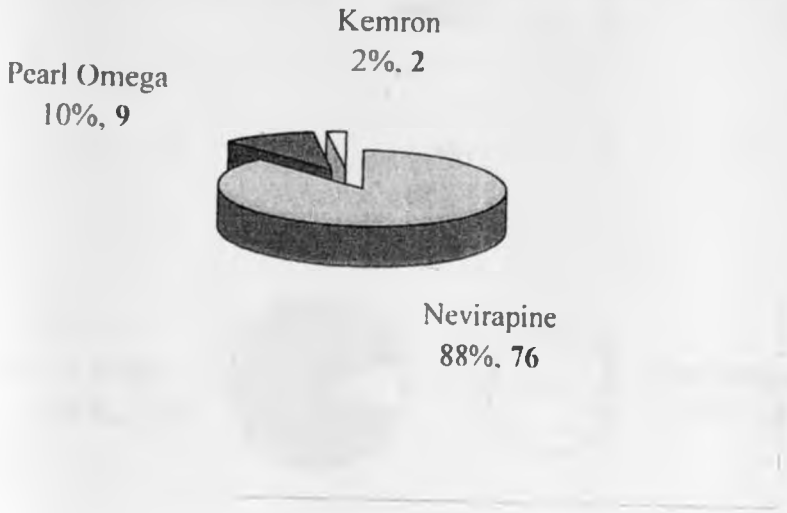
The respondents were asked if they were aware of the availability of PMCT programs in the district. Seventy percent of the respondents were aware that PMCT services were available in their district while thirty percent (119) were not aware (Figure 6).

Fig 6. Awareness on availability of PMCT programs in the District



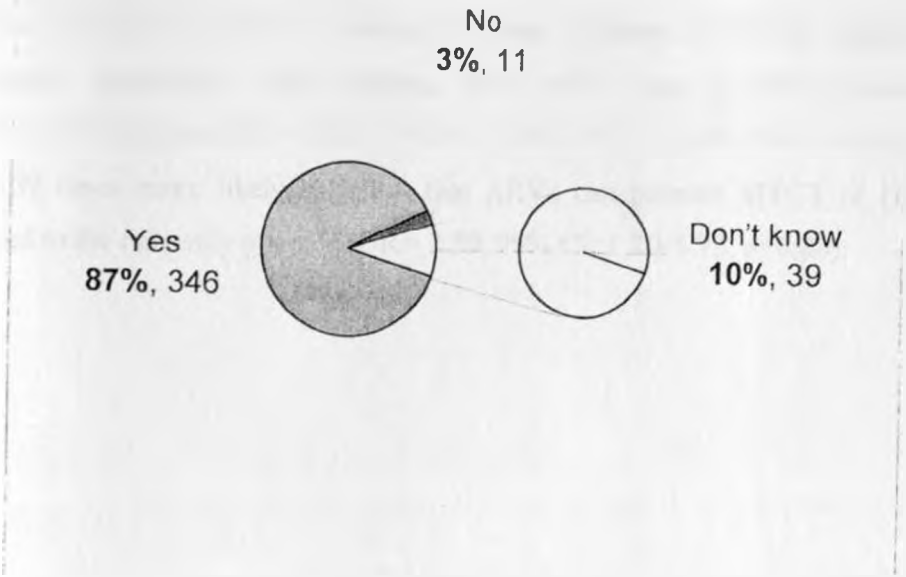
Majority of the respondents (78%) did not know the name of the antiretroviral prophylaxis drugs recommended by the government for the purpose of PMCT. Among those who claimed to know. Nevirapine was given as the most common followed by Pearl Omega and KEMRON (Figure 7).

Fig 7. Responses on antiretroviralprophylaxis for PMCT.



Most (87%) of the respondents believed that ARVs have a role to play in PMCT. 10% did not know while 3% believed it has no role to play (Fig 8).

Fig 8. Knowledge on whether ARVs have a role in PMCT



Socio-demographic characteristics in relation to knowledge on the role of ARVs in preventing MTCT of HIV/AIDS.

The relationships between socio-demographic characteristics and knowledge on role of ARVs in PMCT were determined. Chi-square statistics showed that marital status had influence on respondents knowing that antiretroviral prophylaxis have a role in preventing MTCT of HIVAIDS (Never married versus ever married χ^2=7.542, p=0.006: currently married versus currently single χ^2=6.996, p=0.008)

Different levels of age, religion, education and marital status were statistically significant in respondents knowing that antiretroviral prophylaxis have a role in PMCT

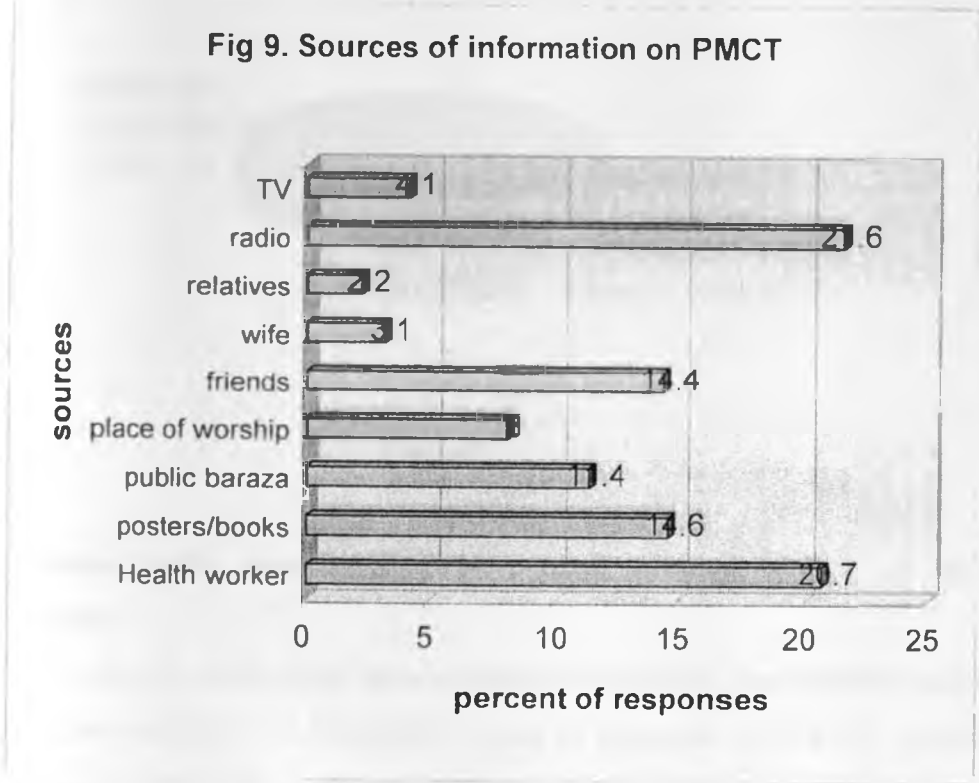
(Table 7). Respondents aged 21 years and above were less likely to know that ARVs can prevent perinatal HIV transmission compared to those aged 20 years and below (Weighted OR= 0.47, 95% CI: 0.24-0.89, p=0.02). Protestants and other faithfuls were less likely to know that ARVs can prevent perinatal HIV transmission compared to catholics (weighted OR=0.38, 95% CI: 0.16-0.79, p=0.00). Respondents with secondary level of education were more likely to know that ARVs have a role in preventing perinatal HIV transmission compared to those with no education (OR= 2.67, 95% CI: 1.02-7.01, p=0.03). Having at least primary level of education was significantly associated with knowing that ARVs can prevent perinatal HIV transmission (Weighted OR= 2.22, 95% CI: 1.31-3.77, p=0.00). The currently single were 2.59 times more likely to know that ARVs can prevent MTCT of HIV/AIDS compared to the currently married (OR= 2.59, 95% CI: 1.20-5.73, p=0.00).

Table7. Bivariate analysis between socio-demographic characteristics and knowledge on the role of ARVs in preventing MTCT of HIV/AIDS.

Characteristics	Know that ARVs can prevent MTCT of HIV/AIDS	Do not know that ARVs can prevent MTCT of HIV/AIDS	Mantel Haenszel Odds ratio (95% Confidence interval	P value	Overall association
Age					
≤20 years	53 (15.4%)	4 (8.0%)	1 (Ref)		χ^2=4.059
21-30	127 (36.8%)	16 (32.0%)	0.60 (0.16, 2.03)	0.37	
31-40	64 (18.6%)	14 (28.0%)	0.35 (0.09, 1.22)	0.06	P=0.398
41-50	73 (21.2%)	12 (24.0%)	0.46 (0.12, 1.65)	0.19	
≥51	28 (8.1%)	4 (8.0%)	0.53 (0.10, 2.77)	0.39	
Total	345 (100%)	50 (100%)	*0.47 (0.24, 0.89)	0.02	
Religion					
Catholic	80 (23.3%)	6 (12.0%)	1 (Ref)		χ^2=11.453
Protestant	234 (68.2%)	40 (80.0%)	0.44 (0.16, 1.13)	0.06	
Others	29 (8.5%)	4 (8.0%)	0.27 (0.08, 0.96)	0.19	P=0.43
Total	343 (100%)	50 (100.0%)	*0.38 (0.16, 0.79)	0.008	
Education level					
None	52 (15.0%)	14 (28.0%)	1		χ^2=5.749
Primary	148 (42.8%)	20 (40.0%)	1.99 (0.88, 4.50)	0.07	
Secondary	99 (28.6%)	10 (20.0%)	2.67 (1.02, 7.01)	0.02	P= 0.124
Tertiary	47 (13.6%)	6 (12.0%)	2.11 (0.68, 6.76)	0.15	
Total	346 (100%)	50 (12.6%)	*2.22 (1.31, 3.77)	0.002	
Marital status					
Never married	123 (35.5%)	8 (16.0%)	1		χ^2=7.542
Ever married	223 (64.5%)	4 (84.0%)	3.63 (0.97, 14.63)	0.03	
Total	346 (100%)	50 (100%)			**P=0.006**
Currently married	210 (60.7%)	40 (80.0%)	1		χ^2=06.996
Currently single	136 (39.3%)	10 (20.0%)	2.59 (1.20, 5.73)	0.008	
Total	346 (100%)	50 (100.0%)			**P=0.008**
Occupation					
None	66 (19.1%)	11 (22.0%)	1		χ^2=1.474
Unskilled	83 (24.0%)	14 (28.0%)	0.99 (0.39, 2.50)	0.98	
Skilled/professional	50 (14.5%)	8 (16.0%)	1.04 (0.35, 3.10)	0.93	
Business/Self employed	28 (8.1%)	4 (8.0%)	1.17 (0.31, 4.79)	0.80	P=0.831
Farmer	119 (34.4%)	13 (26.0%)	1.53 (0.60, 3.88)	0.33	
Total	346 (100.0%)	50 (100.0%)	*1.17 (0.71, 1.94)	0.60	
Parental status					
No child under five years	148 (42.8%)	20 (40.0%)	1		χ^2=0.138
≥1 child under five years	198 (57.2%)	30 (60.0%)	0.89 (0.47, 1.70)	0.71	
Total	346 (100.0%)	50 (100.0%)			P=0.71

*Mantel-Hanzel weighted odds ratio for the category.

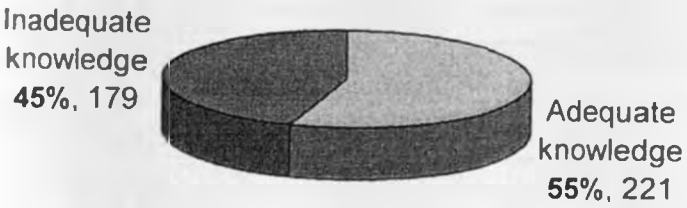
Figure 9 shows the source of information on prevention of mother to child transmission of HIV program. It is clear that radio (21.1%) and health workers (20.7%) are the leading sources of information while TV (4.1%) and relatives (2.2%) provide information to a few people.



Scores on knowledge

A dummy variable was created to score knowledge based on some questions extracted from the questionnaire. An 18 point scale was used where those who obtained 9 points and above were considered to have adequate knowledge regarding prevention of mother to child transmission of HIV/AIDS while those who scored less than 9 points were deemed as having inadequate knowledge (Appendix 4). Only slightly more than half (55.3%) of the respondents appeared to have adequate knowledge (Figure 10).

Fig 10. Scores on knowledge on PMCT



Sociodemographic characteristics in relation to good PMCT of HIV/AIDS knowledge.

Table 8 presents relationships between socio-demographic characteristics and level of knowledge on PMCT of HIV/AIDS. Level of education (χ^2=25.473, p=0.000) and occupation (χ^2=25.149, p=0.000) were statistically significant as regards respondents' knowledge on prevention of mother to child transmission of HIV/AIDS. Respondents with tertiary education were five times more likely to possess adequate knowledge on PMCT compared to respondents with no education (OR=5.87, 95% CI: 2.3-15.4, p=0.00).

Respondents with primary level of education and above were 1.85 times more likely to possess adequate knowledge on PMCT in relation to those with no education (OR=1.85, 95% CI: 1.28-2.78, p=0.001). The odds of respondents who are skilled or professionals having good knowledge of PMCT was 2.66 compared to those with no occupation (OR=2.66, 95% CI: 1.2-5.9, p=0.01). Businessmen and self-employed respondents were 5 times more likely to have adequate knowledge on PMCT compared to those with no occupation (OR=5, 95% CI: 1.61-16.58, p=0.002)

Table 8. Sociodemographic characteristics in relation to good PMCT of HIV/AIDS knowledge.

Characteristics	Have adequate knowledge on prevention of MTCT of HIV/AIDS	Do not have adequate knowledge on prevention of MTCT of HIV/AIDS	Mantel Haenszel Odds ratio (95% Confidence interval)	P value	Overall association
Age					
<20 years	35 (15.9%)	23 (12.8%)	1(Ref group)		χ^2=0.883
21-30	78 (35.5%)	67 (37.4%)	0.77 (0.39, 1.49)	0.39	
31-40	42 (19.1%)	37 (20.7%)	0.75 (0.35, 1.57)	0.40	P=0.927
41-50	47 (21.4%)	38 (21.2%)	0.81 (0.39, 1.69)	0.55	
≥51	18 (8.2%)	14 (7.8%)	0.84 (0.32, 2.22)	0.70	
Total	220 (100.0%)	179 (100%)	* 0.78 (0.55, 1.13)	0.20	
Religion					
Catholic	41 (18.8%)	46 (25.7%)	1		χ^2=8.961
Protestant	159 (72.9%)	117 (65.4%)	1.52 (0.91, 2.55)	0.85	
Others	18 (8.3%)	16 (8.9%)	1.26 (0.53, 3.01)	0.046	P=0.111
Total	218 (100%)	179 (100.0%)	* 1.45 (0.94, 2.24)	0.98	
Education level					
None	30 (13.6%)	36 (20.1%)	1		χ^2=25.473
Primary	80 (36.2%)	91 (50.8%)	1.05 (0.57, 1.94)	0.85	
Secondary	67 (30.3%)	43 (24.0%)	1.87 (0.96, 3.64)	0.046	**P=0.000**
Tertiary	44 (19.9%)	9 (5.0%)	5.87 (2.3, 15.37)	0.000	
Total	221	179 (100%)	* 1.85 (1.28, 2.78)	0.001	
Marital status					
Never married	72 (32.6%)	61 (34.1%)	1		χ^2=0.100
Ever married	149 (67.4%)	118 (65.9%)	1.07 (0.69, 1.66)	0.75	P=0.752
Total	221 (100.0%)	179 (100.0%)			
Currently married	136 (61.5%)	116 (64.8%)	1		χ^2=0.453
Currently single	85 (38.5%)	63 (35.2%)	1.15 (0.75, 1.77)	0.50	P= 0.501
Total	221 (100.0%)	179 (100.0%)			
Occupation					
None	41 (18.6%)	38 (21.2%)	1		χ^2=25.149
Unskilled	47 (21.3%)	52 (29.1%)	0.84 (0.44, 1.58)	0.558	
Skilled/professional	43 (19.5%)	15 (8.4%)	2.66 (1.20, 5.93)	0.008	**P=0.000**
Business/Self employed	27 (12.2%)	5 (2.8%)	5.00 (1.61, 16.58)	0.002	
Farmer	63 (28.5%)	69 (38.5%)	0.85 (0.47, 1.54)	0.558	
Total	221 (100.0%)	179 (100.0%)	* 1.34 (0.96, 1.89)	0.089	
Parental status					
No child under five years	84 (38.0%)	85 (47.5%)	1		χ^2=3.640
>1 child under five years	137 (62.0%)	94 (52.5%)	1.47 (0.97, 2.24)	0.056	P=0.056
Total	221 (100.0%)	179 (100.0%)			

* Mantel-Hanzel weighted odds ratio for the category.

Results of logistic regression analysis

Logistic regression was done to assess critical predictors to knowledge on prevention of mother to child transmission of HIV/AIDS (Table 9). After controlling for possible confounders only level of education remained a strong predictor of possessing adequate or inadequate knowledge on PMCT of HIV/AIDS (OR=1.721, 95% CI: 1.359-2.180, p= 0.000).

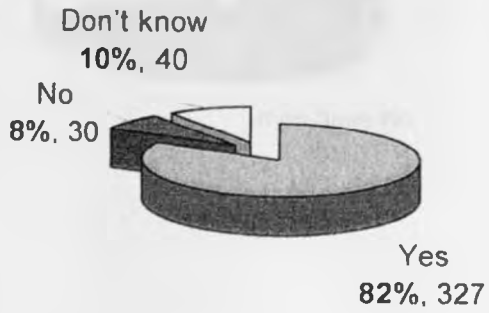
Table 9. Socio-demographic characteristics against knowledge on PMCT of HIV/AIDS.

Variable	Regression coefficient	Wald's statistics	Significance level (P)	Odds Ratio	CI: 95%
Age	0.001	0.004	0.951	1.001	0.977-1.025
Religion	0.168	0.965	0.326	1.183	0.846-1.653
Educational level	0.543	20.33	**0.000**	1.721	1.359-2.180
Marital status	0.010	0.003	0.954	1.010	0.718-1.422
Occupation	-0.035	0.202	0.653	0.965	0.827-1.126
Parental status	0.233	3.773	0.052	1.263	0.998-1.599

4.3 Perceptions on PMCT of HIV/AIDS

Overall, majority 327 (82%) of the respondents thought that MTCT is a public health problem in the country. 8% (30) did not think so while 10 %(40) did not know whether it is or not (Fig 11).

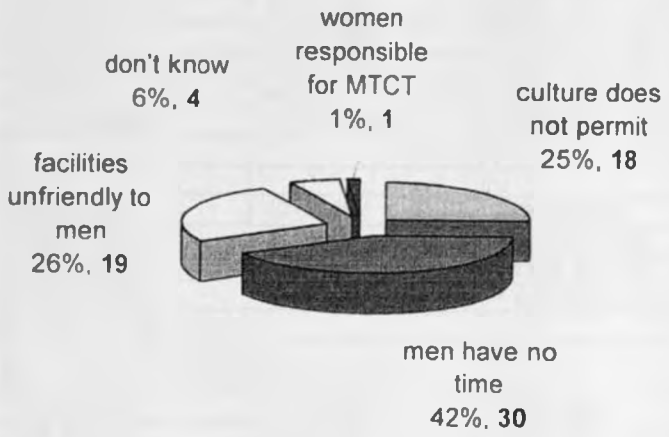
Fig 11. Responses on whether MTCT of HIV/AIDS is a public health problem



A larger proportion (84%) of the respondents felt that men should be involved in PMCT, 55% of them think men should be involved in PMCT programs because parenting is the responsibility of both man and woman, 41.8 % of the respondents believe that this will prevent further infections in the community while 2% gave that community health workers said men should be involved in PMCT programs.

Slightly less than a half (42%) of the respondents who said that men should not be involved in the PMCT program thought that men did not have time to go to the health facilities, 26% of them felt that health facilities are unfriendly to men, twenty-five percent of the respondents mentioned that culture does not permit men to participate, while 1% thought that women are the ones who transmit the infection to the child so the men have no business getting involved in the program. 6% of the respondents did not know why men should not be involved in PMCT activities (figure 12).

Fig 12. Views on why men should not be involved in PMCT.



Sociodemographic characteristics in relation to acceptance of men to participate in PMCT activities.

The relationships between socio-demographic characteristics and men's opinion on their participation in PMCT activities were determined (Table 10).

Only religion had an influence regarding men's opinion on their participation in PMCT activities (χ^2=17.203, p=0.004). Protestant faithfuls were two times more likely to approve men's involvement in PMCT compared to catholics (OR=1.97, 95% CI: 1.02-3.78, p=0.03).

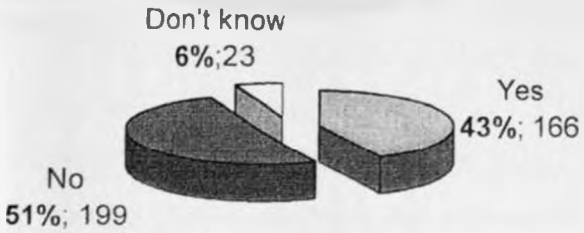
Table 10. Bivariate analysis of the relationship between socio-demographic characteristics and respondents' approval of men's participation in PMCT activities.

Characteristics	Recommend that men should participate in PMCT activities	Do not recommend men's participation in PMCT activities	Mantel Haenszel Odds ratio (95% Confidence interval)	P value	Overall association
Age					
≤20 years	50 (15.0%)	8 (12.5%)	1 (Ref group)		χ^2= 6.534
21-30	127 (38.1%)	17 (26.6%)	1.20 (0.44, 3.17)	0.69	
31-40	63 (18.9%)	15 (23.4%)	0.67 (0.24, 1.86)	0.40	P= 0.163
41-50	65 (19.5%)	20 (31.3%)	0.52 (0.19, 1.38)	0.15	
≥51	28 (8.4%)	4 (6.3%)	1.12 (0.27, 4.91)	0.86	
Total	333 (100.0%)	64 (100.0%)	* 0.78 (0.47, 1.31)	0.39	
Religion					
Catholic	67 (20.2%)	20 (31.7%)	1 (Ref group)		χ^2=17.203
Protestant	238 (71.7%)	36 (57.1%)	1.97 (1.02, 3.78)	0.03	
Others	27 (8.1%)	7 (11.1%)	1.15 (0.40, 3.41)	0.78	P=0.004
Total	332 (100.0%)	63 (100.0%)	* 1.67 (0.97, 2.99)	0.07	
Education level					
None	54 (16.2%)	12 (18.8%)	1 (Ref group)		χ^2= 2.565
Primary	148 (44.3%)	22 (34.4%)	1.49 (0.65, 3.43)	0.30	
Secondary	91 (27.2%)	19 (29.7%)	1.06 (0.44, 2.53)	0.88	P= 0.464
Tertiary	41 (12.3%)	11 (17.2%)	0.83 (0.30, 2.27)	0.69	
Total	334 (100.0%)	64 (100.0%)	* 1.13 (0.68, 1.87)	0.71	
Marital status					
Never married	113 (33.8%)	19 (29.7%)	1		χ^2= 0.416
Ever married	221 (66.2%)	45 (70.3%)	0.83 (0.44, 1.53)	0.52	P= 0.519
Total	334 (100.0%)	64 (100.0%)			
Currently married	211 (63.2%)	40 (62.5%)	1		χ^2= 0.010
Currently single	123 (36.8%)	24 (37.5%)	0.97 (0.54, 1.75)	0.92	P=0.919
Total	334 (100.0%)	64 (100.0%)			
Occupation					
None	67 (20.1%)	12 (18.8%)	1		χ^2=1.938
Unskilled	81 (24.3%)	18 (28.1%)	0.81 (0.34, 1.92)	0.60	
Skilled/professional	46 (13.8%)	11 (17.2%)	0.75 (0.28, 2.01)	0.53	P=0.747
Business/Self employed	29 (8.7%)	3 (4.7%)	1.73 (0.41, 8.40)	0.42	
Farmer	111 (33.2%)	20 (31.3%)	0.99 (0.43, 2.30)	0.99	
Total	334	64 (100.0%)	* 0.93 (0.59, 1.48)	0.84	
Parental status					
No child under five years	142 (42.5%)	26 (40.6%)	1		χ^2=0.079
≥1 child under five years	192 (57.5%)	38 (59.4%)	0.93 (0.52, 1.65)	0.78	P=0.779
Total	334 (100.0%)	64 (100.0%)			

* Mantel-Hanzel weighted odds ratio for the category.

One hundred and ninety-nine (i.e 51%) respondents felt that HIV sero-positive women should not breastfeed. 166 (i.e 43%) of them felt they should breastfeed while twenty-three (6%) did not know whether breastfeeding should be done or not (Figure 13).

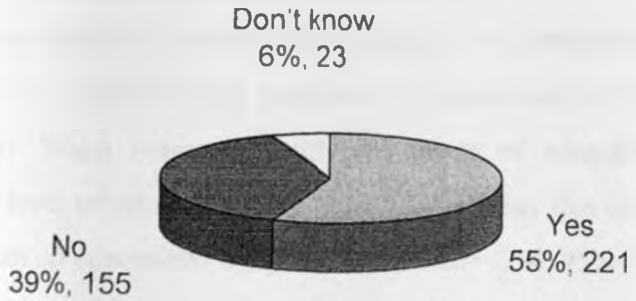
Fig 13. Approval of breastfeeding by HIV positive women



In the focus group discussions, majority of the participants felt that children born to HIV positive women should not breastfed at all irrespective of their HIV status. None of the participants had heard of exclusive breastfeeding.

More than half (55.7%) of the respondents felt that condoms should be used during pregnancy while 153 (38.5%) thought that they should not be used. Twenty-three respondents (6%) did not know whether condoms should or should not be used during pregnancy (Figure 14).

Fig 14. Responses as to whether condoms are useful during pregnancy



Majority of the participants in the three focus groups felt that it is better not to have sex at all with the pregnant woman than to use condoms. They felt that condoms are not 100% protective. Some felt that they could only use condoms if both of them are positive. Box 3 portrays the opinion of one of the participant as regard sex especially when the wife is infected and the man is negative (discordant couples).

Box 3

"If I discover that my wife is HIV positive I will not have sex with her at all. I will not take chances with condoms but instead I will get a second wife. I will however continue supporting the first wife

Socio demographic characteristics in relation to approval of condom use during pregnancy.

Table 11 presents the relationships between socio-demographic characteristics and approval of condom use during pregnancy.

Chi-square statistics showed that religion was statistically significant in stating that condoms are useful during pregnancy in preventing MTCT of HIV/AIDS (χ^2=11.671, p=0.040). When comparing different levels of education respondents with at least primary level of education were more likely to say that condoms are useful compared to those with no education (Weighted odds ratio= 1.64, 95% CI: 1.13-41, p=0.01).

Businessmen/self employed were less likely to say that condoms are useful in PMCT compared to those with no occupation (OR= 0.37, 95% CI: 0.14-0.93, p= 0.02). Other respondents were less likely to state that condoms are useful in PMCT compared to those with no occupation (Weighted odds ratio= 0.69, 95% CI: 0.49-0.97, p=0.03).

Table 11. Bivariate analysis of the relationship between socio-demographic characteristics and views on importance of condom use during pregnancy for PMCT of HIV.

Characteristics	Think that condoms are useful during pregnancy in preventing MTCT of HIV/AIDS	Do not think that condoms are useful during pregnancy in preventing MTCT of HIV/AIDS	Mantel Haenszel Odds ratio (95% Confidence interval	P value	Overall association
Age					
<20 years	36 (16.3%)	22 (12.5%)	1 (Ref group)		χ^2=0.1.707
21-30	80 (36.2%)	64 (44.4%)	0.76 (0.39, 1.49)	0.40	
31-40	41 (18.6%)	37 (21.0%)	0.68 (0.32, 1.43)	0.27	P= 0.789
41-50	48 (21.7%)	37 (21.0%)	0.79 (0.38, 1.66)	0.51	
≥51	16 (7.2%)	16 (9.1%)	0.61 (0.23, 1.60)	0.27	
Total	221 (100.0%)	176 (100.0%)	* 0.72 (0.50, 1.04)	0.08	
Religion					
Catholic	47 (21.3%)	40 (23.0%)	1		χ^2=11.671
Protestant	163 (73.8%)	111 (63.8%)	1.25 (0.75, 2.09)	0.37	P= 0.040
Others	11 (5.0%)	23 (13.2%)	0.41 (0.16, 1.01)	0.03	
Total	221 (100%)	174 (100%)	* 0.93 (0.60, 1.44)	0.80	
Education level					
None	29 (13.1%)	37 (21.0%)	1		χ^2=11.044
Primary	106 (47.7%)	64 (36.4%)	2.11 (1.14, 3.92)	0.01	P=0.11
Secondary	65 (29.3%)	45 (25.6%)	1.84 (0.95, 3.58)	0.05	
Tertiary	22 (9.9%)	30 (17.0%)	0.94 (0.42, 2.08)	0.86	
Total	222 (100.0%)	176 (100%)	* 1.64 (1.13, 2.41)	0.01	
Marital status					
Never married	72 (32.4%)	60 (34.1%)	1		χ^2=0.122
Ever married	150 (67.6%)	116 (65.9%)	1.08 (0.69, 1.68)	0.73	P= 0.727
Total	222 (100%)	176 (100%)			
Currently married	146 (65.8%)	105 (59.7%)	1		χ^2=1.572
Currently single	76 (34.2%)	71 (40.3%)	0.77 (0.50, 1.18)	0.21	P=0.210
Total	222 (100%)	176 (100%)			
Occupation					
None	49 (22.1%)	30 (17.0%)	1		χ^2=7.069
Unskilled	51 (23.0%)	48 (27.3%)	0.65 (0.35, 1.24)	0.16	P=0.132
Skilled/professional	32 (14.4%)	25 (14.2%)	0.78 (0.37, 1.66)	0.49	
Business/Self employed	12 (5.4%)	20 (11.4%)	0.37 (0.14, 0.93)	0.02	
Farmer	78 (35.1%)	53 (30.1%)	0.90 (0.49, 1.66)	0.90	
Total	222 (100%)	176 (100%)	* 0.69 (0.49, 0.97)	0.03	
Parental status					
With no child under five	89 (40.1%)	79 (44.9%)	1		χ^2=0.926
With ≥ 1 child under five	133 (59.9%)	97 (55.1%)	1.22 (0.80, 1.85)	0.34	P=0.336
Total	222 (100%)	176 (44.2%)			

* Mantel-Hanzel weighted odds ratio for the category

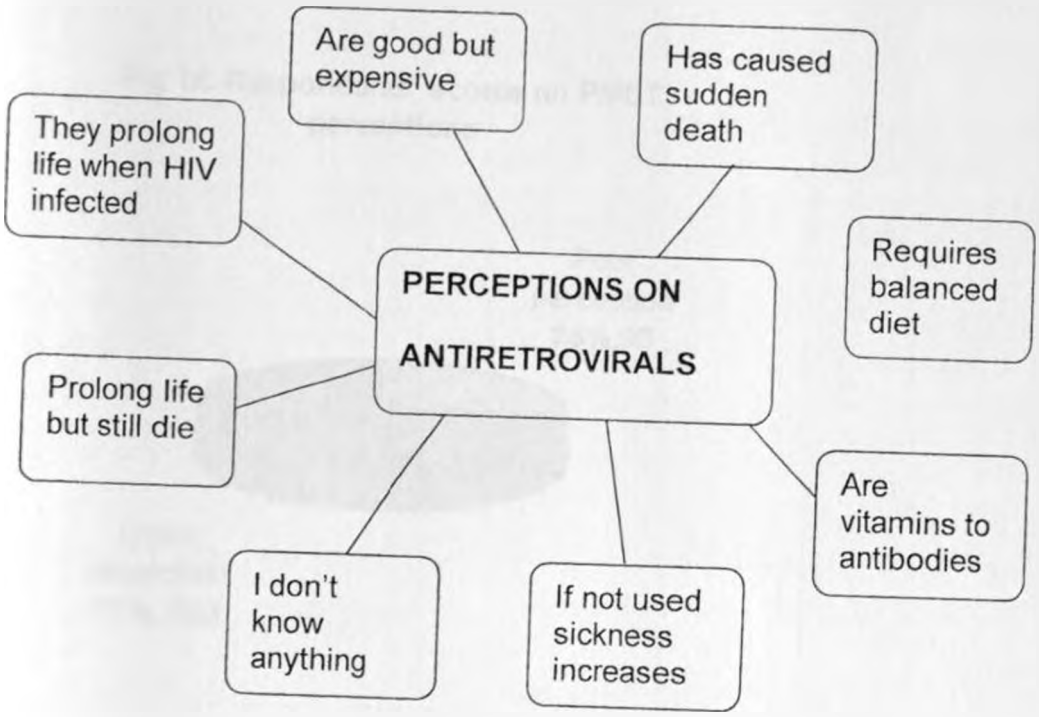
Overall, majority (85%) of the respondents felt HIV positive women should not have more children while 11.8% (47) felt such women should have more babies. Majority (80.1%) still felt that PMCT services should be free while 46 (10.9%) felt that they should not be free.

Participants in the focus groups were asked their views on antiretrovirals. The views were varied where it was generally agreed that antiretroviral drugs have the capacity to prolong life when one is infected with HIV/AIDS. The participants said that although the drugs do prolong life, they cannot totally eliminate the virus from the body. They said that the drugs are expensive. There were some participants who said that some of those who took the drugs experienced sudden death. A minority admitted that they did not know anything about the drugs although they had heard about them. Box 4 and figure 15 illustrate some of the responses.

Box 4

"My neighbour in Kisumu used to spend half of his salary every month to buy the drugs. If he didn't use them the sickness would increase."

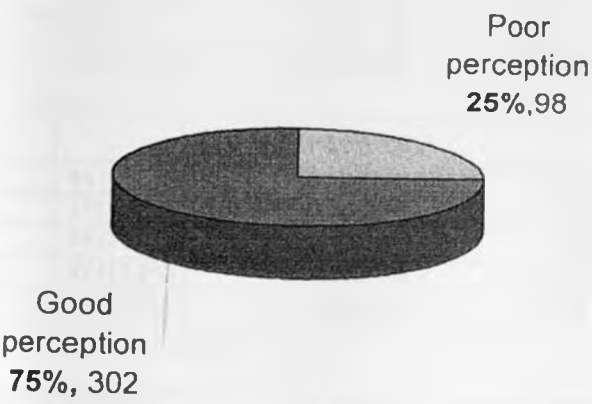
Fig 15. Participants' perceptions of antiretroviral drugs



Score on perceptions

A 10-point scale was used to score perceptions based on some questions extracted from section C of the questionnaire. 5 points and above were deemed good perception while below 5 was considered poor perception (appendix 5). Majority (75.5%) of the respondents were found to have good perceptions on PMCT (Figure 16).

Fig 16. Respondents' scores on PMCT perceptions



Relationships

The relationships between socio-demographic characteristics and perceptions on prevention of MTCT of HIV/AIDS were determined where religion (χ^2=20.467. p=0.001) had an influence on having good or poor perceptions (Table 12).

Protestants were 1.81 times more likely to have good perceptions on prevention of MTCT of HIV/AIDS compared to catholics (OR= 1.81, 95% CI: 1.01-3.22, p=0.03).

Table 12. Relationships between respondents' socio-demographic characteristics and perceptions on PMCT of HIV/AIDS.

Characteristics	Have good perceptions on PMCT interventions	Have poor perceptions on PMCT interventions	Mantel Haenszel Odds ratio (95% Confidence interval)	P value	Overall association
Age					
≤20 years	42 (14.0%)	16 (16.3%)	1 (Ref group)		χ^2=3.539
21-30	111 (36.9%)	34 (34.7%)	1.24 (0.59, 2.62)	0.54	P= 0.472
31-40	59 (19.6%)	20 (20.4%)	1.12 (0.49, 2.59)	0.77	
41-50	61 (20.3%)	24 (24.5%)	0.97 (0.43, 2.17)	0.93	
≥51	28 (9.3%)	4 (4.1%)	2.67 (0.73, 10.61)	0.10	
Total	301 (100%)	98 (100%)	*1.24 (0.82, 1.87)	0.33	
Religion					
Catholic	60 (19.9%)	27 (28.1%)	1 (Ref group)		χ^2=20.467
Protestant	221 (73.4%)	55 (57.3%)	1.81 (1.01, 3.22)	0.03	P= 0.001
Others	20 (6.6%)	14 (14.6%)	0.64 (0.26, 1.58)	0.29	
Total	301 (100%)	96 (100%)	*1.30 (0.81, 2.17)	0.29	
Education level					
None	46 (15.2%)	20 (20.4%)	1 (Ref group)		χ^2=3.272
Primary	135 (44.7%)	36 (36.7%)	1.63 (0.82, 3.24)	0.13	P=0.352
Secondary	84 (27.8%)	26 (26.5%)	1.4 (0.67, 2.94)	0.33	
Tertiary	37 (12.3%)	16 (16.3%)	1.01 (0.43, 2.38)	0.99	
Total	302 (100%)	98 (100%)	*1.36 (0.89, 2.09)	0.16	
Marital status					
Never married	95 (31.5%)	38 (38.8%)	1		χ^2=1.786
Ever married	207 (68.5%)	60 (61.2%)	1.38 (0.84, 2.28)	0.18	P=0.181
Total	302 (100%)	98 (100%)			
Currently married	198 (65.6%)	54 (55.1%)	1		χ^2=3.473
Currently single	104 (34.4%)	44 (44.9%)	0.64 (0.40, 1.05)	0.06	P=0.062
Total	302 (100%)	98 (100%)			
Occupation					
None	61 (20.2%)	18 (18.4%)	1 (Ref group)		χ^2=6.071
Unskilled	66 (21.9%)	33 (33.7%)	0.59 (0.29, 1.21)	0.12	P=0.194
Skilled/professional	44 (14.6%)	14 (14.3%)	0.93 (0.39, 2.22)	0.85	
Business/Self employed	25 (8.3%)	7 (7.1%)	1.05 (0.36, 3.19)	0.91	
Farmer	106 (35.3%)	26 (26.5%)	1.20 (0.58, 2.50)	0.59	
Total	302 (100%)	98 (100%)	*0.88 (0.60, 1.31)	0.58	
Parental status					
With no child under five	125 (41.4%)	44 (44.9%)	1		χ^2=0.373
With ≥ 1 child under five	177 (58.6%)	54 (55.1%)	1.15 (0.71, 1.87)	0.54	P=0.541
Total	302 (100%)	98 (100%)			

* Mantel-Hanzel weighted odds ratio for the category

Results of logistic regression analysis

Logistic regression was done to determine the effect of each variable independent of the other regarding perceptions on PMCT of HIV/AIDS components. Age, religion, level of education, marital status, type of occupation and whether a respondent had or did not have a child younger than five years were not significantly related to perceptions on PMCT of HIV/AIDS (Table 13).

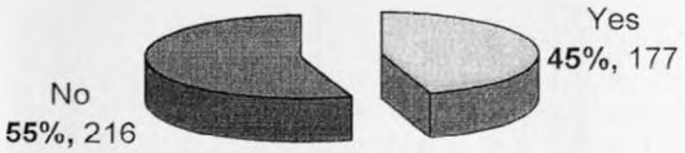
Table 13. Socio-demographic characteristics against perceptions on PMCT of HIV/AIDS.

Variable	Regression coefficient	Wald's statistics	Significance level (P)	Odds Ratio	CI: 95%
Age	0.007	0.290	0.590	1.007	0.981-1.035
Religion	-0.231	1.729	0.188	0.793	0.562-1.120
Educational level	-0.040	0.093	0.760	0.961	0.746-1.239
Marital status	-0.244	1.850	0.174	0.783	0.551-1.114
Occupation	0.077	0.738	0.398	1.081	0.905-1.289
Parental status	0.101	0.586	0.444	1.106	0.855-1.431

4.4 Practices on PMCT of HIV/AIDS

Just slightly over half of the respondents (55%) had never gone for voluntary counseling and testing of HIV/AIDS in the last two years. This is shown in figure 17.

Fig 17. Respondents' attendance of VCT.



Among those who went for VCT, majority (77.1%) attended because they had wanted to know their status. 3.1% went because they wanted to donate blood. 10.9% went because it was a job requirement while 7.3% went because it was a church requirement before marriage. A negligible number 3(1.6%) went for VCT for the purpose of preventing mother to child transmission of HIV/AIDS.

Relationships between socio-demographic characteristics and VCT attendance.

Table 14 presents relationships between socio-demographic characteristics and attendance of VCT. Level of education (χ^2=25.175, p=0.000), occupation (χ^2=22.990, p=0.000) and parental status (χ^2=11.351, p=0.001) were significantly associated with VCT attendance. The odds that a respondent with tertiary level of education had ever attended VCT compared to one with no education was 2.72 against 1 (OR=2.72, 95% CI: 1.18-6.31, p=0.01). Skilled/ professionals were more likely to have attended VCT compared to individuals with no form of occupation (OR=3.74, 95% CI: 1.71-8.23,

p=0.00). Respondents with at least some form of occupation (unskilled, skilled/professionals, business/self employed and farmers) were more likely to have attended VCT compared to those without occupation (weighted odds ratio=1.70, 95% CI: 1.22-2.44, p=0.001). Respondents with at least one child under five years of age were twice more likely to have attended VCT compared to those without (OR= 2.02, 95% CI: 1.31-3.11, p=0.00).

Table 14. Bivariate analysis of the relationship between socio-demographic characteristics and attendance of VCT.

Characteristics	Have ever gone VCT	Have never gone for VCT	Mantel Haenszel Odds ratio (95% Confidence interval	P value	Overall association
Age					
≤20 years	23 (13.0%)	35 (16.2%)	1 (Ref group)		χ =5.714
21-30	66 (37.3%)	77 (35.6%)	1.30 (0.67, 2.54)	0.40	P=0.222
31-40	43 (24.3%)	35 (16.2%)	1.87 (0.89, 3.96)	0.08	
41-50	31 (17.5%)	51 (23.6%)	0.92 (0.44, 1.95)	0.83	
≥51	14 (7.9%)	18 (8.3%)	1.18 (0.45, 3.11)	0.71	
Total	177 (100%)	216 (100%)	*1.29 (0.90, 1.86)	0.18	
Religion					
Catholic	32 (18.0%)	55 (25.8%)	1		χ^2=7.762
Protestant	128 (71.9%)	142 (66.7%)	1.55 (0.92, 2.63)	0.08	P=0.170
Others	18 (10.1%)	16 (7.5%)	1.93 (0.81, 4.66)	0.11	
Total	178 (100%)	213 (100%)	*1.65 (1.06, 2.58)	0.03	
Education level					
None	29 (16.3%)	35 (16.2%)	1		χ^2=25.175
Primary	55 (30.9%)	113 (52.3%)	0.59 (0.31, 1.10)	0.08	**P=0.000**
Secondary	58 (32.6%)	52 (24.1%)	1.35 (0.69, 2.62)	0.35	
Tertiary	36 (20.6%)	16 (7.4%)	2.72 (1.18, 6.31)	0.01	
Total	178 (100%)	216 (100%)	*1.15 (0.78, 1.71)	0.50	
Marital status					
Never married	51(28.7%)	80 (37.0%)	1		χ^2=3.092
Ever married	127 (71.3%)	136 (63.0%)	1.46 (0.94, 2.30)	0.08	P=0.079
Total	178 (100%)	216 (100%)			
Currently married	119 (66.9%)	129 (59.7%)	1		χ^2=2 128
Currently single	59 (33.1%)	87 (40.3%)	0.74 (0.48, 1.14)	0.15	P=0.145
Total	178 (100%)	216 (100%)			
Occupation					
None	29 (16.3%)	50 (23.1%)	1		χ^2=22.990
Unskilled	48 (27.0%)	48 (22.2%)	1.72 (0.90, 3.32)	0.08	**P=0.000**
Skilled/professional	39 (21.9%)	18 (8.3%)	3.74 (1.71, 8.23)	0.00	
Business/Self employed	17 (9.6%)	14 (6.5%)	2.09 (0.83, 5.30)	0.08	
Farmer	45 (25.3%)	86 (39.8%)	0.90 (0.48, 1.68)	0.73	
Total	178 (100%)	216 (100%)	*1.70 (1.22, 2.44)	0.00	
Parental status					
With no child under five	59 (33.1%)	108 (50%)	1		χ^2=11.351
With ≥ 1 child under five	119 (66.9%)	108 (50%)	2.02 (1.31, 3.11)	0.00	**P=0.001**
Total	178 (100%)	216 (100%)			

* Mantel-Hanzel weighted odds ratio for the category.

More than two thirds 165(68.2%) of the married respondents discuss matters related to PMCT with their partners while 77(31.8%) do not. About 48% of them discuss with male colleagues followed by 30.2% with male relatives.

If the respondents were to have a child, majority (87.2%) would wish to be involved in the entire PMCT program with their partners while 4.3% would not. Only 1.4% of the respondents didn't know if they would wish to be involved in the entire PMCT program with their partners.

Less than a half (44%) of the respondents with children below two years of age said the children were born in a health facility despite the fact that most (87%) of their mothers had attended ANC. Fewer (43%) of respondents with children below two years of age ever accompanied the women for ANC. Majority (87%) of those who accompanied their partners for ANC claimed to have had talks on PMCT. Eighty four percent of these opted to join the program.

Participants of the FGDs were asked whether they would accompany wives/partners to hospital for MCH. There were deferring views depending on the focus group.

a) The unmarried of ages 18 to 35 years.

They unanimously agreed that they would wish to accompany their partners should they marry in future. They further felt that they have no place in MCH because the health workers concentrate only on women.

They also said that they should be told what they are going to do and even be allowed inside the room with their wives. They admitted that sometimes they (men) can be too busy to go and after all they imagine that their wives would tell them what had transpired at the clinic.

One participant however said that he has never seen his father accompanying the mother to the clinic therefore he would find it difficult to do so.

b) The married men aged 18-35 years.

They also showed willingness to accompany their wives to MCH but to a lesser degree. It all depended on whether they could get time or not. But they said they don't think

they can leave their jobs to take their wives to hospital. One eve feared that other women would really look at a man who takes the wife to the 'clinic'. None of them had however. accompanied wife to hospital. Box 5 illustrates the view of one of the participants.

Box 5.

> *' If you are free you can go but I can't just ask for permission from job to take a woman to hospital. I can't follow a woman to the clinic. It is a woman's' duty to take care of children'.*

c) Men aged above 35 years.

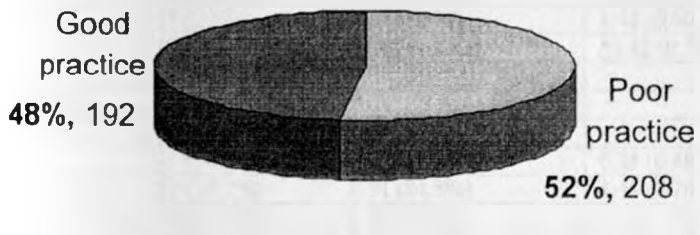
Majority of them said they could only accompany their wives if they were told by a health worker to do so. They felt culture does not permit them to accompany women to hospital.

They said they know their wives appointment date has reached when the women ask for transport to go to MCH. Women rarely discuss issues of MCH with the men

Point system was again used to score practices on PMCT based on extracted questions from section D of the questionnaire. Not all individuals answered all questions on practices because some were filtered depending on marital status and having children below two years of age. In all groups, a score above 4 was considered good practice and a score of 4 and below was taken as poor practice (appendix 6). The scores are

depicted in the pie chart below. Less than a half (48%) of the respondents seem to have good practice (figure 18).

Fig 18. Respondents' scores on PMCT practices



Socio-demographic characteristics in relation to good PMCT practices.

Relationships between socio-demographic characteristics and practices on components of PMCT were determined (Table 15). Chi-square statistics showed that age (χ^2=10.437, p=0.034), occupation (χ^2=15.650, p= 0.004) and level of education (χ^2=10.794, p=0.013 influenced respondents' practices on components of PMCT program. Respondents between ages 41 to 50 years were less likely to have good PMCT practices compared to those aged 20 years and below (OR= 0.43, 95% CI: 0.20-0.90, p=0.01). Respondents with tertiary education were 2.28 more likely to have good PMCT practices compared to those with no education (OR=2.28, 95% CI: 1.02-5.15, p=0.03). Farmers were less likely to have good PMCT practices compared to respondents with no occupation (OR=0.44, 95% CI: 0.24-0.81, p=0.004).

Table 15. Relationships between socio-demographic characteristics and respondents' practices on components of PMCT.

Characteristics	Have good practices regarding PMCT	Have poor practices regarding PMCT	Mantel Haenszel Odds ratio (95% Confidence interval	P value	Overall association
Age					
≤20 years	31 (16.2%)	27 (13.0%)	1 (Ref group)		χ^2=10.437
21-30	78 (40.8%)	67 (32.2%)	1.01 (0.53, 1.95)	0.96	**P=0.034**
31-40	39 (20.4%)	40 (19.2%)	0.85 (0.41, 1.77)	0.64	
41-50	28 (14.7%)	57 (27.4%)	0.43 (0.20, 0.90)	0.01	
≥51	15 (7.9%)	17 (8.2%)	0.77 (0.30, 1.99)	0.55	
Total	191 (100%)	208 (100%)	*0.74 (0.52, 1.06)	0.11	
Religion					
Catholic	41 (21.4%)	46 (22.4%)	1		χ^2=2.413
Protestant	132 (68.8%)	144 (70.2%)	1.03 (0.62, 1.71)	0.91	P=0.790
Others	19 (9.9%)	15 (7.3%)	1.42 (0.60, 3.40)	0.39	
Total	192 (100%)	205 (100%)	*1.12 (0.73, 1.73)	0.66	
Education level					
None	29 (15.1%)	37 (17.8%)	1		χ^2= 10.794
Primary	70 (36.5%)	101 (48.6%)	0.88 (0.48, 1.63)	0.67	**P= 0.013**
Secondary	59 (30.7%)	51 (24.5%)	1.48 (0.76, 2.86)	0.21	
Tertiary	34 (17.7%)	19 (9.1%)	2.28 (1.02, 5.25)	0.03	
Total	192 (100%)	208 (100%)	*1.34 (0.92, 1.97)	0.14	
Marital status					
Never married	72 (37.5%)	61 (29.3%)	1		χ^2= 3.005
Ever married	120 (62.5%)	147 (70.7%)	0.69 (0.45, 1.07)	0.08	P= 0.083
Total	192 (100%)	208 (100%)			
Currently married	114 (59.4%)	138 (66.3%)	1		χ^2= 2.081
Currently single	78 (40.6%)	70 (33.7%)	1.35 (0.88, 2.07)	0.15	P= 0.149
Total	192 (100%)	208 (100%)			
Occupation					
None	44 (22.9%)	35 (16.8%)	1		χ^2= 15.650
Unskilled	47 (24.5%)	52 (25.0%)	0.72 (0.38, 1.36)	0.28	**P= 0.004**
Skilled/professional	36 (18.8%)	22 (10.6%)	1.30 (0.62, 2.76)	0.46	
Business/Self employed	18 (9.4%)	14 (6.7%)	1.02 (0.41, 2.54)	0.96	
Farmer	47 (24.5%)	85 (40.9%)	0.44 (0.24, 0.81)	0.00	
Total	192 (100%)	208 (100%)	*0.74 (0.53, 1.03)	0.08	
Parental status					
With no child under five	72 (37.5%)	97 (46.6%)	1		χ^2= 3.414
With ≥ 1 child under five	120 (62.5%)	111 (53.4%)	1.46 (0.96, 2.22)	0.06	P= 0.065
Total	192 (100%)	208 (100%)			

* Mantel-Hanzel weighted odds ratio for the category.

Results of logistic regression analysis.

In order to determine whether several factors had any joint impact on practices in matters relating to PMCT, logistic regression was done (Table 16). Only level of education (OR=1.359, 95% CI: 1.086-1.701, p=0.007) and type of occupation (OR=0.826, 95% CI: 0.708-0.963, p=0.015) were found to be significantly related to good PMCT practices.

Table 16. Socio-demographic characteristics against practices on PMCT of HIV/AIDS.

Variable	Regression coefficient	Wald's statistics	Significance level (P-value)	Odds Ratio	CI: 95%
Age	-0.011	0.884	0.347	0.989	0.966-1.012
Religion	0.027	0.029	0.864	1.028	0.750-1.409
Educational level	0.307	7.212	**0.007**	1.359	1.086-1.701
Marital status	0.052	0.091	0.762	1.053	0.754-1.472
Occupation	-0.191	5.931	**0.015**	0.826	0.708-0.963
Parental status	0.209	3.279	0.070	1.232	0.983-1.545

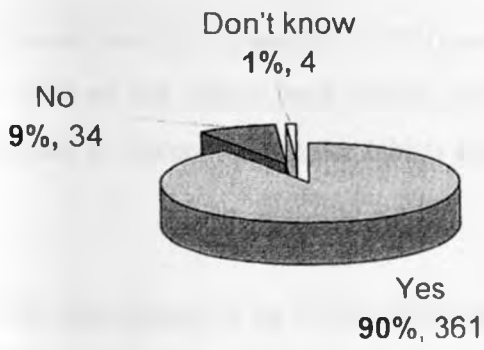
4.5 Acceptance of antiretrovirals use in PMCT of HIV/AIDS

Respondents were asked whether they would approve of HIV positive women taking antiretroviral drugs for the purpose of preventing perinatal HIV transmission.

Most (90%) of the respondents indicated they would recommend women including their partners and future partners to take antiretroviral drugs for the purpose of PMCT. 8.5% would not and 1% of them did not know whether they would or would not recommend their use (Figure 19).

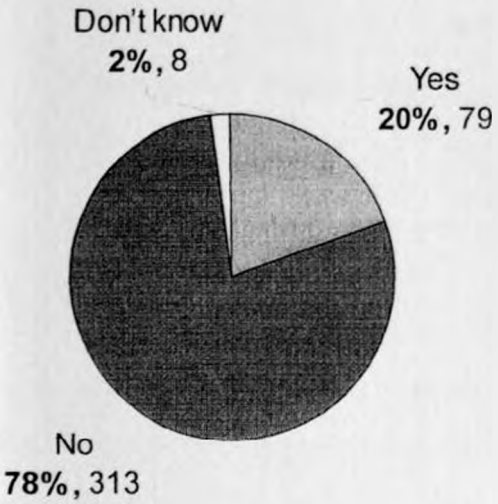
An overwhelming majority (94%) who would recommend ARVs would do so to prevent baby from getting HIV, 1.9% to reduce further visits to the hospital while 3% to enable women to have more children.

Fig 19. Approval of ARV use in PMCT of HIV/AIDS



Majority (78%) of the respondents did not approve of women and their infants being given ARVs without knowing their HIV status (figure 20).

Fig 20. Views on whether to give all pregnant women ARV prophylaxis without testing



A half of the respondents felt it is alright if ARVs are ingested in the presence of other people. About 75% of the respondents would prefer ARVs to be administered in hospitals as opposed to women taking the tablets home to be ingested at the onset of labour.

At least half of the participants in the FGDs believed that ARVs can prevent MTCT of HIV but they felt it cannot totally eliminate the virus once the baby has been infected. They were uncertain of the effects of antiretrovirals in preventing perinatal HIV transmission. There were some who said that those pregnant women who were given drugs delivered children who eventually died before the age of five years. One respondent was positive that the antiretroviral drugs could prevent MTCT of HIV/AIDS. He gave an example of how one of his relatives used the drug and the child tested negative. Some of the responses are outlined in box 6.

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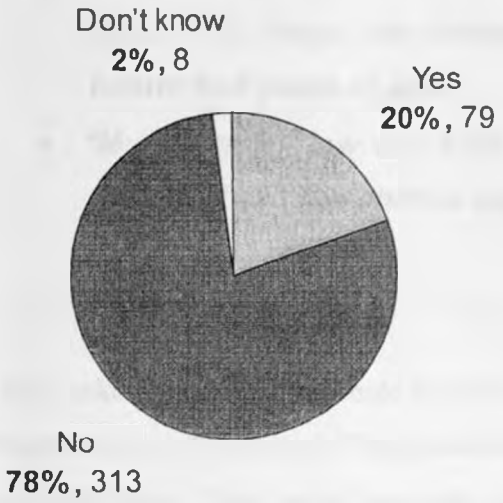

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Box 6

- ***We can't tell but those who have been given the drugs the children still die before five years of age.'***
- ***'My sister- in- law who had taken drugs delivered and the child is negative.'***

The participants were asked if they as men could be involved in the PMCT program and if they were willing to support their wives. They unanimously agreed in the affirmative but they gave some conditions. There were those who felt they could only support use of antiretrovirals after further discussions and consultations. They claimed that women's approaches are poor and that health workers should also target the men. Their reponses are outlined in box 7.

Box 7

- *"Only a mad person will not accept."*
- *"If a vehicle wants to knock you and someone removes you why not accept the offer.*
- *" We will support so that children can be born without the disease", God said populate the earth not the house."*

The participants were asked on what they felt people's attitudes would be/were to HIV preventive measures that have been advocated for considering that now antiretroviral are cheaply and readily available in our markets. They felt that preventive measures like abstinence, faithfulness to one uninfected partner and use of condoms should not be

abandoned just because we now have ARVs. They feared that infidelity would increase with the coming of ARVs because they will be seen as a relief and therefore some people could fall back to their old risky behaviours. **"*The guns will be retrieved and incidence of HIV/AIDS will increase.*"**

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussion

5.1.1 Knowledge

One of the objectives in this study was to determine respondents' knowledge on prevention of MTCT of HIV/AIDS. Almost all the respondents (99%) in the study had heard of HIV/AIDS. This is consistent with the KDHS findings (2003) where 99.7% of men in Nyanza had heard of HIV/AIDS. This was also reflected in the FGDs in which the participants in the three focus groups identified HIV/AIDS as a disease that is acquired mainly through sexual intercourse with an infected person and currently has no cure. This is a clear indication that HIV awareness is generally high, among males.

However, knowledge of transmission of HIV from mother to child was inadequate, with only a few of the respondents identifying this as a mode of HIV/AIDS transmission. However, asked whether they thought that a pregnant woman could transmit HIV infection to the child, the majority (86%) of them answered in the affirmative. This discrepancy could be attributed to the fact that MTCT of HIV/AIDS may not necessarily cross people's minds as a mode of transmission unless there is further probing.

On the timing of HIV transmission, fewer respondents could correctly identify that MTCT can occur either during pregnancy, labor and delivery or through breastfeeding. No respondent gave more than one of the above-mentioned periods. This is low compared to KDHS results of 2003, which showed that 66.6% of men in Nyanza thought that HIV could be transmitted by breastfeeding. A possible explanation to this discrepancy could be due to the fact that the PMTCT program was still new in the district and concentrated in the urban area hence its services could not have permeated to most places. Participants in the focus groups however identified breastfeeding as a mode of HIV transmission and they felt that avoidance of breastfeeding would reduce MTCT of HIV/AIDS.

The understanding of the exact mechanisms of HIV transmission from mother to child was not clear. Some participants in the FGD had misconceptions that if a mother is HIV

positive. the child will automatically get the infection because when the child is in the womb they share the same blood with the mother. This finding was also evident among those who responded to the questionnaire where slightly less than half (47%) of the subjects knew that not all children who are born to HIV positive mothers become positive. Forty-four percent thought that these children automatically get infected with HIV infection while about 9% did not know.

From the study done by The Working Group on MTCT (1995), showed that without interventions, about 25-40% of HIV infected women in Africa will pass the virus to their babies. This means that not all children born to HIV positive women automatically become positive.

According to KDHS, approximately 30 to 40 percent of babies born to HIV-positive mothers in Kenya will themselves be infected with the virus. The remainder may not be infected by HIV but are at risk of becoming orphans when one or both of their parents die from AIDS-related diseases.

Most of the respondents in the study (71%) knew that men can be responsible for transmission of HIV to the baby and majority of them believed that transmission could occur during pregnancy when an infected man has sexual intercourse with a pregnant woman. Respondents' religious affiliation, level of education and occupation were statistically significantly related to accepting that men can be responsible for perinatal HIV transmission. All other religious groups including protestants were 1.74 times more likely to accept that men have a role in perinatal HIV transmission compared to catholics (p= 0.02). An interesting finding was that secondary level of education was less likely to be associated with acceptance of men being responsible for perinatal HIV transmission compared to no education. Respondents engaged in some form of occupation were more likely to acknowledge that men have a role in perinatal HIV transmission than those with no occupation (p=0.02).

A majority of the respondents in this study (74%) knew there was a way of preventing mother to child transmission of HIV/AIDS. About 66% of those who knew of an

intervention gave primary prevention of HIV transmission in women as a method. The best way to prevent mother to child HIV transmission is to prevent HIV infection in women.

Babies are infected directly from their mothers, not their fathers. However, these mothers are usually infected by the father of the child or at least by another man. To reduce new infections in babies there is need to protect the mother and by implication their male partners and to the fact that it is a joint parental responsibility to protect the child.

The participants in the focus group discussions mentioned several ways of avoiding MTCT like avoidance of breastfeeding, use of antiretroviral drugs by pregnant women, use of condoms, abstinence where one is married, being faithful to one's partner. They also suggested that precautions should be taken during delivery especially when the baby is being separated from the mother. The participants said that pregnant women should go for early check-ups and HIV tests and also avoid cultural practices where a pregnant woman decides to have sex with another man to strengthen the baby thus exposing herself to the risk of acquiring HIV. HIV positive women should avoid mouth contact with the baby, especially when removing objects from the baby's mouth.

A majority of the respondents (87%) believed that ARVs have a role to play in PMCT. This was quite high compared to the KDHS report of 2003 where only 45.3% of men in Nyanza Province knew that the risk of MTCT could be reduced by mother taking drugs in pregnancy. The low knowledge exhibited through KDHS could probably due to the fact that their survey was carried out earlier (between April and September 2003) than this study (November 2004) and thus people could have become more aware of the availability of ARVs in PMCT of HIV/AIDS. In Migori district, PMCT services were established in August 2004 and thus the time required to know of the availability of services was shorter among the survey respondents compared to this study's respondents.

Age, religion, level of education and marital status appeared statistically significant related to respondents knowing that antiretroviral prophylaxis have a role in PMCT. Respondents aged 21 years and above were less likely to know that ARVs can prevent perinatal HIV transmission compared to those aged 20 years and below (p=0.02). Protestants and other faithfuls were less likely to know that ARVs can prevent perinatal HIV transmission compared to catholics (p=0.00). Respondents with secondary level of education were more likely to know that ARVs have a role in preventing perinatal HIV transmission compared to those with no education (p=0.03). Having at least primary level of education was significantly associated with knowing that ARVs can prevent perinatal HIV transmission (p=0.00). The currently single were more likely to know that ARVs can prevent MTCT of HIV/AIDS compared to the currently married (p=0.00). This study differs with that of Nachega *et al* (2005) where increasing age remained significant as a predictor of knowing that antiretroviral therapy can prevent disease progression.

Members of the focus groups in this study agreed that they had heard of antiretrovirals. None of the participants could name the antiretroviral prophylaxis for PMCT. A majority of the subjects who responded to the questionnaire also did not know the name of the antiretroviral prophylaxis that has been recommended by the government for the purpose of PMCT. Less than 20% of the respondents could correctly identify nevirapine. This could be due to the fact that PMCT is relatively a new concept to most people and thus majority of them have not yet accessed information regarding the program. It is important to note that controversial products in the Kenyan market like Pearl Omega were mentioned as a recommended antiretroviral prophylaxis. This particular product has never been legalized in the country. Kemron was also considered along the same line.

The Kenyan government has recommended the Thai regimen for women who opt not to breastfeed. They are advised to start treatment at 34 weeks of gestation instead of 36 weeks since most of the patients deliver before 40 weeks of gestation and would not have

had optimum therapy if the therapy was started at 36 weeks. For women who breastfeed. Nevirapine 200mg as single dose at the onset of labour and 2mg/kg body weight single dose to the infant within 72 hours of life is recommended (NASCOP, 2001).

Most of the respondents (70%) in this study had heard of PMCT services in their district. The study further showed that radio and health workers are the leading sources of information on PMCT while wives and relatives were the least to provide information.
In Kenya, reproductive health programs have used the mass media and other communication interventions to inform and educate the public about the disease and to promote behavior change and healthy sexual practices. This effort has led to a discrepancy between awareness and behavioral change among people of reproductive age (Muturi, 2005).

It is expected that wives could be the leading source of PMCT information since they are the ones who are frequently in touch especially with the public health services. This was not the case in this study. Fear of partner abuse and desertion has been mentioned by women as reasons for refusing HIV testing, nevirapine and partner disclosure (Stinger *et al*, 2003).

Overall, only slightly more than half (55.3%) of the respondents appeared to have adequate knowledge on prevention of mother to child transmission of HIV/AIDS components. Level of education and occupation were statistically significant as regards respondents' knowledge on prevention of mother to child transmission of HIV/AIDS. Respondents with tertiary education were more likely to possess adequate knowledge on PMCT compared to respondents with no education (p=0.00).
Respondents with primary level of education and above were more likely to possess adequate knowledge on PMCT in relation to those with no education (p=0.001).
Respondents who were skilled or professionals were more likely to have adequate knowledge of PMCT was 2.66 compared to those with no occupation (p=0.01). Businessmen and self-employed respondents were 5 times more likely to have adequate knowledge on PMCT compared to those with no occupation (OR=5, p=0.002).

Logistic regression analysis indicated that only level of education remained a strong predictor of possessing adequate or inadequate knowledge on PMCT of HIV/AIDS (OR=1.721, 95% CI: 1.359-2.180, p= 0.000).

5.1.2 Perceptions on PMCT.

A majority of the respondents (82%) considered MTCT a public health problem. Slightly more than a half of the respondents were of the opinion that men should be involved in PMCT because parenting is the responsibility of both man and woman. Fourteen percent of the respondents did not think that men should be involved in PMCT. Forty five percent of this latter group thought that men have no time while 28% believe that health facilities dealing with PMCT are not friendly to men.

Only religion had an influence regarding men's opinion on their participation in PMCT activities. Protestant faithfuls were two times more likely to approve men's involvement in PMCT compared to catholics (OR=1.97, p=0.03).

While men have a shared responsibility in matters relating to reproductive health, lack of attention to them in the past has conveyed a message that FP does not concern them. This has resulted in very low male participation in FP (Maina, 2001). Family planning services are offered in the same settings as PMCT services and women are usually the first to come into contact with these services. Factors such as lack of adequate knowledge, socio-cultural beliefs, economic status, religious beliefs, personal attitudes, rumours and myths have been shown to affect the practice of FP positively or negatively (Kamau *et al*, 1996).

Research and program experience are demonstrating that many men care about and are willing to make positive contributions to the reproductive health of their partners and well being of their families. Rutenberg *et al* in one of their studies also noted that while they had seen a small group of supportive male partners who go for VCT or to pick up formula, there was another small group of hostile partners.

On breastfeeding, about a half (51%) of the men felt that women should not breastfeed when HIV positive. Majority of the participants in the focus groups felt that children born to HIV positive women should not breastfeed at all. None of the participants in the FGDs had heard of exclusive breastfeeding.

The Kenya government has guidelines for counseling on HIV and infant feeding. Babies should breast feed exclusively for the first six months of life since breast milk is the standard in infant feeding. However, in situations where a mother is infected with HIV, counseling about the different possible infant feeding alternatives should be provided. The mother (together with the partner) should make an informed choice that should be respected (NASCOP, 2002).

Slightly more than a half (55.7%) of the men who responded to the questionnaires felt that condom is useful during pregnancy, especially when one is HIV positive. However, no socio-demographic characteristics were statistically significant in stating that condoms are useful during pregnancy in PMCT.

Most of the participants in the three FGDs felt that it is better not to have sex at all with the infected pregnant woman than to use condoms. They stated that condoms are not 100% safe. Some indicated that they could only use condoms if both of them are HIV positive. One participant preferred taking uninfected second wife and have sex with her while he will continue to maintain the first wife but no sexual intercourse with her. Some felt that if both were infected then they would rather abstain totally and continue feeding well.

According to CBS 2003, the question was asked in the reverse if the respondents thought that a woman is justified in refusing to have sex with her husband if she knows he has an STD. They were also asked if they think that a woman in the same circumstances is justified in asking her husband to use a condom. About 93% of the men in Nyanza felt that a woman is justified in refusing to have sex with her husband if she knows he has an STD. About 38% of men from Nyanza said that a woman has no right to tell a man to use a condom. This was high compared to the overall national

percentage of 28 who gave the same opinion. This study and the KDHS concur with regard to sexual abstinence in case one partner is infected with STD/HIV.

A majority of men (82%) felt that HIV positive women should not have more babies. This was reflected in the FGDs where the participants thought that once a woman is infected with HIV, the baby born would automatically become positive. Their views on antiretroviral dugs were varied. There was misconception that ARVs may cause sudden death. The issue of it being expensive came up despite the fact that PMCT program is offering these services free of charge. It was also agreed that ARVs prolong life and that the immune system is strengthened.

The study showed that majority (75%) of respondents had good perceptions as far as prevention of mother to child transmission of HIV/AIDS interventions are concerned. Religion, which had an influence on respondents' perceptions, showed that Protestants were more likely to have good perceptions on prevention of MTCT of HIV/AIDS compared to catholics. When logistic regression analysis was done, no sociodemograhic characteristic was significantly related to perceptions on PMCT of HIV/AIDS.

5.1.3 Practices on PMCT

Voluntary counseling and testing for HIV is one of the key components of the strategy to fight against HIV/AIDS. The findings of this study showed that fewer respondents (45%) had ever attended VCT and majority (97%) of those who attended were tested. This is higher compared to the national figure where 16% of men said they had ever been tested according to 2003 KDHS. Less than 2% of those who went for VCT went for the purpose of preventing mother to child transmission of HIV/AIDS.

In this study, religion, level of education, occupation and parental status were significantly associated with VCT attendance. Protestants and respondents from other religions were more likely to have gone for VCT compared to catholics. Respondents with tertiary level of education were more likely to have attended VCT compared to those with no education. Skilled/ professionals were more likely to have attended VCT

compared to individuals with no form of occupation. Respondents with at least some form of occupation (unskilled, skilled/professionals, business/self employed and farmers) were more likely to have attended VCT compared to those without occupation. Respondents with at least one child under five years of age were twice more likely to have attended VCT compared to those without.

Most of the participants in the three FGDs said that it is good if the couples are tested together and told the results together as opposed to individual testing. This, they said would remove suspicions and increase the level of trust in the family.

In a focus group study quoted by Stringer and colleagues (2003) showed that women distanced themselves from VCT because they feared partner abuse. In this study the men however, encourage couple VCT to bring about transparency as regarding who first infected the other. They felt that couple counseling would reduce unfaithfulness and therefore would restore family's integrity.

In their study, Farquhar *et al* (2004) found that partner participation in VCT and couple counseling increased uptake of nevirapine and formula feeding. In a study they presented in the International AIDS Conference 2004 in Bangkok, they demonstrated that couple counseling was also cost effective. According to their study, couple counseling increased nevirapine uptake by 35% and resulted in a cost saving of 25% per 100 infant infections averted.

In a study in Uganda by Matovu *et al* (2005), although 93% initially requested HIV results, 62.2% subsequently accepted VCT. VCT acceptance was lower among persons with no prior VCT, individuals with primary education, individuals who were HIV-positive and persons reporting condom use in the past 6 months. VCT acceptance was higher among the currently married and previously married. Furthermore, VCT acceptance was lower among those who had never married (55.4%), individuals with post-primary education (60.1%). Acceptance of VCT was highest among the currently married (65.5%), persons with no formal education (67%). In the adjusted analysis, marital status was significantly associated with increased VCT acceptance for currently

married and for previously married, versus never married. The probability of VCT acceptance was significantly lower among those with primary education and post-primary education compared with those with no formal education. VCT acceptance was lower among persons who reported condom use in the past 6 months in persons who had no prior VCT and among HIV-positive persons irrespective of their previous receipt of results. VCT acceptance was not significantly associated with gender, age, number of sexual partners, or self-perception of HIV risk.

More than a half (61%) of the married men interviewed in this study claimed to discuss matters related to PMCT with their spouses/partners. In studies quoted by Yonga (2001), discussion levels among couples on issues to do with reproductive health were low, with 45% and 27% claim having never discussed family planning with their wives in Zimbabwe and Sudan, respectively.

Less than a half of the men accompanied their wives to antenatal clinic. There were deferring views depending on the FGD on whether to accompany a spouse or not to the antenatal clinic. The unmarried {never married} between ages 18-35 unanimously agreed that they would wish to accompany their partners should they marry in future. But they felt that they have no place in MCH because the health workers concentrate only on women. They also said that they should be told what they are going to do and even be allowed inside the room with their wives. They admitted that sometimes they (men) can be too busy and if their wives were to go they know they would be told results after all. The second FGD comprising of married and ever married men aged 18-35 years also showed willingness to accompany their wives to MCH but they said they don't think they can leave their jobs to take their wives to hospital. None of them had however, accompanied his wife to hospital. Majority of the participants in the third FGD comprising of those above 35 years of age irrespective of their marital status (all were currently married) said they could only accompany their wives if told by health workers to do so. They felt culture does not permit them to accompany women to hospital. They said they only knew of the ANC appointment dates when the women go

to ask them for transport. They further said the women mostly ask for transport on the day of the appointment and they rarely discuss issues of MCH with their men.

An article cited by Maina (2001) showed that the focus of reproductive health/FP policies on women is partly responsible for the low utilization of the services. They have become suspicious, uninterested and non supportive. In 1994, the Family Planning Association of Kenya introduced the "Reach out to men the forgotten 50% communication programme". This tried to address the inadequacy of male involvement and participation in FP. The main goal was to redesign FP programmes to include the needs and concern of men.

In this study, less than half of the respondents (48%) seemed to have good practices in relation to prevention of mother to child transmission of HIV/AIDS. Age, occupation and education influenced respondents' practices on components of PMCT program. The skilled/professionals were more likely to have good practices (p=0.004). Farmers were least likely to have good practices. Respondents between ages 21 to 30 years were more likely to have good practices on PMCT (p=0.034). Those above 41 years of age were least likely to have good practices. Respondents with tertiary education were likely to have good practices whereas those with primary education were likely to have poor practices (p=0.013).

Age, occupation and education influenced respondents' practices on components of PMCT program. Respondents between ages 41 to 50 years were less likely to have good PMCT practices compared to those aged 20 years and below. Respondents with tertiary education were more likely to have good PMCT practices compared to those with no education. Farmers were less likely to have good PMCT practices compared to respondents with no occupation.

After logistic regression analysis was done, only level of education (p=0.007) and type of occupation (p=0.015) were found to be significantly related to practices on PMCT of HIV/AIDS independent of each other. Age, religion, marital status and whether a

respondent had or did not have a child younger than five years were not significantly related to practices with respect to PMCT of HIV/AIDS.

5.1.4 Acceptance of antiretroviral in PMCT of HIV/AIDS.

Increasing the population's access to HAART could help to decrease the stigma of HIV while also decreasing the risk of transmission from patients unwilling to disclose their HIV status to their partners (Nachega *et al*, 2005). Indeed, providing treatment services in sub-Saharan Africa so that HIV infection is transformed from a deadly disease to a treatable chronic condition is likely to provide an incentive for individuals at risk for HIV to seek voluntary counseling and testing.

Majority of the respondents in the study (90%) stated that they would recommend women to take nevirapine prophylaxis for the purpose of PMCT. Their sentiments were reflected in the focus group discussions conducted. At least a half of the FGD participants were convinced that antiretroviral drugs can prevent MTCT of HIV but they felt it cannot totally eliminate the virus once the baby has been infected. This belief was also noted in a focus group discussion conducted in Mombasa among pregnant women where they stated that HIV transmission to the baby when a mother is infected is inevitable (Delva *et al*, 2004). The men however, agreed to support the women, showed willingness to be involved in the PMCT program. There were those who felt they can only support use of antiretovirals after further discussions and consultations. They claimed that women's approaches are poor and that health workers should also target the men.

Most of the respondents did not agree that women and their infants should be given ARVs without knowing their HIV status. Majority still preferred that ARVs should be given to pregnant mothers in hospitals as opposed to 29.4% who would prefer home setting. A half of the respondents did not mind whether ARV is ingested in the presence of other people or not. In the study by Nachega *et al* (2005), majority of patients reported that they would not be worried about family (83%) or friends (74%) finding out if they were to take ART. Their study established that concerns regarding ART were not significantly associated with ART use, length of time known to be HIV-positive, age, gender, socio-economic status or education.

In this study, the FGD participants felt that preventive measures like abstinence, faithfulness to one uninfected partner, use of condoms should not be abandoned at the expense of antiretroviral drugs. They feared that infidelity will increase with the coming of ARVs because they will be seen as a relief because other people could go back to old habits in which they likened to the retrieval of the stored guns. These high risky behaviours could eventually shoot down people as a result of increase in the incidence of HIV/AIDS.

5.2 Conclusions

Knowledge on various components of PMCT of HIV/AIDS was high among the adult men in Migori district. Increasing level of education was significantly related to having adequate knowledge on PMCT of HIV/AIDS. HIV/AIDS was identified as a disease, which currently has no cure and could be transmitted from mother to child during pregnancy, at the time of labour and delivery and through breastfeeding.

Knowledge on mechanism of intrauterine transmission was inadequate as exhibited in the FGD where it was thought that HIV is transmitted though the food the fetus gets via the umbilical cord. Another misconception from the FGDs was that all children born to HIV positive women automatically become positive. Exclusive breastfeeding appeared to be a new concept to these men.

The men in Migori district had good perceptions on prevention of MTCT of HIV/AIDS. Majority of the respondents considered HIV/AIDS a public health problem in Kenya. They showed willingness to be involved in PMCT of HIV/AIDS activities.

Usage of condoms during pregnancy to prevent perinatal HIV transmission was supported though the participants of the FGDs were skeptical of their effectiveness. The respondents recommended that women should not have more children once they have

been infected with HIV/AIDS. They also said that HIV infected women should not breastfeed their children

Antiretroviral drugs were viewed positively and thought of as drugs that can prolong life but cannot cure HIV/AIDS. The drugs were considered as vital in preventing mother to child transmission of HIV/AIDS. There was testimony of it having preventing HIV transmission to a child according to a participant from the focus group.

The respondents had poor practices regarding prevention of vertical HIV transmission. This is discouraging in that their knowledge and good perceptions have not been translated into practice. Level of education and type of occupation were found to be significantly related to good practices on PMCT of HIV/AIDS.

Very few respondents had ever attended VCT and of these only 2% went for the purpose of PMCT. Less than half of the men with children below 2 years ever went with their wives to MCH clinics. Men claimed to be too busy to attend MCH services and they claimed the facilities are not friendly to them. They also said they need to know what their role is in MCH set up.

The respondents accepted use of antiretroviral drugs for the purpose of preventing mother to child transmission of HIV/AIDS. The participants from the focus groups felt that preventive measures should be emphasized even though drugs have become available. This is to avoid people sliding back to risky sexual behaviors.

5.3 Recommendations

1. The government and all other stakeholders involved in provision of health care services should endeavour to make family oriented services male friendly. This could for instance imply identification of a site in each health facility where males' issues could be addressed including their involvement in prevention of mother to child transmission of HIV/AIDS programs. This could have a positive bearing not only to their health but also to that of the women and children.

2. There is need to urgently sensitize and orientate health workers to be more receptive to men especially when they accompany their partners to the health facilities. This will not only reduce the awkward position men find themselves in but also encourage more men to seek family focused services thus increasing uptake of couple counseling and PMTCT services.

3. Current information on PMCT of HIV/AIDS needs to be disseminated to members of the community. This will enable fill knowledge gaps identified especially on mechanisms of mother to child transmission of HIV/AIDS and on infant feeding. This will enable men to have the correct knowledge and good perception hence being in a better position to support their partners on infant feeding. More light needs to be shed with regard to exclusive breastfeeding. Dissemination of PMCT information through mass media, local gatherings like chiefs' barazas, churches are strategies that can be utilized to ensure that men become more enlightened on these matters so that their knowledge and practice are in proper alignment.

4. Existing community structures that command a larger following of young men like youth groups could be used as powerful entry points targeting primary prevention of HIV/AIDS. If these groups can be utilized as ambassadors of change in saying "No to risky sexual behaviours," then, it is possible to have a generation of people entering parenthood free of HIV infection. This will eventually lead to fewer perinatal HIV transmissions if such good behaviour are sustained throughout lifetime.

5. Increasing level of education has been shown to be associated with good knowledge and good PMTCT practices. Advocacy programs on education should be intensified to ensure that all individuals achieve universal primary education and proceed on to higher levels. Adult education should be given the prominence it deserves to cater for the needs of those who could have missed schooling opportunities early in life. It is important to make these services easily accessible, affordable and acceptable to have tangible impact on the holistic lives of their consumers.

6. Studies are required to continuously evaluate the PMCT services and the impact on men. This can be done by studying the attitudes and practices of men who accompany their partners for PMCT clinics vis-a-vis those who do not.

7. A similar study needs to be carried out in a different geographical and socio-cultural set up for comparison and to identify other factors that could affect men's perceptions on PMCT of HIV/AIDS.

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APPENDIX 1

RESEARCH PARTICIPANT CONSENT FORM

My name is Dr. Elizabeth A. Onyango from the University of Nairobi, Department of Community Health. I am carrying out a study on Men's **Perceptions on antiretrovirals in Preventing Perinatal HIV Transmission.** You have been selected to be one of the respondents and want to assure you that all information that you give is important and shall be treated in confidence. You are not obliged to respond to all questions and can withdraw at anytime during the interview. If you do participate, the information you give will help us recommend for actions and policies that will improve utilization of services that prevent mother to child transmission of HIV/AIDS in the community.

For further information, questions and or clarifications, feel free to contact me on the following phone numbers: 0721939576, 0722255740.

If you agree to participate, please sign this consent form.

Participant _____ Date _____

Witness _____ Date _____

APPENDIX 2

QUESTIONNAIRE

SECTION A

Demographic Data

Client ☐☐☐ code

Centre ☐☐☐ code

1. Year of birth.....

2. Age (in completed years).....

3. Religion
   1. Catholic
   2. Protestant
   3. Legio maria
   4. Islam
   5. Hindu
   6. Others (specify).....

4. Education level (Completed)
   1. None.
   2. Primary.
   3. Secondary.
   4. Tertiary.

5. Marital status.
   1. Single.
   2. Married (go to 6)
   3. Widowed.
   4. Separated/divorced.
   5. Cohabiting with a woman

6. If married how many living wives do you have?
   1. One (monogamy)

2. More than one (polygamy)

7. Number of children under five years or who would have been less than five years at the time of study both alive and dead.

1. None
2. One
3. Two
4. Three
5. Others specify.....

8. Occupation.

1. None.
2. Unskilled.
3. Skilled/Professional
4. Business/self employed
5. Farmer.
6. Others (Specify).....

SECTION B

Knowledge of PMTCT

9. Have you ever heard of a disease called HIV/AIDS?

1. Yes
2. No (Go to Q 40- 43 only)

10. How would you say HIV is transmitted?

(Tick responses)

1. Sexual intercourse with an infected person
2. Blood transfusion
3. Sharp objects
4. Mother to child transmission

5. Others (specify).....

11. Do you think a pregnant woman can transmit HIV infection to the child if she is HIV Positive?

1. Yes
2. No (go to Q 13)
3. Don't know (go to Q13)

12. When do infants acquire the infection from the mothers?

1. during pregnancy
2. during labour and delivery
3. during breastfeeding
4. Others (specify).....

13. Do you think men can be responsible for the transmission of HIV virus to the baby?

1. Yes
2. No (go to Q 15)
3. I don't know (go to Q 15)

14. How can a baby acquire HIV virus from the father

1. When the father infects the baby's mother during pregnancy
2. When the father infects the baby's mother during breastfeeding
3. Others (specify)

15. In you opinion, do you think there is a way of preventing a mother from transmitting the infection to her baby?

1. Yes
2. No
3. I don't know

16. Say what can be done to prevent transmission of HIV from mother to child?

1. Prevention of HIV transmission in women
2. Preventing unwanted pregnancies in HIV positive women
3. Voluntary, confidential counseling and testing for HIV
4. Comprehensive antenatal, post natal and child health services
5. Optimal obstetrical care
6. Nevirapine for HIV infected mother at the onset of labor
7. Nevirapine for the new born within 72 hours of birth
8. Avoidance of breastfeeding
9. Excusive breastfeeding for six months
10. Others (specify)

17. Do all children who are born to HIV positive women become positive?

1. Yes
2. No
3. I don't know

18. Have you heard of a program offering PMTCT services your district?

1. Yes
2. No (go to Q 21)

19. Name some of the places one can get such services in the district

1. Ombo Mission Hospital
2. Migori district hospital
3. Others Specify

20. What was your source of information on prevention of mother to child transmission of HIV program?

1. Health worker
2. Posters/books

3. Public baraza
4. Place of worship
5. Friends
6. Wife
7. Relatives
8. Radio
9. Television
10. Others (specify)

21. Do you know the name of the antiretroviral drug recommended by the government for the purpose of preventing perinatal transmission of HIV?
    1. Yes
    2. No (go to Q 23)

22. Could you please name the drug
    1. Nevirapine
    2. Others (specify)

23. Do you think antiretrovirals (HIV drugs) have a role to play in PMTCT?
    1. Yes
    2. No
    3. I don't know

SECTION C

Perceptions on PMTCT

24. Do you think MTCT is a public health problem in this country?
    1. Yes
    2. No

3. I don't know

25. Should men be actively involved in PMTCT programs?

1.Yes

2. No (go to Q 27)

3.I don't know (go to Q 27)

26. Why do you think men should be involved in PMTCT programs?

1. Parenting is the responsibility of both man and woman
2. To prevent further infections in the community
3. The health workers say so
4. I don't know
5. Others (specify)

Skip to Q 28

27. Why do you say that men should not be involved in PMTCT programs?

1. Culture does not permit that
2. Men usually have no time
3. The health facilities dealing with PMTCT are not friendly to men
4. I don't know
5. Others (specify)

28. Should women who are HIV positive breastfeed their babies?

1. Yes
2. No
3. I don't know

29. Do you think condom use has any use during pregnancy for a woman who is HIV positive?

1. Yes
2. No

3. I don't know

30. Should women who are HIV positive have more children?

1. Yes
2. Know
3. I don't know

31. In your opinion should PMTCT services be free?

1. Yes
2. No
3. I don't know

SECTION D

Practices on PMTCT

32. Have you ever gone for voluntary counseling and testing for HIV/AIDS?

1. Yes
2. No (go to 35)

33. Why did you go for the VCT?

1. Wanted to know my status
2. For the purpose of PMTCT
3. Job requirement
4. Church requirement before marriage
5. Others (specify)

34. Were you tested?

1. Yes
2. No

35. (For the married) do you and your partner discuss matters related to PMTCT?

1. Yes

2. No (go to 39)

36. Who else have you discussed with matters related to PMTCT?

1. Male relatives
2. Female relatives
3. Male friends and colleagues
4. Female friends and colleagues
5. Health workers
6. Others (specify).....

37. For the unmarried (Have you ever discussed matters related to PMTCT with anyone)

1. Yes
2. No (go to 40)

38. With whom did you discuss matters related to PMCT?

1. Male relative
2. Female relative
3. Male friends and colleagues
4. Female friends and colleagues
5. Health workers
6. Others (specify).....

39. If you were to have a child do you think you would wish to be involved in the entire PMTCT program with your partner?

1. Yes
2. No
3. I don't know

40. (For those with children under five.) how old is your last child.?

1. Less than two

3. Don't know (go to 48)

47. Why would you recommend use of antiretrovirals in PMTCT?

1. It would prevent baby from getting HIV
2. It would reduce further visits to hospital
3. It would enable women to have more children
4. I don't know

Skip to Q 49

48. Why would you not recommend use of antiretrovirals in PMTCT

1. It might be harmful to the child
2. I don't think it can prevent HIV
3. It is against my religion
4. I don't know
5. Others (specify)

49. In your opinion, should all pregnant women and their infants be given antiretrovirals without knowing their HIV status?

1. Yes
2. No
3. I don't know

50. Should pregnant women be given antiretrovirals to take home or should it be administered in hospitals?

1. Hospital
2. Home

51. Should the antiretovirals be ingested by these women in the presence of other people?

1. Yes
2. No
3. I don't know

APPENDIX 3

GUIDE FOR FOCUS GROUP DISCUSSIONS

Notes:

The investigator and research assistants used these questions to conduct focus group discussions. The sessions were held and consisted of 6-10 adult males led by 2 trained facilitators. Each FGD lasted on average one and half hours. The questions were used flexibly, and additional information derived which may not have been asked. was noted.

Procedures

1. FGD participants volunteered
2. Participants sat in a semi circle so that they all faced one another (quiet place away from disturbance).
3. All participants introduced themselves, one at a time, including the facilitators.
4. Facilitators initiated climate-setting exercises. This was achieved in a variety of ways. e.g: asking people to introduce their immediate neighbour, or asking participants to say one thing they like or telling a short joke etc.
5. Laying of the ground rules follow. This was a participatory exercise, where each participant was asked to say one rule they felt should apply in the course of the FGDs. Some useful ground rules included:

- No smoking during FGD sessions.
- Respect for other people's view.
- Orderly contributions (one at a time).
- No unnecessary disturbances.
- What is said in the room stays in the room.
- Participants cannot participate in more than one focus group.
- Participants can talk about services and specific agencies but not about specific people.

6. After setting of ground rules the FGD session started. Facilitators kept notes but assure confidentiality and ensure that the ground rules are observed.

QUESTIONS

1. What is HIV/AIDS?

2. How do children below five years of age get infected with HIV/AIDS?

3. What measures can be taken to prevent pregnant women from passing HIV/AIDS to the babies?

4. What do you men have to say about your involvement in preventing transmission of HIV from mother to the child?
   a) Would you accompany wife/partner to hospital for MCH?
   b) Would you accept to be tested? As a couple or individually?
   c) Would you recommend use of condoms when pregnant woman is infected?
   d) Should babies born to HIV positive women breastfeed or not?

5. What do you know about antiretrovirals (drugs given to HIV positive patients)?

6. Are people convinced about the need to use antiretrovirals in preventing mother to child transmission of HIV/AIDS?

7. Now that antiretrovirals are being provided free to families of women enrolled in PMTCT programs, do you think more people especially men will be involved in the program and support their partners?

8. With the coming of antiretrovirals, what are people's attitudes to HIV and the preventive measures that have been advocated for?

APPENDIX 4

PMCT KNOWLEDGE SCORE SHEET

Questions	**Inadequate knowledge**	**Adequate knowledge**
Ever heard of HIV/AIDS	No= 0 points	Yes= 2 points
How is HIV transmitted	No mode= 0 points One mode= 0.5 points	2 or more correct options (maximum= 2 points)
Can an HIV positive pregnant woman transmit the infection to the baby?	No= 0 points Don't know= 0 points	Yes = 2 points
When do infants acquire HIV infection from the mothers?	No option= 0 points One option = 0.5 points	2 or more correct options (maximum=1.5 points)
Can men be responsible for the transmission of HIV virus to the baby.	No= 0 points Don't know= 0 points	Yes=1 point
How can a baby acquire HIV from the father	No correct option= 0 points	1 or more correct options, each 0.5 points (maximum= 1 point)
Is there a way of preventing MTCT	No = 0 points Don't know= 0 points	Yes = 1 point
Ways of PMCT of HIV/AIDS	4 options and below	More than 5 options, each option 0.5 points (maximum 4.5 points)
Do all children who are born to HIV positive women become positive	Yes= 0 Don't know= 0	No= 1 point

PMCT knowledge score sheet continued

Name places providing PMCT in the district	No option= 0	1or more options, each option 0.5 points (maximum 1 point)
Do you know the name of ARV drug for PMCT	No= 0 Incorrect response for the next question= 0	Yes= 1 point
Could you name the ARV	If not nevirapine or zidovidine= 0 points	Nevirapine= 1 point zidovudine= 1 point (maximum 1 point)
Do you think ARVs have a role to play in PMCT of HIV/AIDS	No= 0 points Don't know= 0 points	Yes = 1 point

Notes

1. **This score sheet was purposed to separate the participants arbitrarily into two groups, those with adequate knowledge and inadequate knowledge for the purpose of cross tabulations.**
2. **It is based on a point system. Maximum of 18 points was possible.**
3. **Respondents were considered to have adequate knowledge if they obtained 9 points and above.**
4. **Those with inadequate knowledge scored less than 9 points.**

APPENDIX 5

PMCT PERCEPTIONS' SCORE SHEET.

Questions	Poor perceptions	Good perceptions
Is MTCT of HIV/AIDS a public health problem in this country?	No= 0 points Don't know= 0 points	Yes 2 points
Should men be actively involved in PMCT programs?	No=0points Don't know= 0 points	Yes= 2 points
Why do you think men should be involved in PMCT?	1 don't know= 0 points Option 3, 4 = 0 points	Option 1= 1 point Option 2= 1 point Correctly specified option= 1 point. (maximum = 2 points)
Is condom of any use during pregnancy for a woman who is HIV positive	No= 0 points Don't know= 0 points	Yes= 2 points
Should PMCT services be free?	Yes= 0 points Don't know = 0 points	No= 2 points

Notes

1. **This score sheet was purposed to separate respondents arbitrarily into two groups, those with poor perceptions and good perceptions.**
2. **It is based on a point system with maximum score of 10 points.**
3. **Those with good perceptions scored 5 points and above.**
4. **Those with poor perceptions scored less than 5 points.**

APPENDIX 6

PRACTICES ON PMCT SCORE SHEET

Questions	Poor practices	Good practices
Have you ever gone for VCT	No=0 points	Yes=2 points
(Currently married) do you and your partner discuss matters related to PMCT?	No= 0 points	Yes= 2 points
(Currently single) have you ever discussed matters related to PMCT with any one?		
If you were to have a child do you think you would wish to be involved in the entire PMCT program with your partner	No= 0 points Don't' know= 0 points	Yes = 2 points
Did you accompany the mother to the health facility for ANC	No= 0 points	Yes= 2 points
Did you join the PMCT program	No=0 points	Yes= 2 points

Notes

1. **This score sheet was purposed to separate respondents arbitrarily into two groups, those with poor practices and good practices.**
2. **It is based on a point system with maximum score of 10 points.**
3. **Because some questions were filtered, different groups had different maximum scores they could obtain, but for uniformity cut off point was the same and it took into consideration all the groups.**
4. **Those with good practices scored above 4 points.**
5. **Those with 4 points and below were considered to have poor practices.**