

**DETERMINANTS OF KNOWLEDGE ON
MTCT OF HIV AMONG PREGNANT
WOMEN ATTENDING ANTENATAL
CLINIC
IN NDOLA URBAN DISTRICT**

THESIS
M.P.H.
Ng'a
2004
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BY

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A dissertation submitted to the University of Zambia in partial fulfillment
of the requirements for the award of Masters of Public Health (MPH)

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December 2004



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DECLARATION

I **Hildah Ng'ambi** hereby certify that this dissertation “ **Determinants of knowledge on MTCT of HIV among pregnant women attending Antenatal Clinic in Ndola Urban District**” is the product of my own work and, in submitting for my MPH programme, further attest that it has not been submitted in part or in whole to another university.

Signature:..... Date: 03.01.2005
(Student)

We Prof. S. Sinyu & Mr C. Ngoma.....having supervised and read this dissertation, confirm that the work has been completed satisfactorily and is ready for presentation to the examiners.

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DEDICATION

This dissertation is dedicated to my father, Mr. **Petros “Umaambo” Ng’ambi**, to my late mother, Mrs. **Evelyn Linjavwa Ng’ambi** and my late young sister, Mrs. **Mable Ng’ambi Ngoma**.

ACKNOWLEDGEMENTS

I wish to express my gratitude to United States Agency for International Development (USAID) for the study sponsorship through Ministry of Health (MOH) to enable me undertake the Masters of Public Health programme.

I am indebted to Ndola District Health Management Team for granting me permission to carry out this study in their health centres. I am also thankful to all the pregnant women who responded to the interview schedule without whose cooperation this study would not have been a success.

My sincere thanks to my supervisor Prof. S. Siziya for the guidance and supervision of the dissertation; and Mrs. C. Ngoma the co-supervisor for her encouragement and tireless guidance throughout the period of my research project.

Special thanks to Dr Eric (USA), who gave me special advice and helped me to gain insight into the direction of my research. Appreciation is also owed to Mr. E. Mbewe for giving me all the moral and material support when I needed it most.

Finally but not the least I would like to thank most sincerely Mr. K. Sikaona for assisting me with data analysis and my research assistants who assisted me not only in selecting the study subjects but in data collection as well.

ABBREVIATIONS

AIDS	-	Acquired Immunodeficiency Syndrome
ANC	-	Antenatal clinics
ARV	-	Anti Retroviral Drugs
AZT	-	Zidovudine
DHMT	-	District Health Management Team
DHIO	-	District Health Information Office
HIV	-	Human Immunodeficiency Virus
IEC	-	Information, Education and Communication
MOH	-	Ministry of Health
MTCT	-	Mother to Child Transmission
NVP	-	Nevirapine
PMTCT	-	Prevention of Mother to Child Transmission
UNAIDS	-	United Nations Joint Programme on HIV/AIDS
UNICEF	-	United Nations Children's Fund
USAIDS	-	United States Agency for International Development
VCT	-	Voluntary Counseling and Testing
WHO	-	World Health Organization
ZDHS	-	Zambia Demographic Health Survey
ZSBS	-	Zambia Sexual Behaviour Survey

ABSTRACT

OBJECTIVE: The main objective of the study was to establish the determinants of knowledge on MTCT of HIV among pregnant women attending ANC in Ndola Urban District.

DESIGN: This was a cross sectional study, which took an analytical approach. Using a Likert scale, two groups of women were generated, one group was knowledgeable and the other was not knowledgeable. A structured interview schedule was used to establish the determinants of their knowledge.

SETTINGS: The study covered six health centers, two from each of the three zones in Ndola Urban District in the Copperbelt province of Zambia.

SUBJECTS: The subjects consisted of 300 consenting pregnant women who were randomly selected from antenatal clinics.

MAIN OUTCOME MEASURES: Pregnant women's knowledge levels on MTCT of HIV measured as knowledgeable or not knowledgeable and factors that influenced the knowledge on MTCT of HIV among the pregnant women were seen as the main outcome measures.

RESULTS: Out of 300 pregnant women who were enrolled for the study, 165 (55%) were knowledgeable and 135 (45%) were not knowledgeable on MTCT of HIV. Logistic regression revealed that pregnant women with no formal education and primary education were 85% (95% CI 0.03, 0.70) and 89% (95% CI 0.04, 0.30) less likely to be knowledgeable on MTCT of HIV than pregnant women who attained College/University education.

Pregnant women who listened to the radio everyday were 2.23 (95% CI 1.47, 3.38) times more likely to be knowledgeable on MTCT of HIV than pregnant women who did not listen to the radio everyday.

A statistically significant difference ($p < 0.001$) was also observed in knowledge on MTCT of HIV between being able to read the education materials received and not

being able to read. Healthcare provider's reception was independently associated with knowledge on MTCT of HIV. Compared to pregnant women who said the healthcare provider was not friendly, pregnant women who said the healthcare provider was friendly were 4.78 (2.40, 9.55) times more likely to be knowledgeable on MTCT of HIV.

There was no association ($p=0.724$) between availability of VCT centers and knowledge on MTCT of HIV. Distance to VCT centers was independently associated with knowledge on MTCT of HIV. Pregnant women who stayed far away from VCT centers were 38% (95% CI 0.40, 0.96) less likely to be knowledgeable on MTCT of HIV than the pregnant women who stayed nearer to VCT centers. Compared to pregnant women who had never gone to VCT centers, pregnant women who had gone to VCT centers were 60% (95% CI 1.05, 2.45) more likely to be knowledgeable on MTCT of HIV.

CONCLUSION AND RECOMMENDATIONS: The study concluded that there was an association between education level; listening to the radio everyday; healthcare providers' reception; accessibility to VCT centers; going to VCT centers and knowledge on MTCT. The study also concluded that younger women aged between 15 and 24 were not knowledgeable on MTCT of HIV. The report concluded with recommendations that there was an urgent need for target specific interventions in disseminating of information; improving the utilization of VCT centers; intensifying IEC in healthcare settings; ensuring women aged 15–24 have access to the right information, education and services; and that both electronic media and print media should continue to be used in disseminating information on MTCT of HIV infection using local languages.

CHAPTER ONE

1.0 BACKGROUND INFORMATION

Mother to child transmission (MTCT) of the human immunodeficiency virus (HIV) infection that causes the acquired immunodeficiency syndrome (AIDS) has become an issue in which citizens, medical experts and government have expressed their concerns. To date, AIDS has caused the deaths of more than three million children worldwide, while more than one million are currently infected with the HIV (UNAIDS, 2000). The HIV destroys the biological ability of the human defense mechanisms. A person can be infected with HIV and remain asymptomatic but transmit the infection through sexual contact to other people. HIV can also be transmitted through blood transfusion of infected blood, vertical (perinatal) transmission from infected mother to her fetus during pregnancy or childbirth.

Mother to child transmission of HIV is increasing faster than prevention efforts. This is because pregnant women who are seropositive may transmit the infection to the fetus or baby. Women who are seronegative before conception may seroconvert during pregnancy or following delivery and consequently transmit the HIV infection to the baby through breast milk. High HIV prevalence in pregnant women has severe implications on the transmission rates and survival of the unborn and the new born. MTCT of HIV is said to be associated with abortions, stillbirths, low birth weight, infant/child morbidity and mortality. Many Sub-Saharan countries including Zambia experience a high infection rate from heterosexual and perinatal transmission, which happens during pregnancy or up to one week after birth.

Mother to child transmission of HIV infection during pregnancy, delivery and breastfeeding has been found to be the major cause of HIV/AIDS among children less than 15 years of age. In the absence of preventive measures, the risk of an infant of an HIV positive mother being infected with the virus ranges from 25-35 percent in developing countries (UNAIDS, 1999).

Worldwide the MTCT of HIV infection attributable risks during delivery has been reported to be 10-20%; pregnancy 5-10%; breastfeeding 10-20%; early (first 2 months) 5-10%; late (after 2 months) 1-5%. The contributing factors to MTCT include breast conditions, oral lesions in infants, untreated STIs, behavioral factors (multiple sexual partners) and new infections during breastfeeding (De Cock, 1998). The potential for MTCT of HIV infection through breastfeeding calls for concern among policy makers, programme managers, service providers and researchers in developing countries where the majority (about 95%) of mothers breastfeed their children (Mbizvo et al, 2001).

The UNAIDS global priorities include empowering women as an essential part of reducing their vulnerability to HIV and also reducing by 20% by year 2005 and 50% by year 2010 the proportion of infants born with HIV (UNAIDS, 2000). If the relevant targets of prevention and reduction of MTCT are to be met, the knowledge and awareness about MTCT of HIV will have to increase considerably.

Historically, one of the earliest maternal HIV infection case in Zambia was a 28 year old Zambian woman living in Australia in 1985 who, 7 months pregnant, was admitted to hospital and found to be suffering from AIDS. Upon being flown back to Zambia she was admitted to the University Teaching Hospital (UTH) and one of the nurses refused

to nurse the woman and was later suspended (Baylies, 2000). This shows that MTCT of HIV infection has been a long standing problem in Zambia and worldwide and needs concerted efforts to prevent it.

Zambia, like other countries worldwide mostly affected by the problem of MTCT of HIV infection has responded by setting up programmes and organizations to spearhead the prevention and control campaign. The core interventions of these programmes include voluntary counselling and testing (VCT), short term antiretroviral prophylactic treatment, counseling and skills training and education on infant formulas and breastfeeding.

Recent studies have shown that giving short-term course of Zidovudine (AZT) to pregnant women reduces the risk that HIV will be transmitted from mother to child (Dabis, 1996). Unfortunately the antiretroviral drugs, popularly known as Highly Active Anti HIV Therapy (HAART) are expensive to be made available to all pregnant women. Worse still because of the costs and economic crises most of the developing countries like Zambia which are the most hit with the infection will not access enough drugs.

Although it is acknowledged that knowledge is not a predictor of behaviour, being informed is a prerequisite to effective action. Nyblade et al (2000, unpublished) reported that in studies carried out in Zambia and Botswana on community involvement in prevention of mother to child transmission (PMTCT); the levels of knowledge about HIV and MTCT prevention ranged widely among Botswana residents as compared to the Zambian residents who knew little about MTCT due to lack of a prevention programme. Therefore it is important that women and men intending to have children be

equipped with knowledge on how to prevent the transmission of the infection as the primary intervention in the reduction of the transmission. Exposure to accurate information (knowledge) has been shown to help individuals personalize HIV risk and develop confidence in their own ability to change behaviour. The information, education and communication (IEC) messages to be effective should be tailored to target the vulnerable groups so that they change their behaviour to positive health.

1.1 STATEMENT OF THE PROBLEM

Mother to child transmission of HIV is a serious global problem and more especially in the developing countries. MTCT of HIV infection is still on the increase at an alarming rate and the high prevalence constitutes a major public health problem that is likely to draw on scarce health resources in the developing countries. It is estimated that 90% of paediatric HIV infection is directly linked to that of the mother (IAS, 2000 unpublished). Of the 2.4 million HIV infected women worldwide delivering each year about 600,000 transmit the infection to their babies leading to increase in infant and child morbidity and mortality (UNAIDS Tech Update, 1999). Across the continent, at the end of 2000, it was estimated that the region was home to over 90% of all children who became infected through mother to child transmission (UNAIDS, 2001). In Africa, where the seropositive of HIV infection in pregnant women exceeds 20% in many areas, perinatal HIV transmission rates have been reported to be 20-42% (De Cock, 1998).

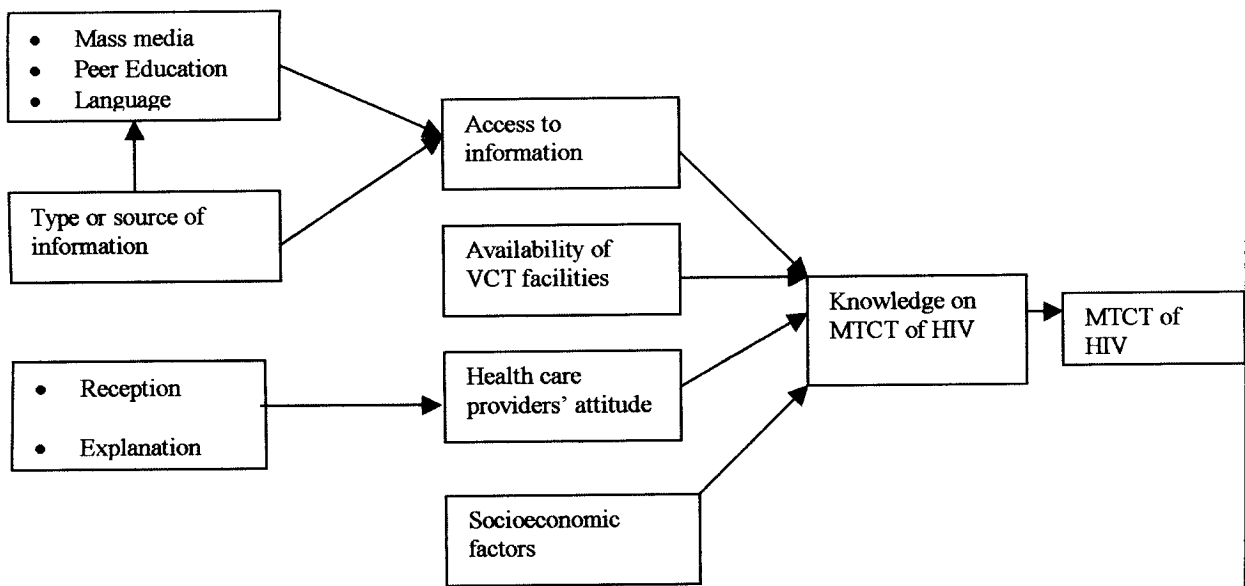
The HIV prevalence rate in Zambian pregnant women is over 20% in urban centers. The mother to child transmission risk is estimated to be 39.5%. It is also estimated that every year approximately 30,000 infants become HIV infected during pregnancy; at the time of birth or while breastfeeding (MOH, 2000). With the incubation period in these children being much shorter, the children tend to develop AIDS within three years of becoming HIV positive and death tends to follow in less than 12 months. This is what is increasing the infant and child morbidity/mortality rates. The paediatric HIV infection has also undermined the global achievements of reduction of infant and child morbidity/mortality through global programmes of immunization, promotion of breastfeeding and control of diarrhoeal diseases.

In Ndola, which is the “AIDS Belt” where AIDS epidemic is at an advanced stage, HIV prevalence is between 20-40% among women in childbearing age, which is as high or higher than the average for urban areas in Zambia (Rutenberg et al, 2000). This dramatic increase in maternal HIV infections calls for concerted efforts in reversing the situation in order to prevent more infants from being infected with HIV. If 30 out of 100 pregnant women are HIV positive, and the transmission rate is 25% during pregnancy then eight (8) infants are likely to be infected before or during delivery. Five infants are also likely to be infected if they all breastfeed as the transmission rate is about 15% through breastfeeding.

The continuous increase in the transmission rates despite prevention programmes being set up shows that the problem of MTCT is multifaceted. It needs the Zambian government and intersectoral initiatives to mobilize individuals, families and community support for the prevention of mother to child transmission of HIV.

The problem of MTCT of HIV is influenced by many factors such as biological, economical, logistical arrangements, non-availability and/or costs of antiretroviral drugs, and the knowledge of people on MTCT. For the purpose of this study, the focus will be on knowledge among pregnant women because of the high HIV prevalence in antenatal mothers.

1.1.1 MODEL SHOWING DETERMINANTS OF KNOWLEDGE ON MTCT OF HIV INFECTION



This model shows the hypothesized associations between the independent variables and dependent variable.

1.2 JUSTIFICATION OF THE STUDY

The justification of this study lay in the fact that, it aimed at identifying the knowledge gaps among pregnant women that may be existing on the transmission of HIV from mother to child on one hand and the knowledge aspect of treatment, prevention and reduction on the other hand.

To this effect it was envisioned that the findings of the study would add to the existing knowledge in the areas of PMTCT, in order to strengthen evidence based intervention strategies. Policy makers, programme planners and managers, and the health care providers will use the information in planning appropriate IEC strategies that are more target specific.

THE RESEARCH QUESTION

What are the determinants of knowledge on MTCT of HIV among pregnant women attending the ANC in Ndola Urban District?

1.3 HYPOTHESIS

It was hypothesized at 95% level of confidence that there was no association between:

- The knowledge on MTCT of HIV infection among pregnant women attending ANC and Age, level of education, Parity, Marital status and socio economic status.
- The knowledge on MTCT of HIV infection among pregnant women attending ANC and availability, accessibility, utilization of VCT centres.
- The knowledge on MTCT of HIV infection among pregnant women attending ANC and accessibility to information.

- The knowledge on MTCT of HIV infection among pregnant women attending ANC and types or sources of information.
- The knowledge on MTCT of HIV infection among pregnant women attending ANC and Health care providers' attitude.

1.4 RESEARCH OBJECTIVES

1.4.1 GENERAL OBJECTIVE

To establish determinants of knowledge on MTCT of HIV among pregnant women attending ANC in Ndola Urban District.

1.4.2 SPECIFIC OBJECTIVES

1. To estimate knowledge level on MTCT of HIV among pregnant women attending ANC in Ndola urban district.
2. To determine the association between socioeconomic status of pregnant women attending ANC and their knowledge on MTCT of HIV.
3. To determine whether specific sources of information are associated with knowledge on MTCT of HIV.
4. To determine the association between availability, accessibility, utilization of VCT and knowledge on MTCT of HIV.
5. To determine the association between accessibility to information and knowledge on MTCT of HIV.
6. To measure the association between the health care providers' attitude and knowledge on MTCT of HIV amongst pregnant women attending ANC.
7. To make recommendations to the relevant authorities.

1.5 OPERATIONAL DEFINITIONS

For the purpose of this study, the following terms were operationally defined:

1. **KNOWLEDGE:** Means defining correctly what MTCT is; how the HIV is transmitted from a mother to her child and how it can be prevented.
2. **MTCT:** Is when the virus passes from an HIV positive mother to her child.
3. **PREGNANT WOMEN:** Women attending and receiving antenatal care at antenatal clinics.
4. **PERINATAL TRANSMISSION:** HIV transmission from mother to child, which happens during pregnancy or up to one week after birth.
5. **VERTICAL TRANSMISSION:** Transmission of HIV from mother to child, which occurs during pregnancy, labour and delivery and through breastfeeding.
6. **HEALTHCARE PROVIDER'S ATTITUDE:** Positive attitude if provider is friendly, teaches on MTCT of HIV at ANC, allows questions, and responds to questions using simple explanations; and negative attitude if provider is unfriendly or not meeting criteria set for positive attitude.

CHAPTER TWO

2.0 LITERATURE REVIEW

INTRODUCTION

Despite having adequate information on clinically based studies on the transmission rates of HIV infection from mother to child and the paediatric HIV infection worldwide, there is scanty literature specifically pertaining to knowledge on MTCT of HIV infection and the determinants of knowledge on MTCT of HIV infection among pregnant women. Therefore, in this literature, ideas, research work and suggestions that have been documented by other authors on the subject of MTCT of HIV infection and paediatric infection pertinent to the topic under study will be highlighted.

In the past, knowledge among women was acquired within the community through interactions with adults. Information and advice on pregnancy to would be a mother was usually given during initiation ceremonies or just before marriage. These days many mothers especially in urban areas get the information and advice on pregnancy and all other related issues from different sources including media and health institutions. ZDHS (1992) results showed that 92% of mothers attended antenatal clinics. This means that antenatal mothers would benefit from the clinics if the healthcare providers would use the opportunities to teach and give advice to the mothers on various issues related to mother to child transmission of HIV infection.

Studies carried out in Botswana and Zambia on community involvement in PMTCT of HIV infection revealed that in both countries health education talks at antenatal and well-child clinics were the source of information about health issues in general and HIV/AIDS in particular (Nyblade et al, 2000 unpublished).

In his report Persson (1994) revealed that due to their economical dependence women in Sub-Saharan Africa often lacked access to radio and television, and were therefore, not reached by available information given on HIV transmission. He further reported that women marry at a tender age and as their marital age lowers, the period of child bearing is prolonged and the probability of vertical transmission is increased. Further more he reported that, because the educational level and literacy rates of many women in developing countries are low, they are reached less effectively by anti AIDS campaigns relying on printed material. This leads to insufficient knowledge on HIV transmission among women and less perception of risk and inadequate knowledge on prevention.

In another study conducted in Sub-Saharan Africa in which the knowledge on HIV/AIDS transmission, awareness and risk perception was compared among females aged 15 and 24 years, the results indicated that 98% had heard of HIV/AIDS. The study further revealed that awareness was high but misinformation on who gets infected and mode of spread were equally high (Monasch, 1998 unpublished). According to the joint WHO/UNICEF/UNAIDS (2002) report more than 80% of young women aged 15 to 24 years in countries with generalized HIV epidemics do not have sufficient knowledge about HIV.

A study conducted in Kuwait by Al-Owaish et al (1999 unpublished) among non-health professionals to assess their levels of knowledge and beliefs regarding HIV/AIDS transmission, showed that two thirds of the study participants had good knowledge about the main modes of HIV transmission. The study further revealed that the level of knowledge was positively associated with level of education, age, years of hearing about HIV/AIDS, and the socioeconomic status.

The Zambia Sexual Behaviour Surveys (1998) reported a high level of knowledge of HIV/AIDS transmission routes and prevention strategies. The report further revealed that knowledge was higher among women aged 30-39 years (89%), among women who resided in urban areas (93%) and among women with more than secondary education (99%). These findings on education levels were supported by the findings from the Zambia Demographic Health Survey (2002), which reported that knowledge on HIV prevention methods was strongly related to education level.

The ZDHS (2002) reported that age was related to HIV/AIDS knowledge; education level and residence also appeared to influence levels of knowledge about MTCT of HIV. The report further revealed that 65% of women knew that HIV could be transmitted during delivery, 79% of women knew that it can be transmitted during pregnancy and 71% of women know that it can be transmitted through breastfeeding. According to the ZDHS report on population's access to various common print and electronic media, 44% of women listen to the radio at least once a week, one in four women watch television once a week and 11% women utilize print media.

A comparative investigation done by Stoneburne et al (2002) between Uganda and other countries in East and Southern Africa found that the majority of the Ugandan women received HIV/AIDS information more from personal (friends/relatives) networks than their counterparts in Zambia and Kenya who mostly received the HIV/AIDS information from mass media and institutions.

Ashok (2003, unpublished) reported that in India, only four out of ten married women and only 18% of illiterate women have ever heard about HIV/AIDS transmission. He

also revealed that recent data from Bangladesh and Nepal showed that knowledge about HIV/AIDS transmission and preventive measures was higher among the more educated persons while lower literacy rates were associated with lower awareness.

The AIDS epidemic update bulletin (UNAIDS/UNICEF, 2001) reports that 50% adult women in Tanzania and Zimbabwe knew where they could be counseled and tested for HIV, yet only 6% and 11% respectively had been to these centers.

According to Bor (1994), where VCT services have been fully utilized there has been a reduction in HIV transmission. The reduction has been attributed to the knowledge acquired during counseling session on HIV transmission, preventive measures, available medical care and support.

A study conducted by the ZVITAMBO counseling project in Zimbabwe to assess mothers' knowledge on MTCT of HIV showed that MTCT of HIV knowledge increased significantly with exposure to the program. The study further revealed that 22.7% of women erroneously believed that most women or all babies born to an HIV-infected woman would themselves become HIV infected at birth, and 28.6% thought that most or all would become infected through breastfeeding; 52.8% women interviewed could name at least one condition that increases the risk of postnatal HIV transmission and 60.6% knew at least one measure that could be taken to reduce HIV transmission through breastfeeding. (SARA/ZVITAMBO project, 2002 unpublished)

According to a study done in Botswana among women to assess their knowledge on MTCT of HIV and their awareness on PMTCT of HIV interventions found that 73% of

all the women had a lower education attainment (up to 10 years), all women had some knowledge on MTCT/PMTCT of HIV and 55% discussed with their partners. The study further revealed that most of the women who discussed MTCT of HIV with their partners were of higher educational level. (Maule-Nkhwilume, 2003 unpublished)

A study conducted in Thailand among the women revealed that 63.6% sourced their MTCT/PMTCT of HIV information from the health institutions, 58% from media and 9% from the schools/study site. The study further revealed that HIV could be transmitted through breastfeeding, 85% knew about HIV transmission during pregnancy and labour; 85% understood that there were medicines to prevent MTCT of HIV, 24% of women knew that using infant formula instead of breastfeeding could prevent HIV transmission to their infants. (National PMTCT programme, 2002 unpublished)

According to a report from Barcelona ICASA (2002) on a study done in Uganda to assess knowledge, attitudes, beliefs and practices on MTCT/PMTCT of HIV, knowledge was found to be still low among the resource poor community. The report further revealed that only 40% reported a possibility of MTCT of HIV during pregnancy, 58% during delivery and 19% during breastfeeding and 61% knew that an HIV positive woman can give birth to an HIV negative baby. The report also showed that 29% women had heard of a drug that can prevent MTCT of HIV, 11% knew that women using Nevirapine could give birth to HIV infected babies and 80% felt that Nevirapine should be given to all pregnant women who are HIV positive or do not know their HIV status.

Clinical Studies on MTCT of HIV infection have been carried out globally and these

studies have shown that most babies born from HIV infected mothers get infected with HIV. According to a report by Newell et al (1997), transmission rates of HIV from mother to child range from around 15% to 25% in Europe and USA, from 25% to 40% in some African and Asian Studies.

The following factors have been identified globally by UNAIDS, UNICEF and WHO, (1999) as affecting mother to child transmission of HIV: recent HIV infection, severity of HIV infection, infection with sexually transmitted diseases, obstetrical factors, condition of the breasts, condition of the baby's mouth and duration of breastfeeding.

According to the current policy recommendations of the World Health Organization women should be encouraged to breastfeed unless a safe alternative to breast milk can be assured; as the benefits of breastfeeding outweighs the risk of HIV transmission.

The responsibility of health or social work professionals who counsel HIV positive women about infant feeding is to give them the fullest available information on the risks associated with breastfeeding and to discuss the feasibility methods in the light of personal circumstances (UNAIDS Q & As 1999).

Nico (1995) argued on the relative benefit of continued breast-feeding among the HIV infected women, that because women who seroconvert while breastfeeding are highly infectious and as a result of the high viral load they can transmit the HIV infection to their infants. A study by Nduati and colleagues conducted in 1995 in Kenya compared the rates of HIV transmission and mortality between breastfed and formula infants. The study showed that the frequency of transmission of HIV through breast milk was 16.2% and that the majority of the infections (75%) occurred by 6 months. The use of formula

prevented 44% of infant infections and was associated with significantly improved HIV-free survival (Nduati et al, 1995).

Breast milk transmission has also been described in women acquiring HIV infection through heterosexual contact in the postnatal period (Perre, 1991). Hira et al (1990) reported that 19 out of 634 Zambian women followed for 12 months seroconverted postnatally and of these 15.7% infants born to women who seroconverted were also seropositive at 12 months of life. None of the infants of seronegative women were HIV seropositive and the report further revealed that the HIV infected among the infants of seropositive women was most likely due to breast milk exposure. Another study conducted in Malawi suggested that mastitis was associated with higher HIV load in breast milk and higher mother to child transmission of HIV (Semba et al, 1999).

Adverse pregnancy outcomes have been reported in a number of African studies including complications of both early and late pregnancy. HIV infection in Africa has also been linked to a higher rate of spontaneous abortion (Gnaore, 1998). HIV seropositive women were 1.47 times more likely to have had a previous spontaneous abortion, and this rose to 1.81 in women in Uganda who were seropositive for both HIV and syphilis (Byabamazina, 1995 unpublished). An American study showed a three-fold increase in early spontaneous abortion in a prospective follow up study (Langston et al, 1995).

Increased stillbirth rates have been reported in HIV epidemic areas especially where it has been present for a long time. In some African centres, the lower risks have been

reported in asymptomatic women, and stillbirth rates have been reported to be more than double those in HIV seronegative mothers (WHO, UNAIDS, 1999).

Intrapartum, vaginal delivery has been shown to increase the risk of HIV transmission. The European collaborative study reported an overall transmission rate of 16.2% among infected mothers and their children. The rate was 17.2% for vaginally delivered babies and 11.7% for caesarean section delivered babies. HIV transmission was also reported to be higher in vaginal deliveries in which scalp electrodes, episiotomy, forceps or vacuum extraction were used (ECS, 1992).

In a study done in South Africa, vaginal deliveries were reported to double the risk of infection when compared with caesarean sections. The study further revealed that vertical transmission was associated with multiparity, and risk factors such as prolonged rupture of the membranes, breastfeeding and gestational age (Moodley et al, 1994). In the French perinatal study, preterm delivery, intrapartum hemorrhage and obstetric procedures were related to transmission risk (Moandelbrot, 1996). In an American study, duration of ruptured membranes of over four hours nearly doubled the risk of infection regardless of the eventual mode of delivery (ECS, 1994).

Routine anti retroviral (ARV) therapy in many developed countries has led to lowered transmission rates. In the USA between 1992 and 1995, the estimated annual incidence of perinatal infection declined by 27% after the widespread implementation of ARV in pregnancy (CDC, 1996). Antiretroviral drug Zidovudine (AZT) when given to HIV positive pregnant women orally five times daily from the 14th week of pregnancy onwards, and intravenously during labour and when administered to their infants for six

weeks after birth, the risk of transmitting HIV from mother to child is reduced by over two thirds if breastfeeding is strictly avoided (UNAIDS Qs & As, 1999). However, this regimen (ACTG 076) is costly (approximately US\$1000 per mother and child pair), long and complicated to administer.

In Uganda a study was conducted in which a regimen known as HIVNET 012 was used. The study showed that Nevirapine given as single oral dose at the onset of labour and followed by a single dose of syrup given to babies within 72 hours of birth was effective in reducing MTCT of HIV by 47% at 14 weeks and by 42% at one year (MoH-Uganda, 2001). In Zambia a recent study on Nevirapine (NVP) is reported to be showing some encouraging results. Nevirapine regime is said to be easy to administer, and less expensive (under \$4 per woman) than AZT (MoH-CBoH, 1999).

CONCLUSION

It can be concluded from available literature that the advent of MTCT of HIV infection has added a new lethal dimension to the problem of HIV/AIDS worldwide. A lot of risk factors contributing to the MTCT of HIV infection have been revealed and if preventive measures are directed at these factors then a marked reduction in HIV transmission from mother to child can be achieved. Health education should be a major component in the prevention of MTCT of HIV. From the literature reviewed there is an urgent need for public airing and debate on MTCT/PMTCT of HIV because of their impact on child health. It is believed that determining the knowledge levels on MTCT of HIV infection and the determinants of this knowledge would be beneficial to both the clients and the health institutions.

CHAPTER THREE

3.0 METHODOLOGY

3.1 IDENTIFICATION OF VARIABLES

3.1.1 DEPENDENT VARIABLE

- Knowledge of MTCT of HIV

3.1.2 INDEPENDENT VARIABLES

- Social economic factors
- Availability of VCT facilities
- Accessibility to information
- Source of information
- Health care provider attitude

3.2 STUDY DESIGN

This was a cross sectional study that took an analytical approach in establishing the knowledge levels and the determinants of knowledge on MTCT of HIV infection among pregnant women attending antenatal clinic in Ndola urban district.

3.3 STUDY SETTING

The study was conducted in Ndola, which is a major urban centre on the Copperbelt province of Zambia. It is a commercial town with many industries and many big companies though most of them not operating at full capacity and some closed down. It has a population of 393,793 (Census 2000) out of which the estimated number of pregnancies is 5.4%. The city has 18 health centres run by the District Health management Team (DHMT). For administrative purposes the health care delivery system is divided into three zones. The 3 zones are northern, central and southern. The

northern zone has 7 health centers, central zone has 6 and the southern zone has 8. Antenatal care is offered in all the health centres in their maternal and child health (MCH) clinics. There are 6 health centres with each zone being covered, conducting deliveries and operating 24 hours to cater for emergencies both curative and women in labour. The 3 zones serve all the residential areas namely high cost, low cost and unplanned settlement. (Ndola DHMT, HIO, 2002). Ndola urban was chosen for this study because of its heterogenous population characteristics; and this is also where the epidemic is at advanced stage (Cohen, 1996).

3.4 STUDY POPULATION

All pregnant women in Ndola urban district were the target population and all pregnant women attending ANC in Ndola urban district was the sampled population.

INCLUSION CRITERIA

All pregnant women attending antenatal clinics and residing in any of the selected residential areas of Ndola urban district that agreed to take part in the study.

EXCLUSION CRITERIA

- Pregnant women not attending antenatal clinics
- Pregnant women not residing in selected residential areas.
- Unconsenting pregnant women.

3.5 SAMPLE SELECTION

The study sample was drawn from all the zones: Northern, Central and the Southern zones. The simple random sampling method was used to sample six health centres

namely; Bwafwano, Chipulukusu, Lubuto, Main Masala, Railway Surgery and Twapia; that is 2 health centres from each zone. The respondents who were included in the study were randomly selected by interval (systematic) sampling method, which involved selecting pregnant women at equal intervals.

A number of the total antenatal care attendees per day was estimated (N) which was divided by the number of antenatal mothers to be interviewed daily to get the sampling interval (K). The first element or number between 1 and K was randomly selected using random numbers on the scientific calculator. The subjects were selected at an interval of K; and every Kth antenatal mother who agreed to take part in the study was interviewed.

3.6 SAMPLE SIZE

The sample was determined to be 360 based on the 2002 expected pregnancies (5486, over a period of 3 months in which data collection could be done) for Ndola urban district; using Epi Info version 6 STATCALC at 95% confidence level. As the level of knowledge on MTCT of HIV was not known, 50% was taken to be the expected frequency and 45% to be the worst acceptable result.

3.7 DATA COLLECTION

Data was collected over a period of three months beginning first week of April and ending fourth week of June. A structured interview schedule was used to collect data.

The structured interview schedule was considered most appropriate because responses could be obtained from a wide range of subjects and questions may be clarified if they are misunderstood.

- The respondents' level of knowledge was assessed using a scale derived from LIKERT (Brinks 1996). This scale constituted questions measuring the following; MTCT definition, modes of transmission, ways of preventing MTCT including the use of ARV drugs. In order to score, respondents' responses were circled on a five-point scale, ranging from strongly agree to strongly disagree. Therefore 2 levels of knowledge were determined; knowledgeable and not knowledgeable. A knowledgeable pregnant woman was that woman who scored 70% and above; and the woman who was not knowledgeable was that one who scored below 70% on the Likert scale.

TRAINING OF RESEARCH ASSISTANTS

Practicing nurse-midwives were selected from maternal and child health clinics within Ndola urban district and recruited as research assistants. The recruited research assistants were trained over a period of 2 days on how to interview respondents using the Likert scale and the structured interview schedule. The training on how to conduct the interviews was important as this ensured consistency and validity for data that was collected.

3.8 ETHICAL CONSIDERATION

Ethical clearances were obtained from the University of Zambia Research Ethics Committee and the Directorate of Research. Permission to conduct the study was obtained from the District Director of Health at Ndola DHMT and a memo was sent to all health center in-charges. This was important because it facilitated co-operation between the respective authorities and the researcher. This also made it possible for the research team to find all involved health centres expectant, interview rooms arranged

and antenatal women ready to participate. Voluntary informed consent was obtained from the selected pregnant women after explaining to them the purpose of the study and how the results will be utilized. The respondents were assured of privacy, anonymity and confidentiality was maintained throughout the data collection process.

3.9 PILOT STUDY

The Researcher before the main study conducted pre-testing of the data collection instrument over a period of four days. This was done to ensure appropriateness, clarity, precision and consistency of questions. The pilot study was conducted in an antenatal clinic in Ndola urban district because the clinic had similar population as that intended for the eventual project. Twelve pregnant women attending antenatal clinic at Nkwazi health centre were selected and interviewed. Modifications were done to the questionnaire, elimination of ambiguity on some questions; two questions were added (12 and 13) and changing of the sequence of questions 19 to 25.

3.10 QUALITY CONTROL CHECKS

During data collection, within the field the questionnaire was edited. The researcher at the end of each day went through the filled-in-questionnaires to ensure that all the information was properly collected and recorded. Information was checked for completeness and internal consistency. This was done to ensure collection of quality data.

3.11 DATA PROCESSING AND ANALYSIS

After the questionnaires were filled in, cleaning was done to check for completeness and correct entries; questionnaires found with errors were corrected by using filter questions. Data from written answers was identified, classified and post-coded. A check file in Epi-Info version 6 software was created to perform range checks, format checks and data entry skipping. To ensure integrity of data, double data entry system was used and before the analysis, data was validated. During univariate analysis frequencies were done to check for missing variables and correct entries. In bivariate analysis the chi-square was used to determine associations between independent variable and the knowledge on MTCT of HIV. The p-value and the odds ratio (OR) were calculated to ascertain the extent and likelihood of associating one's exposure and the knowledge on MTCT of HIV. Bivariate analysis was followed by multivariate analysis using logistic regression in SPSS, in order to determine factors that were independently associated with the outcome. A significance level of 0.05 was considered as a cut off point for statistical significance.

3.12 LIMITATIONS

Major limitations encountered were:

1. Majority of the respondents reported that they were married. The findings should be interpreted in the light of potential biases. The fact that the target group was pregnant women, more single (divorced / separated) women could have reported that they were married.

CHAPTER 4

4.0 FINDINGS

In total a sample of 300 pregnant women attending antenatal clinic in Ndola urban district's health centres were interviewed.

4.1.1. Respondents' socio-demographic characteristics

Table 1 presents the socio-demographic characteristics of the respondents. The respondents aged between 20 and 24 years were the majority, 99 (33.0%). Most of the respondents were married 223 (74.3%) and the least were widowed 11 (3.7%). The respondents with less than two children were the majority 172 (57.3%). The majority of the respondents attained secondary level of education 139 (46.4%).

Totals of 213 (71.0%) respondents were not employed while 55 (18.3%) were in formal employment. About half 179 (59.7%) of respondents had household income of between K100,000 and K499,999 per month. A large proportion 197 (65.7%) of respondents lived in medium density residential areas. Altogether 195 (65.0%) respondents were Protestants by religion.

TABLE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS (n = 300)

CHARACTERISTICS	FREQUENCY	PERCENTAGE
AGE		
15 – 19	43	14.3
20 – 24	99	33.0
25 – 29	67	22.3
30 – 34	57	19.0
35+	34	11.4

MARITAL STATUS		
Single	48	16.0
Married	223	74.3
Separated /Divorced	18	6.0
Widowed	11	3.7
PARITY		
< 2	172	57.3
2-3	94	31.3
4-5	30	10.0
6+	4	1.3
RELIGION		
Protestant	195	65.0
Roman catholic	19	6.3
Jehovah's Witness	84	28.0
Moslem	2	0.7
EDUCATION LEVEL		
None	18	6.0
Primary	112	37.3
Secondary	139	46.4
College / University	31	10.3
OCCUPATION		
Formally employed	55	18.3
Self employed	32	10.7
Unemployed	213	71.0
HOUSEHOLD INCOME (Zambian kwacha)		
< 100,000	14	4.7
100,000 – 499,999	179	59.7
500,000 – 599,999	46	15.3
1000,000 +	16	5.3
Don't know	45	15.0
RESIDENCE		
Low density	49	16.3
Medium density	197	65.7
High density	54	18.0

4.1.2. Respondents' accessibility to information

Table 2 indicates that more than two-thirds of the pregnant women 220 (73.3%) listened to the radio everyday and 177 (59.0%) watched television every week. Most 202 (67.3%) of the respondents reported to have had attended antenatal clinic 2-3 times. A total of 180 (60%) respondents received education materials on MTCT of HIV in form of booklets (44.4%), leaflets (45.0%) and posters (10.6%). The languages in which the educational materials were distributed include English 145 (80.6%) and Bemba 35 (19.4). The majority 118(65.6%) of the respondents who received the educational materials were able to read.

TABLE 2: RESPONDENTS' ACCESSIBILITY TO INFORMATION (n=300)

CHARACTERISTICS	FREQUENCY	PERCENTAGE
LISTENS TO RADIO		
Yes	220	73.3
No	80	26.7
WATCHES TELEVISION		
Yes	177	59.0
No	123	41.0
TIMES ATTENDED ANTENATAL CLINIC		
< 2	1	0.3
2 - 3	202	67.3
4 - 5	77	25.7
6 +	20	6.7
RECEIVED EDUCATIONAL MATERIAL AT ANC		
Yes	180	60.0
No	120	40.0

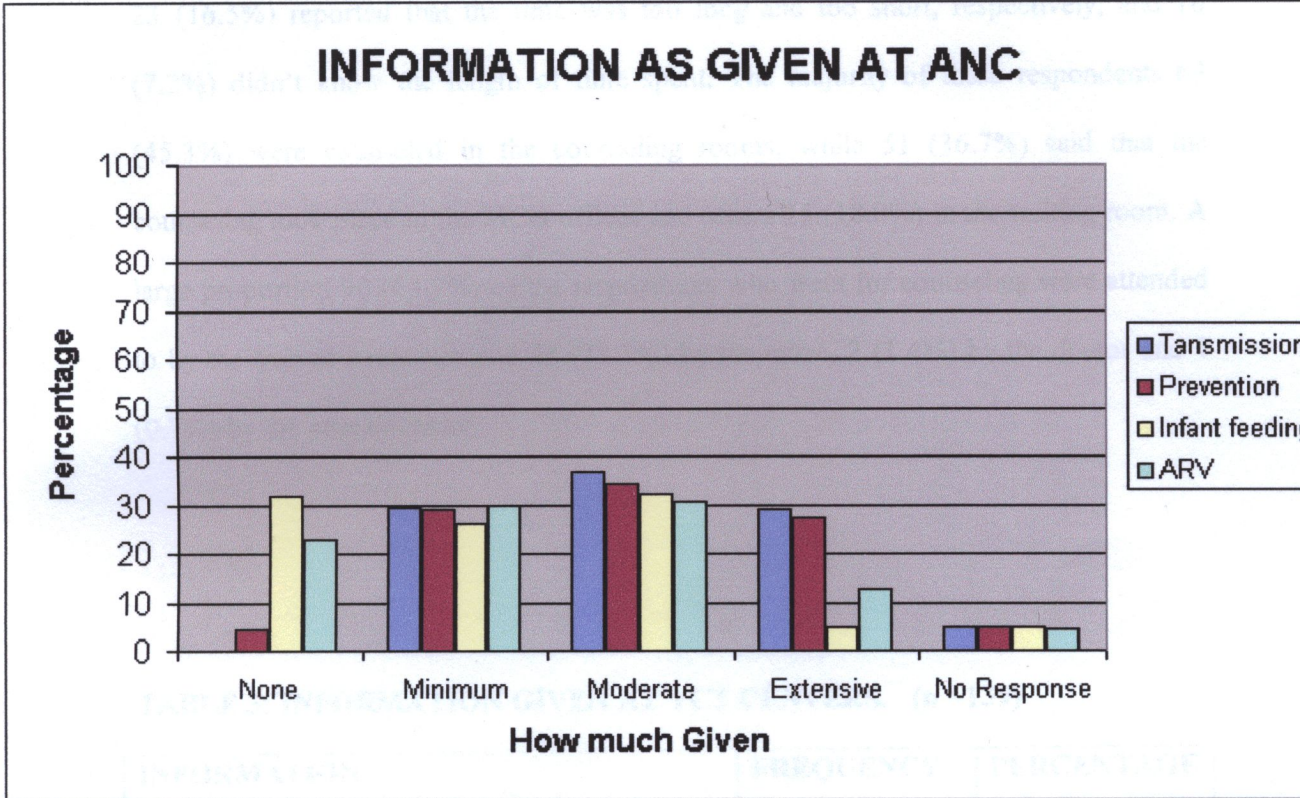
4.1.3. Healthcare providers' attitude at ANC

The majority of respondents 225 (75.0%) out of 300 said that the healthcare provider at the antenatal clinic was friendly. Meanwhile 286 (95.3%) out of 300 participants reported that they were taught about MTCT of HIV. Of the 286 respondents who were taught about MTCT of HIV, the majority 271 (95.1%) said they were allowed to ask questions and 268 (98.9%) reported that the healthcare provider responded to their questions. About half 143 (52.8%) out of 268 respondents indicated that provider's explanation was easy to understand, 90 (33.2%) reported that the provider's explanation was difficult to understand, and 38 (14.0%) did not know.

4.1.4. Information given at ANC

Figure 1 shows that about a third of the respondents reported having received moderate information from the ANC on all the topics: transmission 110 (37.0%), prevention 103 (34.3%), Infant feeding 97 (32.3) and Antiretroviral drugs (ARVs) 92 (31.0%). Totals of 95 (32.0%) and 68 (23.0%) reported not receiving any information on Infant feeding and ARVs, respectively.

FIGURE 1: INFORMATION GIVEN AT ANC



Note: ‘No response’ denotes the respondents who said the healthcare provider did not teach them about MTCT of HIV.

4.1.5. Availability and accessibility to VCT centers

Almost all respondents 276 (92.0%) had VCT centers in their communities and only 24 (8.0%) indicated non- availability of VCT centers. Out of the 276 participants who said they had VCT centers in their communities, 168 (60.9%) stayed near the centers and 268 (97.1%) of the 276 participants were of the view that it was possible for anyone to have confidential counseling on MTCT of HIV. Asked whether they had ever gone to VCT centers, 139 (46.3%) of the 300 respondents were affirmative.

Out of 139 (46.3%) respondents who went to the VCT centers, 81 (58.3%) said that the time spent during the counseling session was about the right time while 25 (18.0%) and 23 (16.5%) reported that the time was too long and too short, respectively; and 10 (7.2%) didn't know the length of time spent. The majority of these respondents 63 (45.3%) were counseled in the counseling rooms, while 51 (36.7%) said that the counseling took place in the MCH offices and others 25 (18.0%) in the waiting room. A large proportion 90 (64.7%) of the respondents who went for counseling were attended to by the trained counselor and 46 (33.2%) by the nurse, 2 (1.4%) by the doctor and 1 (0.7%) by the peer educator.

TABLE 3: INFORMATION GIVEN AT VCT CENTERS. (n =139)

INFORMATION	FREQUENCY	PERCENTAGE
How and when HIV is transmitted from mother to the child.	50	35.9
Administration of tablet and syrup Niverapine in HIV positive pregnant women and newly born babies.	31	22.3
How to take care of oneself when HIV positive.	25	17.9
Transmission of HIV during labour.	44	31.6
Importance of exclusive breastfeeding	38	27.3
Importance of knowing ones HIV status when pregnant and breastfeeding.	56	40.3
Importance of using condoms in pregnancy.	27	19.4

Note: Percentages do not add up to 100% because of multiple responses.

4.1.6. Information given at VCT centers

Table 3 shows the information that was given to the pregnant women who went to the VCT centers for counseling. Out of 139 respondents, 56 (40.3%) were given information on the importance of knowing one’s HIV status when pregnant and when breastfeeding the baby.

TABLE 4: TOPICS COVERED BY EDUCATIONAL MATERIALS IN COUNSELLING ROOMS / OFFICES. (n = 139)

TOPICS	FREQUENCY	PERCENTAGE
Transmission of HIV from mother to child	43	30.9
Prevention of transmission of HIV to the child	67	48.2
HIV / AIDS	92	66.2
Antiretroviral therapy	46	33.1
Infant feeding	27	19.4
Breastfeeding	58	41.7
Family planning methods	31	22.3

Note: Respondents gave multiple responses.

4.1.7. Topics covered by education materials found in counseling rooms/offices

When the respondents were asked whether educational materials were available in the counseling rooms, the majority of the respondents 115 (82.7%) said Yes and only 24

(17.3%) said there were none. Table 4 presents the topics that were covered by educational materials found in the counseling rooms and offices. About two thirds (66.2%) of the materials were on HIV/AIDS.

4.1.8. RESPONDENTS' KNOWLEDGE LEVELS ON MTCT OF HIV.

Out of 300 respondents 165 (55%) were knowledgeable on MTCT of HIV and 135 (45%) were not knowledgeable. Most 234 (78%) respondents did not know Niverapine by name, 210 (70%) did not know that rupture of membranes can facilitate HIV transmission, 195 (65%) did not know that being delivered at home by unskilled birth attendant can promote HIV transmission and 204 (68%) strongly disagreed that both single and married pregnant women should use condoms to protect the unborn child.

4.1.9. Respondents' source of information on MTCT of HIV

Table 5 shows that, the majority of the respondents 286 (95.3%) sourced the information on MTCT of HIV from the healthcare provider followed by Radio 153 (51.0%) and the least from the husband 10 (3.3%).

TABLE 5: RESPONDENTS' SOURCE OF INFORMATION ON MTCT OF HIV
(n= 300)

CHARACTERISTICS	FREQUENCY	PERCENTAGE
Newspaper	28	9.3
Television	94	31.3
Radio	153	51.0
Husband	10	3.3
Relative	35	11.7
Friends	63	21.0
Healthcare provider	286	95.3
Others	22	7.8

Note: Percentages do not add up to 100 because it was possible to have multiple responses.

4.2 ANALYSIS OF FACTORS IN RELATION TO KNOWLEDGE ON MTCT OF HIV.

Bivariate analysis was done to ascertain the relationship between the respondents' exposures i.e. socio-economic factors, source of information on MTCT of HIV, accessibility to information, availability of VCT centers, healthcare provider's attitude on one hand and their knowledge on MTCT of HIV on the other hand.

4.2.1. Socio-demographic factors in relation to knowledge on MTCT of HIV.

Table 6 shows that significant associations were observed between the respondents' age ($p = 0.018$), education level ($p < 0.001$), residence ($p = 0.001$), household income

($p < 0.001$) and knowledge on MTCT of HIV. No significant associations were observed between marital status ($p = 0.212$), parity ($p = 0.341$) and knowledge on MTCT of HIV.

TABLE 6: SOCIO-DEMOGRAPHIC FACTORS IN RELATION TO KNOWLEDGE ON MTCT OF HIV.

FACTOR	KNOWLEDGEABLE TOTAL = 165		NOT KNOWLEDGEABLE TOTAL = 135		P-VALUE
	n	(%)	n	(%)	
AGE					
15 – 19	17	(10.3)	26	(19.3)	0.018
20 – 24	50	(30.3)	49	(36.3)	
25 – 29	38	(23.0)	29	(21.5)	
30 – 34	34	(20.6)	23	(17.0)	
35 +	25	(15.7)	8	(5.9)	
MARITAL STATUS					
Single	22	(13.3)	26	(19.3)	0.212
Married	127	(77.0)	96	(71.1)	
Separated / Divorced	12	(7.3)	6	(4.4)	
Widowed	4	(2.4)	7	(5.2)	
EDUCATION					
None	2	(1.2)	16	(11.9)	< 0.001
Primary	33	(20.0)	79	(58.5)	
Secondary	100	(60.6)	39	(28.9)	
College / University	30	(18.2)	1	(0.7)	
RESIDENCE					
Low density	36	(21.8)	13	(9.6)	0.001
Medium density	109	(66.1)	88	(65.2)	
High density	20	(12.1)	34	(25.2)	
HOUSEHOLD INCOME					
< 99,999	0	(0)	14	(13.7)	<0.001
100,000 – 499,999	97	(63.4)	82	(80.4)	
500,000 – 999,999	43	(28.1)	3	(2.9)	
1000,000 +	13	(8.5)	3	(2.9)	

PARITY					
< 2	93	(57.6)	77	(57.0)	0.341
2 – 3	46	(27.9)	47	(35.6)	
4 – 5	20	(12.1)	10	(7.4)	
6 +	4	(2.4)	0	(0)	

4.2.2. Respondents' source of information in relation to knowledge on MTCT of HIV.

Table 7 presents the knowledge on MTCT of HIV in relation to respondents' source of information. Significant associations were observed between newspaper ($p < 0.001$); television ($p < 0.001$); radio ($p < 0.001$); healthcare provider ($p = 0.002$) and the knowledge on MTCT of HIV. No association was observed between husband ($p = 0.517$); relative ($p = 0.067$); friends ($p = 0.313$); other sources ($p = 0.387$) and knowledge on MTCT of HIV.

TABLE 7: RESPONDENTS' SOURCE OF INFORMATION IN RELATION TO KNOWLEDGE ON MTCT OF HIV.

FACTOR	KNOWLEDGEABLE		NOT KNOWLEDGEABLE		P-VALUE
	TOTAL = 165		TOTAL = 135		
	n	(%)	n	(%)	
Newspaper	26	(15.8)	2	(1.5)	<0.001
Television	83	(50.3)	11	(8.1)	<0.001
Radio	117	(70.0)	36	(26.7)	<0.001
Husband	4	(2.4)	6	(4.4)	0.517
Relative	5	(3.0)	30	(22.2)	0.067
Friends	22	(13.3)	41	(30.4)	0.313
Healthcare provider	162	(98.8)	124	(91.1)	0.002
Other	14	(9.0)	8	(6.3)	0.387

Note: other sources included drama groups, school, seminars and workshops.

4.2.3. Respondents' accessibility to information in relation to knowledge on MTCT of HIV.

Table 8 shows that significant associations were noted between knowledge on MTCT of HIV and listening to the radio every day ($p < 0.001$) and watching television ($p < 0.001$). The association between knowledge on MTCT of HIV and receiving educational materials was statistically significant ($p = 0.017$). A significant association ($p < 0.001$) was also observed between being able to read the education material received and knowledge on MTCT of HIV. However there was no association between the type of education material received ($p = 0.740$); language in which the material was distributed ($p = 0.645$) and the knowledge on MTCT of HIV.

**TABLE 8: RESPONDENTS' ACCESSIBILITY TO INFORMATION IN
RELATION TO KNOWLEDGE ON MTCT OF HIV.**

FACTOR	KNOWLEDGEABLE TOTAL = 165 n (%)	NOT KNOWLEDGEABLE TOTAL = 135 n (%)	P-VALUE
LISTENS TO RADIO			
Yes	145 (87.9)	75 (55.6)	<0.001
No	20 (12.1)	60 (44.4)	
WATCHES TELEVISION			
Yes	132 (80.0)	45 (33.3)	<0.001
No	33 (20.0)	90 (66.7)	
ABLE TO READ* LANGUAGE	TOTAL = 109	TOTAL = 71	
Yes	87 (79.8)	31 (43.7)	<0.001
No	22 (20.2)	40 (56.3)	

Note: *125 respondents excluded who said they did not receive any educational materials on MTCT of HIV.

4.2.4. Healthcare providers' attitude in relation to knowledge on MTCT of HIV.

Table 9 shows that the reception by the healthcare providers and explanations about MTCT of HIV at antenatal clinics were significantly associated ($p<0.001$) with the knowledge on MTCT of HIV. No association was observed between teaching about MTCT of HIV; provider allowing questions; provider responding to questions and knowledge on MTCT of HIV.

TABLE 9: HEALTHCARE PROVIDERS' ATTITUDE IN RELATION TO KNOWLEDGE ON MTCT OF HIV.

	KNOWLEDGEABLE		NOT KNOWLEDGEABLE		
FACTOR	N	(%)	n	(%)	P- VALUE
RECEPTION BY PROVIDER					
Yes	154	(93.3)	73	(54.1)	<0.001
No	11	(6.7)	62	(45.9)	
TOTAL	165		135		
TEACHING ABOUT MTCT					
Yes	160	(97.0)	126	(93.3)	0.137
No	5	(3.0)	9	(6.7)	
TOTAL	165		135		
ALLOW QUESTIONS					
Yes	153	(95.6)	118	(93.6)	0.312
No	7	(4.4)	8	(6.4)	
TOTAL	160		126		
RESPOND TO QUESTIONS					
Yes	152	(99.4)	116	(98.3)	0.403
No	1	(0.6)	2	(1.7)	
TOTAL	153		118		
PROVIDERS' EXPLANATION					
Easy	101	(65.2)	42	(36.2)	<0.001
Difficult	33	(21.3)	57	(49.1)	
Don't know	21	(13.5)	17	(14.6)	
TOTAL	165		135		

4.2.5. Availability and accessibility to VCT centers in relation to knowledge on MTCT of HIV.

Table 10 indicates that the availability of VCT centers was not significantly ($p < 0.724$) associated with the knowledge on MTCT of HIV. Significant associations were found between accessibility to VCT centers ($p < 0.001$); going to VCT centers ($p = 0.007$); availability of educational materials in counseling rooms ($p < 0.001$) and knowledge on MTCT of HIV.

**TABLE 10: AVAILABILITY AND ACCESSIBILITY TO VCT CENTERS IN
RELATION TO KNOWLEDGE ON MTCT OF HIV.**

FACTOR	KNOWLEDGEABLE		NOT KNOWLEDGEABLE		P-VALUE
	n	(%)	n	(%)	
HAVE VCT CENTER					
Yes	156	(94.5)	120	(88.9)	0.724
No	9	(5.5)	15	(11.1)	
TOTAL	165		135		
DISTANCE TO VCT CENTERS					
Near	114	(70.8)	61	(53.0)	<0.001
Very far	47	(29.2)	54	(47.0)	
TOTAL	161		115		
EVERGONE TO VCT CENTERS					
Yes	88	(53.3)	51	(37.8)	0.007
No	77	(46.7)	84	(62.2)	
TOTAL	165		135		
EDUCATION MATERIALS IN ROOMS					
Yes	81	(92.0)	34	(66.7)	<0.001
No	7	(8.0)	17	(33.3)	
TOTAL	88		51		

4.3. MULTIVARIATE ANALYSIS

All factors considered in the multivariate analysis were significantly associated with the knowledge on MTCT of HIV in bivariate analyses.

In logistic regression analyses, factors independently associated with the knowledge on MTCT of HIV were the level of education attained, listening to the radio everyday,

healthcare provider's reception, distance to the VCT centers, and going to VCT centers. Age, residence, household income, newspaper, watching television and healthcare provider teaching on MTCT of HIV were confounded in the above factors (Table 11).

TABLE 11: FACTORS INDEPENDENTLY ASSOCIATED WITH KNOWLEDGE ON MTCT OF HIV.

FACTOR	OR (95% CI)
EDUCATION LEVEL	
None	0.15 (0.03, 0.70)
Primary	0.11 (0.04, 0.30)
Secondary	1.14 (0.45, 2.84)
College/University	1
RADIO	
Yes	2.23 (1.47, 3.38)
No	1
HEALTHCARE PROVIDERS' RECEPTION	
Friendly	4.78 (2.40, 9.55)
Not friendly	1
DISTANCE TO VCT CENTER	
Very far	0.62 (0.40, 0.96)
Near	1
EVER GONE TO VCT CENTER	
Yes	1.60 (1.05, 2.45)
No	1

Table 11 illustrates that pregnant women with no formal education and primary education were 85% and 89% respectively less likely to be knowledgeable on MTCT of HIV than pregnant women who had attained college/university education. Pregnant

women who listened to the radio everyday were 2.23 times more likely to be knowledgeable on MTCT of HIV than pregnant women who did not listen to the radio everyday. Compared to pregnant women who said the healthcare provider was not friendly, pregnant women who said the healthcare provider was friendly were 4.78 times more likely to be knowledgeable on MTCT of HIV. Pregnant women who stayed very far away from VCT centers were 38% less likely to be knowledgeable on MTCT of HIV than pregnant women who stayed nearer to VCT centers. Compared to pregnant women who had never gone to VCT centers, pregnant women who had gone to VCT centers were 60% more likely to be knowledgeable on MTCT of HIV.

4.4. Table 12 shows the respondents' suggestions that were made regarding improvement of PMTCT of HIV. Most respondents (10.7%) suggested knowing one's HIV status before getting pregnant and 10.0% suggested that HIV positive women should not breastfeed; should receive free infant feeding supplements and should be given ARVs with their spouses continuously to prevent more healthy children being orphaned at an early age.

TABLE 12: RESPONDENTS' SUGGESTIONS (n = 300)

COMMENTS / SUGGESTIONS	FREQUENCY	PERCENTAGE
A serious problem that needs urgent measures to prevent i.e. training volunteers to teach within communities.	19	6.3
There is need for more simplified information.	23	7.7
Despite exclusive breastfeeding being beneficial, HIV positive women should not breastfeed because the breast milk contains HIV germs.	30	10.0
HIV positive mothers should receive free infant feeding supplements.	30	10.0
More emphasis should be placed on couple counseling and testing before and after getting pregnant, so that men also receive same information on MTCT of HIV.	21	7.0
Men are difficult to convince to go for HIV test and to use condoms when married.	20	6.7
If a pregnant woman is tested HIV positive, ARVs should not only be given to the mother and baby at birth, but should also be given to the couple continuously to avoid a situation where there will be more healthy children who are orphaned at an early age.	30	10.0
Dissemination of information to be conducted in churches among the youths and women groups.	18	6.0
IEC and educational materials to be distributed in workplaces for both men and women.	25	8.3
IEC on MTCT of HIV should be given in schools and colleges targeting teenagers and adolescents.	24	8.0
It's important to know one's HIV status before getting pregnant.	32	10.7
No comments / suggestions	28	9.3

CHAPTER FIVE

5.0 DISCUSSION OF FINDINGS

5.1. SOCIO-DEMOGRAPHIC CHARACTERISTICS

The majority of respondents were aged 15–24 years. A significant association between age and knowledge on MTCT of HIV was observed in bivariate analysis but not in logistic regression. Most of the pregnant women aged 35 and above were more knowledgeable on MTCT of HIV compared to younger pregnant women aged between 15–24 years. This accords with the report by UNAIDS (2002) which stated that more than 80 percent of young women aged 15–24 in countries with generalized HIV epidemics did not have sufficient knowledge about HIV transmission. Nationally the ZSBS (1998) reported that there was higher knowledge on HIV/AIDS transmission among women aged 30–39 years. This is a strong indicator that young women are not getting access to the right information as a result they harbor serious misconceptions about how the HIV is transmitted leading to more new infections in the same age group. The fact that age was not a significant factor in multivariate analysis suggests that the information in it could have been in the education level, which remained significant in multivariate analysis.

Majority of the pregnant women reported that they were married; this could be attributed to the fact that the majority were aged 15–24 years when most women in Africa are married off. This is consistent with the observation made by Persson (1994) that Sub-Saharan African women marry at a tender age. This also puts this same age group at greater vulnerability to HIV infection and higher chances of MTCT of HIV. The current study showed that there was no association between marital status and knowledge levels.

According to Ashok (2003) in India only four out of ten married women had ever heard about HIV/AIDS transmission.

There was no association between parity and knowledge on MTCT of HIV. It would be expected that women with more children due to their greater exposures to ANC and health talks given at these clinics would be more knowledgeable on MTCT of HIV. In this study about fifty-seven percent respondents had one or no child, and less than two percent respondents had more than six children. The decline in antenatal attendance among multiparous women could probably be to them practicing family planning or may just stay away from ANC because they think they are more experienced in childbearing and serve as instructors and birth attendants to young pregnant women in the community. This points to the need for mobilization of the multiparous women so that they are taught correct and appropriate information on MTCT of HIV at ANC to transmit to the younger women.

In this study education, occupation, household income and residential characteristics were used as proxies for socio-economic status. There was a significant association between education and knowledge on MTCT of HIV. The majority of the respondents attained secondary education only. Maule-Nkhuwalume (2003) in a study done in Botswana reported that the majority of the women had up to 10 years education attainment. The analysis of factors independently associated with knowledge on MTCT of HIV revealed that pregnant women with no formal education and with primary education were less likely to be knowledgeable than pregnant women with college/university education. The findings are consistent with the ZDHS (2002), which reported that women with more than secondary education had higher knowledge about

MTCT of HIV. In Bangladesh and Nepal, Ashok (2003) reported that women with higher education were more knowledgeable about HIV/AIDS than women with low education. This accords with the findings from the ZSBS (1998) that reported a high level of knowledge of HIV/AIDS transmission among women with more than secondary education. The results suggest that education levels are important and should be considered when designing health education strategies such as reading materials, drama/sketches, television, and radio for urban areas where greater differences in education exist.

In the current study it was observed that almost all the respondents' household income was the husbands and only a few reported independent incomes. The majority of respondents were not employed and these comprised of full time housewives and students. Marketeers and "cross boarder business ladies" were the majority among the self-employed group. Some pregnant women did not know their household income, among these some were school going girls, college students and married women who did not know their husbands' salaries. The study revealed that the household income was significantly associated with knowledge on MTCT of HIV. Ninety-four percent of the respondents whose household income was between K500,000 – K999,999 and about eighty-one percent respondents whose household income was above K1,000,000 respectively were more knowledgeable about MTCT of HIV compared to only fifty-four percent respondents whose income was less than K499,999. According to a Barcelona ICASA (2002) Report, in Uganda knowledge on MTCT/PMTCT of HIV is still low among the resource poor community. However household income was not significant in multivariate analysis. Education may have played a bigger role than income in their joint association with knowledge on MTCT of HIV.

There was a significant association between respondents' residential area and knowledge on MTCT of HIV. Nationally the ZSBS (1998) reported high levels of knowledge of HIV/AIDS transmission among women who resided in urban areas. This is supported by the ZDHS (2002) that reported high levels of knowledge of MTCT of HIV among women who resided in urban areas. This is an indication that pregnant women from low density residential areas and those with average to high income have access to a variety of sources of information including electronic media and print media as compared to those from high density residential areas who earned little money and could probably not afford these forms of media. In this study watching television was not significant in multivariate analysis as it was confounded in the radio, this probably was due to the fact that it was lacking in most women in low income groups. Persson, (1994) in his report revealed that Sub-Saharan African women, due to their economical dependence they often lacked access to radio and television and are therefore not reached by information given on HIV transmission.

5.2. KNOWLEDGE LEVELS ON MTCT OF HIV.

The emphasis on knowledge on MTCT of HIV infection among pregnant women in childbearing age is aimed at reducing the transmission of HIV infection from the mother to the unborn and born baby. The findings of the study show that, the knowledge on MTCT of HIV among pregnant women attending ANC in Ndola urban district is average. With this kind of knowledge levels, more women are vulnerable to contracting the infection increasing the transmission rate of MTCT of HIV. This in turn may lead to increased HIV/AIDS prevalence and mortality rates in both women and children. This increase in the morbidity rates will lead to overcrowding in paediatric wards and hospitals in general, eroding the hard won gains of child survival programs. This will not

only attract additional funding to the health sector but will also attract social and economic costs for the families, communities, private sector, government and society as a whole.

5.3. SOURCES OF INFORMATION IN RELATION TO KNOWLEDGE

Of the 300 pregnant women interviewed, ninety-five percent of them sourced information from the healthcare providers, fifty-one percent from the radio and thirty-one percent from television and nine percent from newspapers. There was a significant association between healthcare provider; radio; television; newspaper and knowledge on MTCT of HIV in bivariate analysis. The radio became a more effective source of information because it is more available and often uses local languages that illiterate pregnant women can comprehend. Stoneburner et al, (2000) reported that majority of the Ugandan women received HIV/AIDS information via personal (friends/relatives) networks while majority of the Zambian and Kenyan women received the HIV/AIDS information mostly from the mass media and institutions. In Thailand, the National PMTCT programme (2002) reported that 63.6 percent sourced their information from the health institutions, 58 percent from media and only 9 percent from schools.

The current study revealed that the pregnant women who received information from their relatives, friends and husbands were less knowledgeable on MTCT of HIV. These findings suggest that unless groups of people in these personal and social networks are given the accurate and appropriate information there will be a lot of misconceptions among pregnant women who receive information through these channels of communication. A study conducted by Maule-Nkhwilume (2003) revealed that women who discussed MTCT of HIV with their partners and had higher education attainment

were knowledgeable on MTCT. In this study the level of education was a major determinant of knowledge on MTCT of HIV. Other sources of information mentioned by the respondents included churches, drama groups, schools and seminars.

5.4. ACCESSIBILITY TO INFORMATION.

The study revealed that seventy-three percent and fifty-nine percent had access to Radio and Television respectively. This could be attributed to the fact that the majority of the respondents resided in medium density areas. Nationally, the ZDHS (2002) reported that 44 percent of women listened to the radio and one in four women watched television. In the current study an association was observed between electronic media and knowledge on MTCT of HIV. It was observed that about eighty-eight percent of the respondents who listened to the radio and eighty percent who watched television were knowledgeable as compared to only twelve percent of the respondents who did not listen to the radio and twenty percent who did not watch television respectively. Analysis of factors independently associated with knowledge on MTCT of HIV revealed that those who listened to the radio every day were more likely to be knowledgeable.

The study also revealed that the majority of respondents had attended antenatal clinic 2–3 times. It should be noted that ANC is the primary source of information to the majority of women in the childbearing age especially that most of our population have little or no access to other effective sources of information. According to ZDHS (1992) results showed that 92 percent pregnant mothers attended antenatal clinics. Therefore antenatal mothers would benefit from the ANC if the healthcare providers would use the opportunities to teach and give advice to the mothers on various issues related to MTCT of HIV. The report from the study done in Botswana and Zambia found that in both

countries health education talks at antenatal clinics were the source of information about MTCT of HIV. (Nyblade, 2002)

When the pregnant women were asked whether they received educational material at ANC, sixty percent reported receiving educational materials in form of posters, booklets and leaflets. These were distributed in two languages, English and Bemba. The majority of the respondents were able to read. In this study no association was found between receiving the educational materials and knowledge on MTCT of HIV. However there was an association between being able to read and knowledge on MTCT of HIV. It was observed that eighty percent of the respondents who were able to read were knowledgeable as compared to about twenty percent who were not able to read. This observation shows that it is imperative for programme managers and healthcare providers, who plan, write and distribute the educational materials to consider effective ways of presenting these materials. This will prevent the expensive printed materials from simply being wasted as women who can't read, most likely just throw them away and those who are able to read may not find time to do so.

5.5. HEALTHCARE PROVIDER'S ATTITUDE

The study revealed that seventy-six percent of the respondents said that the healthcare provider was friendly. When asked whether they were taught about MTCT of HIV, ninety-five percent of the respondents reported being taught. This affirms the statement by Nyblade et al. (2000 unpublished), which stated that health talks given at antenatal clinics were the source of information about health issues in general and HIV/AIDS in particular.

The majority of respondents reported that they were allowed to ask questions and fifty-three percent said the explanations from the provider were easy to understand. There was a significant association observed between providers' explanation and knowledge on MTCT of HIV in bivariate analysis. Respondents who said the explanation was easy were more knowledgeable on MTCT of HIV than those who said the explanation was difficult.

Analysis of factors independently associated with knowledge on MTCT of HIV revealed that pregnant women who said the provider was friendly were more likely to be knowledgeable. This shows that the healthcare provider's friendliness may influence the pregnant women's knowledge on MTCT of HIV positively or negatively. If the healthcare provider is unfriendly the pregnant women may not even listen to what she is saying, worse still learn nothing and end up with a lot of misconceptions on MTCT of HIV, but if the healthcare provider is friendly the well built rapport will motivate the pregnant women to listen and participate in the IEC.

5.6. AVAILABILITY, ACCESSIBILITY AND UTILIZATION OF VCT CENTERS.

The study revealed that over 90% of the respondents had VCT centers within their communities. This is contrary to the Joint report by WHO/UNAIDS (2001) that VCT services are in short supply across the region.

In this study it was observed that despite the majority of pregnant women reporting having VCT centers within their localities, less than half of the respondents had at least gone to these centers for counseling. The findings were consistent with the postulation made in the AIDS epidemic update bulletin (UNAIDS/UNICEF, 2001) that 50% adult

women in Tanzania and Zimbabwe knew where they were counseled and tested for HIV, yet only 6% and 11% respectively had been to these centers.

The study revealed that there was no association between availability of VCT centers and knowledge on MTCT of HIV. However it was observed that pregnant women who stayed very far away from VCT centers were less knowledgeable on MTCT of HIV than pregnant women who stayed nearer to VCT centers. The analysis of factors independently associated with knowledge on MTCT of HIV further revealed that pregnant women who had gone to VCT centers were more likely to be knowledgeable than pregnant women who had never gone to the VCT centers. A study conducted in Zimbabwe by the ZVITAMBO counseling project in Zimbabwe found that knowledge on MTCT of HIV increased with exposure to the counseling programme (SARA/ZVITAMBO project 2002 unpublished). According to Bor (1994) there has been a reduction in HIV transmission where VCT services have been utilized due to the knowledge acquired during counseling sessions on HIV transmission and preventive measures.

CHAPTER SIX

6.1. CONCLUSION

The findings of this study are important as they give an insight into the factors that influence the knowledge on MTCT of HIV among pregnant women. The study was worthwhile in contributing to the improvement of the maternal and child health and educational programmes for dissemination of information on MTCT of HIV within and outside Ministry of Health. Though the study sample size was determined to be 360 at 95% Confidence level only 300 was achieved. However using the level of knowledge of 55% found in the current study the sample size would have been 356. With the sample size of 300, the researcher was working at less power of 90% Confidence level.

The study concludes that there was association between knowledge on MTCT of HIV and education level, radio, healthcare providers' reception, accessibility to VCT centers and going to VCT centers. Therefore the study hypotheses that stated that there was no associations between knowledge on MTCT of HIV infection among pregnant women attending ANC with level of education, types of sources of information, healthcare providers' reception and accessibility to VCT centers were rejected. However the hypothesis, which stated that there was no association between availability of VCT centers, was not rejected.

The younger women aged between 15–24 were found to be less knowledgeable on MTCT of HIV. The pregnant women who were taught at ANC by the healthcare providers were found to be less knowledgeable on MTCT of HIV. This could be attributed to the fact that the majority of these pregnant women reported receiving

minimum to moderate information and in some cases no information was given on the important topics concerning MTCT of HIV. For instance most of the pregnant women did not know the drug (Niverapine) by name, which is administered to prevent MTCT of HIV, they also did not know that early rupture of membranes can facilitate HIV transmission, and that delivering at home with the assistance of unskilled attendant can promote HIV transmission. This highlights the need for clarifying information and checking for understanding during IEC sessions.

6.2. RECOMMENDATIONS

Every woman has the right to information on MTCT of HIV, as lack of it is the highest obstacle to PMTCT of HIV.

In view of the findings of this study, the following recommendations are made: -

- Pictorial (pictures) materials should be provided, and drama/sketches should also effectively be utilized for the less educated pregnant women.
- One of the major problems that requires urgent attention by the Policy makers, program planners, managers and the healthcare providers is improving the utilization of Voluntary, Counseling and Testing services as it is a valuable facility in disseminating the information on MTCT of HIV and HIV transmission in general.
- DHMT, MOH and its' collaborating partners should make the VCT centers easily accessible i.e. by providing VCT services at all health centers and strategically locating them where it is more convenient for the antenatal mothers.
- Educational programmes should continue on electronic media, especially radio.

- The healthcare providers should be friendly and equipped with communication skills so that they are able to provide conducive and friendly environment for IEC.
- A study of this nature should be conducted on a large scale so that generalization of the findings could be made for the whole country.

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APPENDIX A

INFORMED CONSENT

INTRODUCTION

I am Hildah Ng’ambi, an MPH student, conducting a research on **Determinants of Knowledge on MTCT of HIV among pregnant women attending Antenatal Clinic in Ndola Urban District.**

It is to inform you that I will be collecting some information of all of you who will be attending antenatal clinic. The information that is required will be on your knowledge on Mother To Child Transmission of HIV infection. I will also be requesting you to tell me if you have any difficulty or if you have been counseled in various clinics that you may be attending and if it is of benefit to you.

RISKS/BENEFIT

By virtue of your participation you will be required to give information by answering the questionnaire, as I will be interviewing you.

This is normal and is RISK FREE, of course you will spend some extra time during the session, besides that there is no other disadvantage or harm to you.

There is no direct benefit or monetary gain to you by virtue of your participation in this research. However, the information gained will help in strengthening your knowledge about HIV diseases and its transmission from mother to child.

CONFIDENTIALITY

Care will be taken to ensure that all the information collected from you will be kept confidential and privacy will be maintained during the interview and see that you are not identified by anybody to know the cause of your presence at the clinic. It will appear that you have come to the clinic for normal check up.

PARTICIPATION

- Your participation in this research is purely voluntary, you may withdraw from the study if you may wish to refuse to take any further participation
- There is no compulsion or force. Your discontinuation from the study will not affect the normal standard of care that everyone receives when they come to the clinic.

.....

ACCEPTABILITY

By now you must have understood the reasons of the study and its probable implications. If you wish to participate in the study, please sign below where indicated or put thumbprint.

I.....Hereby called participant understand the guidelines of this study and that I am willing to be interviewed. I hereby consent to participate.

Signed/Thumbprint:..... Date:.....
(Participant)

Signed:..... Date:.....
(Witness)

If you have any query or you would wish to seek any clarification, please get in touch with the Sister-In-Charge at the clinic or call me at the following addresses/phones numbers:-

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APPENDIX B

QUESTIONNAIRE:

LIKERT SCALE

LIKERT SCALE TO DETERMINE KNOWLEDGE LEVELS ON MTCT OF HIV INFECTION AMONG PREGNANT WOMEN ATTENDING ANC IN NDOLA URBAN

INTERVIEWER CODE No:.....

SERIAL No.....

INTERVIEW DATE:.....

INSTRUCTIONS TO INTERVIEWER

1. Allocate scores according to the pregnant woman's response.
2. Scoring for each question should be as follows:

5	-	Strongly agree response
4	-	Agree response
3	-	Not sure response
2	-	Disagree response
1	-	Strongly disagree response
3. Proceed to the structured interview schedule after completing the Likert scale questions.

1. For a newly born child to have HIV infection, it means the infection has been transmitted from the mother to her child.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

2. HIV can enter your body through body fluids from an infected person, most often through sexual contact.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

3. Both single and married women are at risk of getting HIV infection.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

4. Both single and married pregnant women should use condoms consistently to protect the unborn baby.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

5. A woman who is HIV negative before getting pregnant can contract HIV infection during pregnancy.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

6. A pregnant woman who is HIV positive can be healthy looking.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

7. A woman who is HIV negative before getting pregnant can contract infection during lactation and transmit the infection to the breastfeeding baby.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

8. HIV positive woman has chances of giving birth to HIV negative baby.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

9. Breast milk of an HIV positive woman contains HIV germs?

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

10. A pregnant woman who has a sexually transmitted infection has a higher risk of contracting HIV infection.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

11. Having multiple partners whilst pregnant can expose you to greater risk of contracting and transmitting HIV to the baby.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

12. Eating a well balanced, nutritional diet can strengthen a pregnant mothers blood and immune system which in turn reduce exposure to infection.
1. Strongly agree
 2. Agree
 3. Not sure
 4. Disagree
 5. Strongly disagree
13. HIV positive woman can breastfeed her baby.
1. Strongly agree
 2. Agree
 3. Not sure
 4. Disagree
 5. Strongly disagree
14. An HIV positive woman can infect her baby through breastfeeding if she has breast conditions like nipple cracks, mastitis.
1. Strongly agree
 2. Agree
 3. Not sure
 4. Disagree
 5. Strongly disagree
15. Breastfeeding conditions can be prevented by proper breastfeeding techniques i.e. proper attachment to the breast.
1. Strongly agree
 2. Agree
 3. Not sure
 4. Disagree
 5. Strongly disagree
16. HIV positive mother should boil her milk to boiling point as heat kills the HIV infection.
1. Strongly agree
 2. Agree
 3. Not sure
 4. Disagree
 5. Strongly disagree

17. Babies born from HIV positive women should be breastfed exclusively for 4 months and then weaned suddenly for other infant feeds.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

18. "Wet" nursing of the baby is nowadays not encouraged.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

19. Antiretroviral drugs administered to HIV positive pregnant women as a single dose can reduce the chance of passing HIV infection to the unborn baby.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

20. Home deliveries by unskilled birth attendants are likely to expose a woman to greater risk of HIV.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

21. Early rupture of membranes (breaking of water) can facilitate transmission of HIV to the baby.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

22. MTCT of HIV can be prevented during pregnancy if both woman and her partner know their HIV status by going for voluntary counseling and testing.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly disagree

23. Niverapine is the commonly used drug in Zambia in the reduction of the transmission of the HIV infection from the mother to the baby.

1. Strongly agree
2. Agree
3. Not sure
4. Disagree
5. Strongly Disagree

END OF LIKERT SCALE
PLEASE PROCEED TO STRUCTURED INTERVIEW SCHEDULE

**STRUCTURED INTERVIEW SCHEDULE FOR PREGNANT WOMEN
ATTENDING ANC IN NDOLA URBAN DISTRICT TO DETERMINE
FACTORS ASSOCIATED WITH KNOWLEDGE ON MTCT OF HIV
INFECTION**

INTERVIEWER CODE No:.....

SERIAL No.....

INTERVIEW DATE:.....

INSTRUCTIONS TO INTERVIEWERS

1. Introduce yourself to respondents
2. Explain the purpose of the interview
3. Assure the respondents' confidentiality of their responses
4. Encourage the respondents to feel free in the discussion
5. Tick in the respondents' appropriate box, or write in the space provided.
6. Do not omit any questions, read out the questions or phrases exactly the way they appear in the text.
7. Do not write anything in the official column

SERIAL No:.....

1.

How old are you (at your last birthday).....
2.

Year of birth:
3.

What is your residential address? (Name of compound)
.....
4.

What is your marital status?

1.

Single

2.

Married

3.

Separated

4.

Widowed
5.

How many children do you have?
6.

How many times have you been pregnant?
7.

What is your religion?

1.

Pentecostal

2.

UCZ

3.

Roman Catholic

4.

Other (specify).....
8.

What is your highest level of education?

1.

Never gone to school

2.

Primary

3.

Secondary

4.

College

5.

University
9.

How many years did you spend in school?
10.

What is your occupation?
11.

How much is your household income per month?.....
12.

Do you listen to the radio everyday?

1.

Yes

2.

No

13. Do you watch television every week?

- 1. Yes
- 2. No

14. How did you know about MTCT?

- 1. Newspaper ☐
- 2. Television ☐
- 3. Radio ☐
- 4. Husband ☐
- 5. Relative ☐
- 6. Friends ☐
- 7. Health care providers ☐
- 8. Other (specify).....

15. How many times have you been attending ANC?

16. How was the reception by the health care provider?

- 1. Friendly ☐
- 2. Not friendly ☐
- 3. Other (specify).....

17. Did the provider teach you about MTCT?

- 1. Yes ☐
- 2. No ☐

18. If yes to Q 17, how much information were you given at ANC on the following?

0 = None 1 = Minimum 2 = Moderate 3 = Extensive

- 1. Transmission of HIV to baby.....
- 2. Prevention of transmission of the HIV to the baby.....
- 3. Infant feeding in case of HIV positive mother.....
- 4. Antiretroviral drugs given to the mother to reduce transmission...

19. Did the provider allow you to ask any questions about MTCT?

- 1. Yes ☐
- 2. No ☐

20. Did the provider respond to your questions?

- 1. Yes ☐
- 2. No ☐ (Go to Q 22)

21. If yes to Q 20, how was the provider's explanation?

1. Easy to understand
2. Difficult to understand
3. Don't know

22. Did the provider say or do anything that made you feel uncomfortable?

1. Yes
2. No

23. Did you receive any educational material from the health care provider?

1. Yes
2. No

24. If yes to Q23 what type of educational materials did you receive?

1. Poster
2. Booklet
3. Leaflet
4. Other (specify).....

25. In what language was the educational material?

1. English
2. Bemba
3. Nyanja
4. Other (specify).....

26. Were you able to read the language in which the educational material was written?

1. Yes
2. No

27. In your community do you have voluntary counseling and testing (VCT) centers?

1. Yes
2. No

28. If yes to Q 27, is it possible for someone to get confidential counseling on MTCT of HIV?

1. Yes
2. No

29. How far is the VCT center from your home?

1. Very far
2. Near

30. Have you ever gone to the VCT Centers

1. Yes
2. No

(Go to Q 37)

31. If yes to question 30, who attended to you?

1. Counselor
2. peer educator
3. doctor
4. nurse
5. Other (specify).....

32. Where did you meet with the counselor?

1. In the waiting room
2. In the office
3. Other (specify).....

33. What information did you receive at the VCT center on MTCT of HIV?
.....

34. What do you think of the time spent with the counselor?

1. Too short
2. Too long
3. About the right time
4. Don't know

35. Are there any educational materials available in the counseling room?

1. Yes
2. No

36. What topics do the education materials cover?

1. Transmission of HIV from mother to child
2. Prevention of mother to child transmission
3. HIV/AIDS
4. Antiretroviral therapy
5. Infant feeding
6. Family planning methods
7. Other (specify).....

37. What are your suggestions regarding prevention of mother to child transmission of HIV infection?
.....

**END OF INTERVIEW
THANK YOU FOR YOUR PARTICIPATION**



**THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE
RESEARCH ETHICS COMMITTEE**

Telephone: 256067
Telegrams: UNZA, LUSAKA
Telex: UNZALU ZA 44370
Fax: + 260-1-250753

Dean's Office
P.O. Box 50110
Lusaka, Zambia

**Assurance No. FWA00000338
IRB00001131 of IOR G0000774**

Ref: 005-01-03
24 March 2003

Ms Hilda Ng'ambi, Bsc., RM, RN
Department of community medicine
School of Medicine, University of Zambia
LUSAKA

Dear Ms Ng'ambi,

RE: SUBMITTED RESEARCH PROPOSAL

The following research proposal was presented to the Research Ethics Committee Meeting on 29 January 2003, where changes were recommended. We would like to acknowledge receipt of the corrected version. The proposal has been approved. Congratulations!

Title of proposal: 'Determinants of Knowledge on MTCT of HIV Among pregnant Women attending antenatal Clinic in Ndola Urban.'

Conditions:

- This approval is based strictly on your submitted proposal. Should there be need for you to modify or change the study design or methodology, you will need to seek clearance from the Research Ethics Committee.
- If you have need for further clarification please consult the Research Ethics Committee. Please note that it is mandatory that you submit a detailed progress report of your study to this committee every six months and a final copy of your report at the end of the study.

Yours sincerely

Prof. J. T. Karashani, M.B., Ch.B, Ph.D
**CHAIRMAN
RESEARCH ETHICS COMMITTEE**

Date of approval: 24 March, 2003
Date of Expiry: 23 March, 2004

Please note that when your approval expires, you will need to request for renewal. The request should be accompanied by a progress report.

University of Zambia
School of medicine
Department of Community Medicine
P.O Box 50110
Lusaka.

28th March, 2003.

The District Director
Ndola District Health Board
Naidu Close Kanini
P.O Box 70672
Ndola.

DEPT. OF COMMUNITY MEDICINE
SCHOOL OF MEDICINE
UNIVERSITY OF ZAMBIA
P.O. BOX 50110, LUSAKA

u.f.s: 
Head of Department
Community Medicine
Lusaka.

Dear Sir,

Re: PERMISSION TO CARRY OUT A RESEARCH ON "DETERMINANTS OF KNOWLEDGE ON MTCT OF HIV AMONG PREGNANT WOMEN ATTENDING ANC IN NDOLA URBAN."

I am a postgraduate student in Masters of Public Health Programme at the University of Zambia. I wish to seek permission to carry out a study on the above mentioned topic, in partial fulfillment of the course.

I hope to carry out the study over a period of three months, starting from first week of April to fourth week of May. The study will entail interviewing pregnant women attending Antenatal clinic in six randomly chosen clinics.

Thanking you in anticipation of your favourable response.


Hildah Ng'ambi
MPH STUDENT

UNIVERSITY OF ZAMBIA LIBRARY

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00263154	





Ndola District Health Board

u Close Kanini
Box 70672
la - Zambia

All Communications to be addressed to
District Director of Health

Telephone : 610306
Telefax: 612819
Cell: 095 707343

29th April 2003

Ms. Hilda Ng'ambi
University of Zambia
School of Medicine
Lusaka

Dear Madam

PERMISSION TO CONDUCT RESEARCH IN NDHMT HEALTH CENTRES

Reference is made to your letter dated 25th March 2003 in which you requested for permission to conduct a research in Ndola Urban.

This letter serves to inform you that permission has been granted to conduct the research. Furthermore, all the Health Centres will be communicated to so that maximum support is availed to you.

Wishing you all the best as you conduct the research.

Yours faithfully

DR. M. K. LEMBALEMB
DISTRICT DIRECTOR OF HEALTH

Ndola District Health Board

Memo

To: All Health Centre In-Charges

From: The District Director of Health

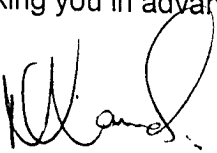
Date: 29/05/03

Re: HILDAH NG'AMBI – MPH STUDENT (UNZA)

This serves to introduce the above mentioned Master of Public Health student at the university of Zambia - School of Medicine. She wishes to undertake a Research Programme on "Determinants on Knowledge on MTCT of HIV infection among pregnant women attending antenatal clinic in Ndola Urban District".

Kindly access the student with information on the subject or clients and any other assistance the student may require.

Thanking you in advance.



DR. M. K. LEMBALEMBA



The University of Zambia

DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

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Fax: + 260 - 1 - 290258/253952
E-mail: director@drgs.unza.zm

P O Box 32379
Lusaka, Zambia

Your Ref:
Our Ref:

7 May 2003

Ms Hildah Ng'ambi
Department of Community Medicine
School of Medicine
UNZA

Dear Ms Ng'ambi

RE: MASTER OF PUBLIC HEALTH RESEARCH (MPH) PROPOSAL

Your research proposal for the Master of Public Health (MPH) entitled: "*Determinants of knowledge on MTCT of HIV among pregnant women attending antenatal clinic in Ndola Urban District*" was presented at the 78th meeting of the Board of Graduate Studies held on 2nd May, 2003.

I am pleased to inform you that the proposal was approved by the Board subject to incorporating a sentence or two to state the usefulness of the output of the research. You can proceed to Part II of the programme and your Supervisor is Dr S Siziya and your Co-supervisor is Mrs C Ngoma.

I wish you every success in your studies.

Yours sincerely

Dr S B Kanyanga
ACTING DIRECTOR

cc Dean, School of Medicine
Head, Department of Community Medicine
Assistant Dean (PG), School of Medicine
Dr S Siziya, Department of Community Medicine
Mrs C Ngoma