

**FACTORS ASSOCIATED WITH MALE INVOLVEMENT IN
ELIMINATION OF MOTHER TO CHILD TRANSMISSION
(EMTCT) OF HIV DURING ANTENATAL CARE VISIT IN
LUKULU DISTRICT**

BY

NAWA MBUMWAE

**A dissertation submitted in partial fulfilment of the requirements for the degree of Master
of Science in Epidemiology**

UNIVERSITY OF ZAMBIA

LUSAKA

2019

DECLARATION

I hereby declare that all the work in this dissertation is my own and has never been submitted for another degree in this or any other university or institution of higher learning.

Date:..... **Signature**.....

Nawa Mbumwae

COPYRIGHT

All rights reserved. No part of this dissertation may be produced or transmitted in any manner without prior permission in writing from the researcher or University of Zambia.

©2019, Nawa Mbumwae and University of Zambia.

CERTIFICATE OF APPROVAL

The University of Zambia approves this dissertation by **Nawa Mbunwae** in partial fulfilment of the requirements of a master of science in epidemiology by the University of Zambia.

Examiner 1Signature..... Date.....

Examiner 2Signature..... Date.....

Examiner 3Signature..... Date.....

Chairperson Board

of Examiners.....Signature..... Date.....

Supervisor.....Signature..... Date.....

ACKNOWLEDGEMENT

I would like to thank my supervisors Dr. Choolwe Nkwemu-Jacobs and Mr. Mumbi Chola for the sound advice and support that led to the completion of this research. I'm grateful to NORPART project for offering me a scholarship to study at Bergen University in Norway and for the time out during analysis.

I am also grateful to Zambia National Health Research Authority for allowing me to conduct this study. My sincere gratitude also goes to the all men who provided valuable information that led to the realization of this dissertation. The lecturers and my fellow students in School of Public Health, I would like to thank you for making my course enjoyable.

Lastly, but not the least, I am grateful to my entire family for the selfless love and support.

TABLE OF CONTENTS

DECLARATION	iv
COPYRIGHT	v
CERTIFICATE OF APPROVAL	vi
ACKNOWLEDGEMENT	vii
TABLE OF CONTENTS	viii
LIST OF TABLES	ix
LIST OF FIGURES	x
ABBREVIATIONS AND ACRONYMS	xi
DEFINITION OF KEY CONCEPTS	xii
ABSTRACT	xiii
CHAPTER ONE: BACKGROUND	1
1.1 Introduction	1
1.2 Statement of the Problem	2
1.3 Justification	3
1.4 Research Question	3
1.5 Research Objectives	3
1.5.1 General Objective	3
1.5.2 Specific Objectives	3
CHAPTER TWO: LITERATURE REVIEW	4
2.1 Mother to Child Transmission of HIV	4
2.2 An Overview of EMTCT Strategy	4
2.2.1 The 2013 Zambia Consolidated HIV Guidelines	5
2.2.2 The 2016 Zambia Consolidated HIV guidelines	6
2.3 Why Male Involvement in EMTCT	6
2.4 Factors Influencing Male Involvement in EMTCT	8
2.4.1 Cultural Factors and Male Involvement in EMTCT	8
2.4.2 Economic Factors and Male Involvement in EMTCT	9
2.4.3 Social Factors and Male Involvement in EMTCT	9
2.4.4 Health Service Related Factors and Male Involvement in EMTCT	10

2.5 Conceptual Framework.....	12
CHAPTER THREE: METHODOLOGY.....	14
3.1 Study Design.....	14
3.2 Study Site and population	14
3.2.1 Study Site.....	14
3.2.2 Study Population.....	14
3.3 Sampling Methods and Sample Size.....	15
3.3.1 Sample Size Estimation	15
3.3.2 Sampling Method.....	15
3.4 Data Collection Plan and Tools.....	16
3.4.1 Pilot Study.....	16
3.5 Data Management and Storage	16
3.6 Data Analysis Plan	17
3.7 Ethical Considerations.....	17
3.8 Limitations.....	18
CHAPTER FOUR: FINDINGS.....	21
4.1 Characteristics of Study Participants	21
4.2 Level of Male Involvement in EMTCT during Antenatal Care Visits.....	23
4.3 Social- Economic and Cultural Factors Associated with Male Involvement in EMTCT During Antenatal Care Visits.....	23
4.4 Health System Factors Associated with Male Involvement in EMTCT During Antenatal Care Visits.....	25
4.5 Logistic Regression Analysis.....	25
CHAPTER FIVE: DISCUSSION	28
CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS	30
6.1 Conclusion	30
6.2 Recommendations	30
REFERENCES.....	32
APPENDICES.....	40

LIST OF TABLES

Table 1:	Number of households and sample sizes in the urban and rural strata.....	16
Table 2:	List of variables.....	19
Table 3:	Background characteristics of study participants.....	21
Table 4:	Cross tabulation of factors and male involvement in EMTCT during Antenatal Care Visits.....	22
Table 5:	Social- Cultural Characteristics and Health System factors.....	24
Table 6:	Crude and adjusted predictors of male involvement in EMTCT during antenatal Care Visit.....	26
Table 7:	Adjusted predictors of male involvement in EMTCT during antenatal from the best fit model.....	27

LIST OF FIGURES

Figure 1: Andersen-Newman Framework for Health Services Utilization.....	13
--	----

ABBREVIATIONS AND ACRONYMS

ANC	Antenatal care
ART	Antiretroviral therapy
ARV	Antiretroviral
AIDS	Acquired immune deficiency syndrome
CD4	T-lymphocyte bearing CD4 receptor
cART	Combination antiretroviral therapy
EMTCT	Elimination of mother-to-child transmission (of HIV)
HCT	HIV Counselling and Testing
HP	Health Post
HIV	Human immunodeficiency virus
MOH	Ministry of Health
MOHSS	Ministry of Health and Social Services
MTCT	Mother-to-child transmission (of HIV)
NAC	National AIDS Council
OPHID	Organisation for Public Health Interventions and Development
PMTCT	Prevention of mother-to-child transmission
RHC	Rural Health Centre
STD	Sexually transmitted disease
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV / AIDS
VCT	Voluntary HIV counselling and testing
WHO	World Health Organization
ZAMPHIA	Zambia Population-Based HIV Impact Assessment

DEFINITION OF KEY CONCEPTS

Male Involvement: Male involvement in PMTCT is a process through which males participate and help their spouses to participate in matters that include decision making and providing resources for seeking PMTCT services (UNAIDS, 2011). In this study, male involvement in EMTCT means including men in EMTCT (including voluntary counselling and testing) during antenatal care visits

Male Partner: A male partner is a person of the opposite sex with whom one has a sexual relationship. In this study, male partner refers to a male who is married to and / or a sexual partner of a woman who has a child less than one year (Drasiku, 2010).

Mother to Child Transmission: Mother-to-child transmission is defined as a vertical transmission of HIV infection from an HIV-positive pregnant woman to her infant. This can occur during pregnancy (intra-uterine), during delivery (intra-partum) or afterwards (post-partum) during breastfeeding (OPHID, 2015).

Elimination for mother-to-child Transmission: Elimination for mother-to-child transmission (EMTCT) refers to interventions to eliminate transmission of HIV from an HIV positive Mother to her infant during pregnancy, labour, delivery, or breastfeeding (MoH, 2014)

Prevention of mother-to-child Transmission: Prevention of mother-to-child transmission (PMTCT) refers to interventions to prevent transmission of HIV from an HIV positive Mother to her infant during pregnancy, labour, delivery, or breastfeeding (USAID)

ABSTRACT

Male partner involvement is critical in programs for the Elimination of Mother-to-Child-Transmission of HIV (EMTCT) in curbing paediatric HIV infections. However, the level of male involvement in EMTCT and associated factors are not well known in Lukulu. The aim of this study was to investigate factors associated with male involvement in elimination of mother-to-child-transmission of HIV during antenatal care visits in Lukulu District.

A cross-sectional survey was conducted in October and November, 2017. A total of 388 men aged above 18 years with children between the ages 0 and 11 months were sampled from 4 catchment areas in Lukulu district in the western region of Zambia using stratified and simple random sampling procedures. Data were collected using structured interviewer administered questionnaires. Data was entered in Epi data software and exported to STATA version 15 for Analysis. Multiple logistic regression analysis was used to determine significant associations between male involvement in EMTCT during antenatal care visits and independent variables.

The mean age of respondents was 34 years with a 7 year standard deviation. About half of the respondents 213/388 (55%) were involved in EMTCT during antenatal care visits. A one-year increase in age was associated with an increased chance of male involvement in EMTCT during antenatal care visits (aOR: 1.04: 95% CI, 1.01-1.08,). Married men were more likely (aOR: 3.10: 95% CI, 1.35- 7.10) to be involved in EMTCT during antenatal care visits than single men. Men in employment were more likely (aOR: 2.40: 95% CI, 1.34-3.98,) to be involved in EMTCT during antenatal care visits compared to unemployed men. Men residing in urban areas were less likely to be involved in EMTCT during antenatal care visits (aOR: 0.41: 95% CI, 0.19-0.87) compared to those who reside in rural areas.

This study established that male partner involvement in EMTCT is low in Lukulu. Only about half of males attended EMTCT during antenatal care visits. Several factors seem to influence male involvement in EMTCT during antenatal care visits including age, residence marriage, and employment status. This finding suggests need for intensifying community outreach services and broadening antenatal and EMTCT services to every weekday.

Key words: Male involvement, HIV/AIDS, Antenatal care, EMTCT, Factors

CHAPTER ONE: BACKGROUND

1.1 Introduction

Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) is a public health concern especially in developing countries like Zambia. Since its discovery in the 1980s, HIV/AIDS has claimed over 20 million people around the world. Estimates indicate that about 38.6 million people were living with HIV in 2007, and of these, 24.5 million were in sub-Saharan Africa. According to the Joint United Nations Programme on HIV/AIDS (UNAIDS, 2009), over 70% of the global total of HIV-positive people live in Sub-Saharan Africa.

In Zambia the prevalence of HIV/AIDS is estimated to be 12 percent among adults aged 15-59 years old (MOH, 2016). The country has over 415,685 clients on antiretroviral treatment and PMTCT coverage has reached 80 607 (MoH, 2012). In order to reduce the burden of Paediatric HIV in Zambia, the Ministry of Health scaled up the prevention of mother-to-child transmission of HIV (PMTCT) services throughout the country using different strategies such as encouraging pregnant women to start attending antenatal clinics early, providing couple counselling and HIV testing in maternal and child health as well as offering treatment (ART) to those who test positive (MoH, 2010). The prevalence rate of HIV among pregnant women attending antenatal care (ANC) was about 16.4% in Zambia and it is estimated that, approximately 80,000 infants born annually are at risk of acquiring HIV from their mothers (ZDHS, 2007; CSO, 2010).

In 2013, the Ministry of Health in Zambia adopted the World Health Organisation 2013 consolidated guidelines on the use of Antiretroviral drugs for treatment and preventing HIV infection. A change in guidelines saw a shift from PMTCT to EMTCT. The guidelines reflect an integrated approach to HIV prevention and treatment. These guidelines apply to all aspects of HIV prevention and treatment. These guidelines specify timings of HIV Counselling and testing among specific populations. Among pregnant, breast feeding women and their sexual partners, HIV counselling and testing must be conducted at first antenatal care and repeat every after three months if negative (MOH, 2014). Male involvement in antenatal care yields a lot of benefits to women and infants. Women's access, uptake and continuation of antenatal care services is improved. Adherence to all antenatal visits and mutual support and adherence to antiretroviral

treatment (ART), reduction in Paediatric HIV morbidity and mortality is expected when men participate in PMTCT. A global based response to elimination of MTCT cannot be achieved without men taking an active role in the fight (WHO, 2012).

Most studies on this topic indicated that the participation of men in antenatal clinics and PMTCT is low and is influenced by several factors including social, economic, cultural and health facility related factors (Nguni, 2013; Osman et al., 2014; Larrison, 2010 and Nkuoh et al., 2010). However, there is limited evidence about the predictors of male participation in EMTCT in Zambia, despite the acknowledgement that male participation is critical in increasing adherence to HIV guidelines and thus in reducing the risk of the vertical transmission of HIV. This study therefore seeks to investigate these factors in Lukulu District.

1.2 Statement of the Problem

Since the launch of PMTCT in Zambia, male participation in ANC and ultimately PMTCT has been low. Male participation in antenatal was reported to be 36.4% in 2012 and 38.9% in 2013 (National AIDS Council, 2015). A study conducted in Zambia (Lipenda and Malungo, 2015) revealed that only 70/200(35%) of men were tested for HIV together with their wives during antenatal care indicating that male involvement in EMTCT is.

Once a child is infected, effective antiretroviral treatment is required otherwise half of these children would die before their second birthday (MoHSS, 2010). Involving men in maternal health care services is associated with improved access to EMTCT and antiretroviral treatment for infants and their parents. Research has shown that without treatment, around half of all babies born with HIV will die before their second birthday.

Lukulu District promotes programs that support male involvement in reproductive health services such as antenatal care and EMTCT with the aim of decreasing HIV infection in children. Although the reports from Lukulu District Medical Office (LDMO) indicate that male involvement during antenatal care visits was at 32% in 2014, implying that male involvement in antenatal care and EMTCTC was low (MoH, 2014).

1.3 Justification

The importance of male involvement in reproductive health and EMTCT and its high cost-effectiveness in the face of HIV/AIDS epidemic has already been proven and its rapid adoption, especially in high HIV-prevalence settings like Zambia has already taken place.

However, the involvement of male partners in antenatal has continues to be low in Lukulu District despite interventions. Western province has the second highest (16.0 percent) HIV prevalence in Zambia despite this there has not been much exploration on this topic in Zambia (MoH, 2016).

Because of this it is imperative to assess the determinants of male involvement in EMTCT during antenatal care visits in Lukulu District since there are limited studies conducted on this topic in Zambia.

It is hoped that findings and recommendations from the study will not only contribute to the body of knowledge on this topic but also help to inform and shape development of policies programs and activities aimed at improving the participation of men in reproductive health and EMTCT and hence reduce the burden of vertical transmission of HIV in Zambia.

1.4 Research Question

What are the factors associated with male involvement in EMTCT during antenatal care visits in Lukulu District?

1.5 Research Objectives

1.5.1 General Objective

The general objective of the study was to investigate factors associated with male involvement in EMTCT during antenatal care visits in Lukulu District.

1.5.2 Specific Objectives

1. To determine the proportion of males involved in EMTCT during antenatal care visits
2. To examine social, cultural and economic factors associated with male involvement in EMTCT during antenatal care visits.
3. To determine health system factors associated with male involvement in EMTCT during antenatal care visits

CHAPTER TWO: LITERATURE REVIEW

2.1 Mother to Child Transmission of HIV

HIV can be transmitted from an HIV positive woman to her child at any time during pregnancy, labour delivery and breastfeeding. A woman's risk of transmitting HIV to her baby can be reduced to 1% and less if she is commenced on treatment early during her pregnancy (CDC, 2014). Therefore, it is imperative for all women and their sexual partners to test for HIV early before or during pregnancy.

2.2 An Overview of EMTCT Strategy

Mother-to-child transmission of HIV is the predominant mode through which children acquire HIV, contributing towards infant morbidity and mortality. It is the largest source of HIV infection in children below the age of 15 years globally, affecting approximately 380 000 infants per year. This accounts for more than 10% of all new HIV infections worldwide (UNAIDS, 2011). Other modes include unsafe injections, transfusion of infected blood or blood products, sexual abuse.

Preventing mothers from dying and children from becoming infected with HIV is one of the key pillars in the world's response to the HIV/AIDS epidemic. Children acquire HIV mainly through mother to child transmission during labour and delivery and during lactation period. HIV/AIDS contributes significantly to morbidity and mortality among infants.

Globally statistics indicates that MTCT is a predominant source of infection for individuals under 15 years of age affecting about 380 000 infants yearly, this indicates 10% of all new infections worldwide are due to mother to child transmission of HIV (UNAIDS,2011). In 2008 alone WHO estimated that about 430, 000 children were newly infected with HIV and more than 90% of the though vertical transmission from their mothers (UNAIDS 2009). When exposed infants test HIV positive enrolling them on antiretroviral treatment is critical without which it's estimated that 50% of them will die before their second birthday. HIV transmission rate from mothers to new babies is estimated to range from 15% to 30% if there no preventive measures put in place to avoid transmission. But when the duration of breastfeeding is long the transmission rate can be as high as 45% (MoHSS, 2014).

2.2.1 The 2013 Zambia Consolidated HIV Guidelines

Zambia adopted 2013 WHO HIV guidelines which are based on public health approach to expand the use of antiretroviral drugs for HIV treatment and prevention. The clinical recommendations in the guidelines include:

- Starting lifelong triple combination ART (Cart) in the following HIV infected individuals:
 - All confirmed HIV infected children and adolescents < 15 years of age regardless of CD4 count and/or WHO clinical stage (WCS)
 - Adolescents at least 15 years of age and adults with CD4 count equal or less than 500 cells/mm³ regardless of WCS
- Starting lifelong triple combination ART regardless of CD4 count and WCS in:
 - Pregnant and breastfeeding women
 - HIV-infected sexual partners of pregnant and breastfeeding women
 - HIV infected partners in serodiscordant couples
 - Patients with active tuberculosis (TB) disease
 - Patients with hepatitis B virus (HBV) co- infection with severe liver disease
- New preferred simplified first line cART regime harmonised for pregnant breastfeeding women, children above 5 years old, adolescents and adults.
- Accelerating the phasing out of stavudine and didanosine in first line cART regimes for all populations.
- Viral load testing as the preferred approach to monitoring cART and diagnosing treatment failure, in addition to immunological and clinical monitoring
- Community based HIV testing and counselling to diagnose **early infected people** with HIV and link them to care and treatment.
- Use of lifelong ART as prevention

- For all pregnant and breastfeeding women to prevent mother to child transmission
- Reduce transmission of HIV to uninfected sexual partners

Elimination for mother-to-child transmission of HIV covers several preventive and treatment measures for parents and infants. Services provided during antenatal include comprehensive couple counselling and testing, enrolment for treatment for those infected, comprehensive information essentials for child health services and care for HIV exposed children. The 2013 WHO HIV strategy which includes EMTCT was adopted in Zambia in 2013 (MOH, 2014).

2.2.2 The 2016 Zambia Consolidated HIV guidelines

In 2015 WHO introduced new guidelines about when to start ART. Zambia adopted the new guidelines which are reflected in 2016 Zambia consolidated HIV guidelines. The guidelines include recommendations to provide lifelong ART to all children, adolescents, and adults, including all pregnant and breastfeeding women living with HIV, regardless of CD4 cell count (test and treat policy). The aim is to place more children on treatment by expanding eligibility criteria: all HIV-infected individuals regardless of WHO clinical stage and CD4 count should be started on Combination antiretroviral therapy (cART). These developments **were** aimed at complementing and improving the service delivery of HIV services (MOH, 2016).

2.3 Why Male Involvement in EMTCT

Involvement of men in antenatal is critical and it is associated with a lot of benefits. Communication related to sexuality among couples is made easier when both are involved in PMTCT. Partner participation increases spousal communication about HIV and sexual risk (Desgrees-du-Lou et al., 2009).

The behaviour of men, their beliefs and attitudes affect the maternal health outcomes of women and their babies. The exclusion of men from maternal health care services could lead to few women seeking maternal health services and as a result worsening the negative maternal health outcomes for women and children. Increasingly, recognition is growing on a global scale that involvement of men in reproductive health policy and service delivery offers both men and women important benefits (Peltzer et al., 2011).

For discordant couples, male participation helps the couple to obtain important health information that will help them to prevent HIV and other STI transmission to the uninfected

partner. This is because the couple will be enlightened on several measures or methods that will help in preventing the transmission of the virus (Roth et al., 2001; Allen et al., 2003). Findings from a study by Getu (2011), further indicate that increase of men's participation in reproductive health and PMTCT activities is associated with increased utilization of PMTCT services hence success of the program. Women feel supported and secured when their male partners get involved too. This creates mutual understanding and agreement to engage in contraception to avoid unwanted pregnancies, deciding whether to take an HIV test, returning for test results, taking antiretroviral drugs, and practicing safer infant feeding methods.

Infant feeding practices improve and child mortality is likely to decline when there is support from men in PMTCT. A study in Tanzania concluded that infant feeding practices improves when men participate in PMTCT programs. The results from this study suggested that of those with participating partners who chose exclusive breastfeeding, 64% successfully did not mix-feed and stopped breastfeeding at 4–6 months compared to 28% among those whose partners did not participate. For those who chose formula feeding, where the partner attended, 80% adhered to the method compared with 29% where the partner did not attend (Msuya et al., 2008).

A study conducted in Kenya reported that male participation in ANC and PMTCT leads to positive infant health outcome. Results further showed that infant mortality was lower with male attendance and report of prior male HIV testing, when adjusting for maternal viral load and breastfeeding (Aluisio et al., 2011).

A study done in Rwanda showed that 56% of couples where at least one partner is infected with HIV are serodiscordant. This translates into approximately 133 000 HIV discordant couples in the country. Using assumptions from the peer reviewed literature about the effectiveness of couple HIV counselling and testing in reducing both horizontal and vertical transmission, the model estimates that national rollout of couples' HIV testing and counselling (CHTC) could prevent 31 691 infections at a cost of \$1136 per infection averted. CHTC had 91 infections averted and 2861 disability adjusted life-years (DALYs) saved – more infections averted and DALYs saved than was observed with the standard HTC option (88 infections averted and 2772 DALYs saved). The author concluded that CHTC is a cost-effective HIV-prevention method for discordant couples and for the prevention of HIV transmission to infants (Ndagije, 2011).

Male involvement in reproductive health activities and PMTCT is low. Studies indicate that in many sub-Saharan countries male participation levels in hospital settings were reported to vary between 12.5% and 18.7%. Several factors have been found to be barriers to male involvement. These factors include culture, health system, socioeconomic status, education, stigma, and lack of confidentiality (Kalembo et al., 2010). A survey conducted in 2007 by the Catholic Medical Mission Board (CMMB) as baseline to measure the utilization of PMTCT services in selected Mission Hospitals in the nine provinces of Zambia had similar findings. Results from this study indicated that 60% of pregnant women who attended antenatal clinics, accepted to test for HIV and 70% of those who tested HIV positive accepted to take ARVs for PMTCT, while infant ARV uptake was at 60%. It was also discovered that only three% were tested and counselled as ‘pregnant’ couples (Sinkala, 2011). The study concluded that infant ARV uptake is unacceptably low and also male involvement in antenatal care is very low.

2.4 Factors Influencing Male Involvement in EMTCT

Several factors influence involvement of men in ANC and EMTCT. These factors are health service related, social, cultural and economic factors.

2.4.1 Cultural Factors and Male Involvement in EMTCT

Every culture has values and norms which guide societies as they interact in communities or societies where they live. The social or cultural structures in which we live in have traditionally associated reproduction to be a women’s affair. Child health and reproductive health are the concerns of mothers. Community perceptions inhibit the participation of men in antenatal care. Men who attend antenatal care with their partners are perceived by society as jealousy husbands (Byamugishya et al., 2010). Culturally it’s a taboo for a man to be found where women go to give birth. Labour wards and antenatal clinics are considered as places for women and culturally it’s a taboo for men to participate in health issues of women.

Similar results were reported from a study conducted in Zambia by Nguni (2013) where both men and women said their culture considered attending antenatal care as a taboo for men since men must not be present where women are giving birth and that women do not like men to be where they are giving birth. Male participation in ANC has barriers such as cultural norms, dictating that antenatal care services are not males’ responsibility but systemically a women’s

domain. According to a study in sub-Saharan-Africa (Osman et al., 2012), cultural challenges were reported as a major reason for lack of male participation in PMTCT activities.

2.4.2 Economic Factors and Male Involvement in EMTCT

Findings from various studies have reported an association between economic status and men's participation in reproductive health activities. In Chibombo District of the central province of Zambia, employed men were four times more likely to get involved in the PMTCT programmes than their unemployed counterparts (Matongo et al., 2014). According to findings from a study conducted in Ethiopia (Amusalu et al., 2013), various occupation categories had an association with male involvement. Self-employed men and daily labourers are reportedly less likely to get involved in the PMTCT than government workers. Similar findings were reported by Abuhay et al (2014) in Ethiopia where the results suggested that employees at governmental organizations were twice more likely to get involved in the MTCT service than privately employed men. The self-employed men and drivers were 3.1 times more likely to get involved in the PMTCT service than privately employed men. In a study conducted by Byamugisha et al (2010), men consistently reported a series of challenges of daily life that inhibited them from participating in PMTCT programmes. Men talked about their perceived principal responsibilities as providers. Thus, time spent at clinics and away from work or other income-generating activities was clearly perceived as a barrier to their participation in PMTCT programmes. Distance, transport cost and clinic operating hours were also reported as barriers to male participation (Larsson et al., 2010).

2.4.3 Social Factors and Male Involvement in EMTCT

Findings from a cross sectional study conducted at Regional Referral Hospital in Uganda showed that social factors inhibit men participation in PMTCT and ANC. Study participants indicated that men had limited time to attend antenatal clinics and working to provide food for their families. Other social factors included low level of education, type of occupation (busy occupations with long working hours being an impediment), and lack of access to information on antenatal (Byamugisha et al., 2010).

Other social factors include lack of knowledge about the benefits of PMTCT, fear and discrimination and stigma. Results from one study indicated that there was simply a lot of fear in some men to know their HIV status (ibid, 2010). Results further showed that 88.5% of sampled

men thought that other men did not participate in PMTCT because they feared knowing their HIV status (Katz et al., 2009). In another study, women said that engaging their partners in PMTCT would be particularly challenging if men were unaware of their status, refused to be tested, or were in denial about their HIV status (Reece et al., 2010). There also seems to be a gap in knowledge related to discordancy. Some men questioned the need for testing if their partners had already been tested, believing that they would have the same test results as their partners (Falnes et al., 2011). Some studies showed that men were well aware of media efforts to promote their involvement in testing, but they said that these media campaigns did a less effective job of explaining why men should be tested and what benefits they would derive from testing (Larsson et al., 2010).

Findings from a study conducted in Malawi by Shiyagaya (2016) reviewed that men who had no secondary education and lived in rural or semi-urban areas were less likely to participate in PMTCT programmes. In South Africa and Uganda; distance, poor roads, undeveloped transport systems, and the cost of getting to the hospital prevented men from being involved in the PMTCT, since most of them have few resources to travel and live a distance from the clinic or a hospital (Nkuoh et al., 2010).

2.4.4 Health Service Related Factors and Male Involvement in EMTCT

The health service in Zambia is characterized by inadequate qualified and trained work force. This critical shortage of health workers has been a major hindrance to attainment of the national health priorities including reproductive health. The current establishment is inadequate to meet health workforce needs. The most affected are the rural areas, which do not have adequate capacities to attract and retain qualified health workers. The human resource situation is perpetuated by factors such as low retention and motivation of existing health workers which leads to low productivity (MoH, 2012).

A study done in Zambia (Matongo et al., 2014), indicated that the design of health facilities in Zambia is not user friendly for males.

Nature of services provided during ANC messages are highly focused on women and structures where services are offered were previously designed to accommodate women only hence the design is more appropriate to cater for women than men and this affects their participation in

PMTCT Programmes. Similarly, a study by Misiri et al (2004) reported that lack of adequate space in the antenatal clinics coupled with shortage of health workers and an increase in women attending antenatal care de-motivate men from attending ANC with their spouses since they must wait for a long time before they are attended to. In fact, men experienced health-care workers who were reluctant to encourage male attendance in antenatal care at all.

Other health facility factors include hostility of some health workers. Sometimes men get discouraged to attend antenatal clinics due to harsh aggressive nature of physical examinations of their wives and state that in many instances, they are not allowed to enter the ANC clinics with their wives even if they wanted to (Ditekemena, et al., 2012).

The design of antenatal services does not respond to the needs of men. Results from a study conducted by Larsson et al (2010) shows that most men reported that they felt unwelcomed and disrespected when attending antenatal clinics. Results from this study further suggested the lack of integration of services was mentioned as discouraging men from getting tested, since they felt they would be “exposed” through special clinics or opening hours.

2.5 Conceptual Framework

In order to clearly operationalize the objectives of this study, the Andersen and Newman framework of health services utilization model was adopted. The framework seeks to account for and predict the use of health services by individuals (Andersen, 1995) as shown in figure 1.1 This model, which was first developed in 1968 was aimed at demonstrating the factors that lead to the utilization of health services and in the content of this study “factors that lead to the utilization of EMTCT” services. And this represents the fourth phase of the model. It is determined by the interaction of the following three categories:

1. ***Predisposing Factors:*** social-cultural characteristics of individuals that exist prior to their illness.

These factors are related to demographic elements, health beliefs and social structure. They include age, gender, residence, marital status, occupation, education, ethnicity, and attitudes toward health services. According to this model an individual is more likely to utilize health services based on demographic positions within social structure and beliefs of the health service benefit. An individual who believes that health services are useful for treatment is likely to utilize health services. In the context of this study “a man who believes that ANC/EMTCT is useful is likely to utilize EMTCT services”.

2. ***Enabling Factors:*** Logistical aspects of obtaining care

This category includes community enabling characteristics and personal/ family enabling resources. Personal and family enabling resources; this refers to means and know how to access services, income, health insurance, regular source of care, travel, extent and quality of social relationship.

Community enabling characteristics; this refers to available health personnel and facilities and waiting time. According to this model possible additions to enabling factors include psychological characteristics.

3. ***Need based factors:***

The most immediate cause of health service use from functional and health problems that generate the need for health care services. Need based factors refer to characteristics associated

with types of illness, perceived health status, and expected outcome of treatment. In the context of the present study, "need" refers to an informant's perceived need of EMTCT.

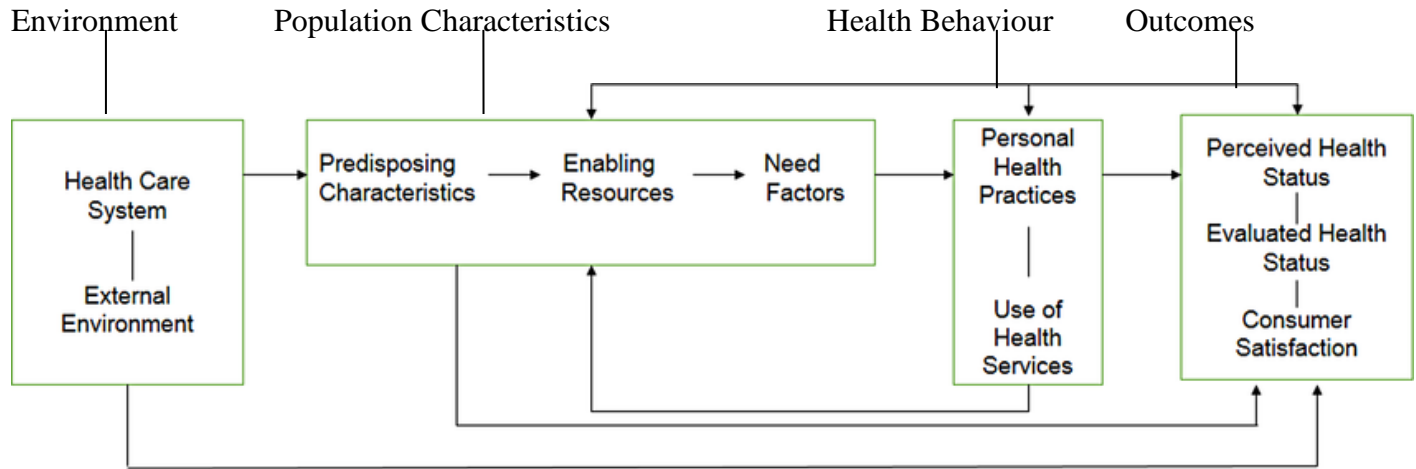


Figure 1.1: Andersen-Newman Framework for Health Services Utilization (Source: Andersen RM'1995)

CHAPTER THREE: METHODOLOGY

3.1 Study Design

This study was conducted in October- November (2017) and it adopted a cross sectional study design to determine factors associated with male involvement in EMTCT during antenatal care visits in Lukulu District. The study used a quantitative approach and a cross sectional design in particular. A cross sectional study was used to provide a snapshot of the proportion of males involved in EMTCT during antenatal care visits and its associated factors in Lukulu District at a given point in time hence a cross sectional study was an appropriate design to adopt.

3.2 Study Site and population

3.2.1 Study Site

The study was conducted in Lukulu District. According to CSO, 2010 report, the total population for Lukulu district was projected to be 68,365 in 2017. The district has 22 functional health facilities and one hospital. The study was conducted in Lukulu because participation of men in EMTCT during antenatal care is low. The study was conducted in the catchment areas for the following health facilities; Lubosi urban clinic, Lubosi HP, Kawayya HP and Simakumba RHC. Each catchment area represents strata.

3.2.2 Study Population

The population of interest in this study included all men with children less than one-year old residing in Lukulu District.

3.2.2.1 Inclusion Criteria

To be a part of this study a man must have been aged at least 18 years with a child less than one-year old and a resident of Lukulu district. The age group (less than one-year child) was selected to prevent recall bias by respondents.

3.2.2.2 Exclusion Criteria

Men with children less than one-year-old and those who had lived in Lukulu for less than a year were excluded.

3.3 Sampling Methods and Sample Size

3.3.1 Sample Size Estimation

Using the formula for prevalence studies, the sample size was calculated based on the proportion of 30%, reported by (NAC, 2010). According to the National AIDS strategic Framework (2010), the national male involvement prevalence is between 30 and 40% for Zambia. It does not state how this was arrived at but it states that this differs between provinces. The calculation was there done as follows;

$$n = [Z^2p(1p)]/d^2$$

n = is the sample size

Z = standard normal at confidence interval (1.96) 5% significance level

p= Proportion or prevalence to be detected

d = Margin of error

Therefore:

$$Z = 1.96$$

$$P = 0.3$$

$$n = 1.96^2 * 0.3(1-0.3)/0.05^2$$

$$= 323$$

When we factor in the design effect of 1.2, the required sample size is 388.

Because of stratification the results were assumed to be more reliable therefore, the design effect was 1.2 which is close to a simple random design.

3.3.2 Sampling Method

The study adopted multi-stage sample design after stratifying health facilities in Lukulu district into two strata, namely urban and rural. Lukulu district has a total of 22 health facilities there were . Four health facilities and 18 urban and rural respectively. At the first stage two facilities from each strata were randomly selected. From the rural strata Simakumba Rural Health Centre and Kawaya Health Post were selected while from the urban starata Lubosi Urban Clinic and Lubosi Health Post were selected. Households in the catchment areas in which there where children aged less than one year of age were listed by community based volunteers to create sampling frames. Table 1 below gives number of households and fixed sample sizes of 97 for each of the health facility in both the rural and urban strata frame.

Table 1: Number of households and sample sizes in the urban and rural strata

Urban Strata			Rural Strata		
	Households with Children < One year old	Sample size		Households with Children < One year old	Sample Size
Lubosi Urban Clinic	287	97	Kawaya Health Post	357	97
Lubosi Health Post	189	97	Simakumba Rural Health Centre	392	97
Total	476	194		749	194

3.4 Data Collection Plan and Tools

In this study, data was collected from participants using structured interviewer administered questionnaires. This was done by conducting interviews at households.

3.4.1 Pilot Study

A pilot study was conducted to validate research instruments (questionnaire). Research tools were piloted before the main data collection. This was conducted at Mulongo Health Post Health Post catchment areas in Lukulu District. Two research assistants were trained in data collection and they conducted the pilot study together with the main researcher. Fourteen questionnaires were piloted to check for clarity, appropriateness and to have clear understanding of the questions. During the pilot it was observed that question 2 in the questionnaire was not clearly phrased “what is the type of relationship with your current partner?” And it was changed to “What is your marital status?”

3.5 Data Management and Storage

After data collection, questionnaires were physically checked for completeness and consistency. The questionnaires were then coded manually and double entered into epi data software which has inbuilt quality checks. Data entry was conducted by the principle investigator. The data set was then checked for completeness. Finally, the data set was then exported to Stata for analysis.

3.6 Data Analysis Plan

We used q-q plots to graphically investigate normality of continuous variables such as age. Continuous variables were summarised by mean and standard deviation. Categorical variables were summarised by percentages and frequencies. Chi square test and Fisher's exact methods were used to investigate independency between categorical independent variables and the outcome variable. Survey command in STATA version 15 was used to account for clustering effect. The main statistical analysis consisted of univariable and multivariable logistic regression to identify factors influencing male involvement in EMTCT during antenatal. An investigator led stepwise method was used in multiple logistic regression to select factors associated with male involvement in EMTCT (Hurvich and Tsai, 1990; Derksen and Keselman, 1992). The selection of variables that fit in the multiple regression was done by running the multiple logistic regression command with all the predictor variables in the first stage and then removing variables with highest p-values one by one from the model until only predictor variables with p-values less than or equal to 0.05 remained in the model. The best fit model was selected based on the Akaike's information criterion and Bayesian information criterion (AIC and BIC) for the competing models. The final model settled had the smallest value for AIC and BIC compared to other models.

Crude (COR) and adjusted odds ratios (AOR) and their 95% confidence intervals (CI) were presented. Data analyses were performed using Stata version 15 (Stata Corp, College Station, Texas, USA).

3.7 Ethical Considerations

Ethical clearance for this study was sought for and granted (REF-023-06-17) by the University of Zambia Biomedical Research Ethics Committee (UNZABREC) and approval was given by Zambia National Health Research authority.

Prior to interviews, the purpose of the study and its risks and benefits were explained to participants. Participants were informed that they were free to withdraw from the study at any point and their participation is voluntarily. Participants were also informed that there were no known physical or emotional risks of participating in this study and that there were no direct benefits to participants however; they contributed towards the body of knowledge regarding

influencing male involvement in EMTCT during antenatal services. Respondents gave consent for participating in the study by signing consent forms.

3.8 Limitations

This study has some potential weaknesses which should be noted. Firstly, male attendance and HIV testing during ANC was used to measure male involvement which may not measure male involvement accurately. Hence the study could have suffered from information bias. However, other studies used the same parameter (Fisaha and Yamane, 2014) and to our knowledge, there exists no established instrument to assess male involvement. Secondly, data analysed was self-reported by respondents and this is subject to social desirability and recall bias. However, only men with children less than one-year-old were included in our study. Thirdly, the study was conducted in a rural district hence it may not be generalizable to other settings.

Despite this limitation, one of the major strength of this study is imbedded in the methodology employed. It was a survey and men were recruited from the community unlike many studies related to this where participants were recruited at health facilities. Therefore selection bias is unlikely to have occurred. The study also provides useful information on factors influencing male involvement in EMTCT which may inform health policy on EMTCT programs.

Table2: List of Variables

	Variable	Variable type	Indicator	Scale of measurement
Dependent Variable	Male involvement in EMTCT during antenatal	Categorical	Couple tested together for HIV during Antenatal care visit? 1. No 2. Yes	Nominal
Independent variables	Age	Continuous	Number of years	Ratio
	Education	Categorical	Level of education (1)No education (2) Primary (3) Secondary (4) Tertiary	Ordinal
	Residence	Categorical	Type of residence 0.Urban 1.Rural	Nominal
	Employment status	Categorical	Employment status 0.Unemployed 1.Employed	Ordinal
	Marital status	Categorical	Marital status 0.Single 1.Married	Nominal
	HIV testing	Categorical	Should a man and his pregnant wife/partner undergo HIV testing together 0.No 1.Yes	Nominal
	EMTCT services	Categorical	Who should utilize EMTCT services? (1) Women and children only (2)Men, women and children	Nominal
	Beliefs	Categorical	A man who accompany his pregnant wife /partner to /EMTCT clinic is bewitched 0.No 1.Yes	Nominal
	Attitude	Categorical	A man who accompany his pregnant wife /partner to /EMTCT clinic is weak	Nominal

			0.No 1.Yes	
	Distance	Categorical	Distance to the nearest Health Facility 0.Within 5 KM (Short distance) 1.Above 5KM (Long distance)	Ordinal
	Service	Categorical	How often Antenatal/EMTCT services are offered (1) Once in a week (2) Twice in a week (3) More than twice a week	Ratio
	Attitude	Categorical	A woman who test positive to an HIV test should be divorced 0.yes 1 No	Nominal

CHAPTER FOUR: FINDINGS

4.1 Characteristics of Study Participants

A total of 388 male participants were recruited in the survey and their distribution in terms of residence was 50% urban and 50% rural. Table 3 provides a summary of some of their demographic, socio-cultural and health related characteristics. Mean age of study participants was 34 years with a standard deviation of 7 years.

About 60% indicated that they were married while 40% reported that they were not married to their sexual partner. In terms of education, majority of the respondents had attained either primary (40.2%) or secondary (38.7%). A further breakdown showed that about 19% attained tertiary education while 2.1% have never been to school indicating low levels of education attainment.

Results further show that most of the respondents (70.1 %) were not in employment and only about one third of participants were in employment. In terms of distance More than half (67%) of participants live within 5 kilometres from the nearest health facility. All participants stated that first antenatal registration is offered once per week at health facilities

Table 3: Background characteristics of study participants

Characteristics	Respondents n=388 (%)
Age (Years)	34(7) ^a
Married to partner	
No	167(43.0)
Yes	221(57.0)
Level of education	
No education	8(2.1)
Primary	156(40.2)
Secondary	150(38.7)
Tertiary	74(19.1)
Employment status	
Unemployed	272(70.1)
Employed	116(29.9)
Residence	
Rural	194(50.0)
Urban	194(50.0)
Attend ANC/EMTCT with partner	18(4.6)
No	370(95.3)
Yes	

Nearly all respondents (95.4%) indicated that men should attend ANC/EMTCT with their sexual partners and only a small proportion (4.6%) indicated otherwise. Approximately less than one percent indicated that men who attend ANC with their partners are bewitched while nearly all participants 95.6% stated that men who attend ANC with their partners are not weak. Most of the participants (93.6%) indicated that EMTCT services are for men, women and children and that couples should be counselled and tested together for HIV during pregnancy. Results further indicate that about one in ten men (11.9%) stated that a woman who tests positive for HIV should be divorced while 88.1% stated that women who test positive for HIV should not be divorced. Further results indicate that about half of the participants (54.6%) were counselled and tested together with their partner. A further breakdown of the results shows that all the men who attended ANC were tested for HIV together with their partners.

Table 4: Social- Cultural Characteristics and Health System factors

Bewitched if attend ANC/EMTCT	
No	387(99.7)
Yes	1(0.3)
Weak if attend ANC/EMTCT	
No	371(95.6)
Yes	17(4.4)
EMTCT services are for	
Women and children	25(6.4)
Men women and children	363 (93.6)
Couple counseling during pregnancy	
No	26(6.7)
Yes	362(93.3)
Divorce HIV positive women	
Yes	46(11.9)
No	342(88.1)
Couple tested for HIV during ANC	
No	176(45.4)
Yes	212(54.6)
Facility 1st ANC schedule	
weekly	388(100)
More than once per week	-
Distance to the facility	
Short (<5km)	260(67)
Long (>5km)	128(33)
^a mean (standard deviation)	

4.2 Level of Male Involvement in EMTCT during Antenatal Care Visits

The level of male involvement in EMTCT during antenatal is low in Lukulu District. Slightly more than half of the respondents (54.6%) indicated that they were involved in EMTCT during antenatal care visits. The level of involvement was higher (57.1 %) among men who reside in rural catchment areas of Lukulu compared to that reported in the urban residence (42.9%).

4.3 Social- Economic and Cultural Factors Associated with Male Involvement in EMTCT During Antenatal Care Visits.

According to Table 5, age was associated with male involvement in EMTCT during antenatal care visits. Men who were involved in EMTCT during antenatal care visits were significantly older (mean 36 vs 32 years; $p = < 0.0001$) than those who were not involved.

Results further show that slightly more than two thirds of married men (68.8%) were involved in EMTCT during antenatal care visits. In terms of residence, a statistically significant relationship at 0.05 significant level ($p = 0.002$) was reported between residence and male involvement in EMTCT during antenatal care visits. Majority of men (64.3%) who reside in rural Lukulu were involved in EMTCT during antenatal care visits compared to their urban counterparts.

In addition, a statistically significant difference ($p = < 0.0001$) between men who reported that EMTCT services are for women and children only and those who indicated that there are for men, women and children was also observed. Furthermore, participants who reported that men who attend antenatal/EMTCT with their partners are not weak had a higher proportion (57.1%) of male involvement in EMTCT during antenatal compared to those who indicated that men who attend antenatal/EMTCT with their partners are weak whose proportion of involvement was zero ($p = < 0.0001$). Results further show that association for variables such as level of education, employment status, divorce HIV positive women and bewitched if attend ANC showed an association which was not statistically significant.

Table 5: Participant characteristics and male involvement in EMTCT during antenatal Care Visits

Characteristics	Involved in ANC/EMTCT n(%)	Not involved in ANC/EMTCT n(%)	P-value
Age (Years)	36(8)	32(6)	<0.0001 ^c
Marital status			
Single	60(35.9)	107(64.1)	<0.0001 ^a
Married	152(68.8)	69(31.2)	
Level of education			
No education	6(75)	2(25)	
Primary	88(56.4)	68(43.6)	0.621 ^b
Secondary	79(52.7)	71(47.3)	
Tertiary	39(52.7)	35(47.3)	
Employment status			
Unemployed	142(52.2)	130(47.8)	0.140 ^a
Employed	70(60.3)	46(39.7)	
Residence			
Rural	121(62.4)	73(37.6)	0.002 ^a
Urban	91(46.9)	103(53.1)	
Weak if attend ANC/EMTCT			
No	212(57.1)	159(42.9)	<0.0001 ^b
Yes	0(0.0)	17 (100)	
Bewitched if attend ANC/EMTCT			
No	212(54.8)	175(45.2)	0.454 ^b
Yes	0(0.0)	1(100)	
Couple counseling during pregnancy			
No	0 (0.0)	26(100)	<0.0001 ^b
Yes	212(58.6)	150 (41.4)	
Divorce HIV positive women			
Yes	21(45.7)	25(54.3)	0.192 ^a
No	191(55.9)	151(44.1)	
EMTCT Services are for			
Women and children	5(20.0)	20(80.0)	<0.0001 ^a
Men, women and children	207(57.0)	156(45.0)	
Distance to the nearest health facility			
Short (<5km)	134(51.5)	126(48.5)	0.08 ^a
Long (>5km)	78(60.9)	50(39.1)	

Values are Values are mean (standard deviation), number (percentage), ^aChi²-test, ^bFishers exact, ^c test

4.4 Health System Factors Associated with Male Involvement in EMTCT During Antenatal Care Visits

Table 5 indicates that distance was not a factor as both men who reside within a short distance (51.5%) and long distance to the nearest facility (60.9%) were involved in EMTCT during antenatal care visits ($p= 0.08$). Furthermore, couple counselling and testing showed significant association with male involvement in EMTCT during antenatal care visits. Majority of men (58.6%) who indicated that couples should be tested and counselled together for HIV were involved in EMTCT during antenatal care visits whereas none involvement was reported by those who indicated no to couple counselling and testing during antenatal.

4.5 Logistic Regression Analysis

At univariate analysis, variables such as age, marital status and residence were statistically significant associated with male involvement in EMTCT during antenatal care visits. According to table seven, one year increase in age was associated with an increased chance (cOR: 1.09: 95% CI, 1.04-1.13) of male involvement in EMTCT during antenatal care visits. In addition, married men had about 4 times (cOR: 3.93: 95% CI, 1.87- 8.26) the odds of male involvement in EMTCT during antenatal care visits than single men. Results further show that urban residents had 0.5 times the odds of male involvement in EMTCT during antenatal care visits than rural residents(cOR: 0.53: 95% CI, 0.33 -0.85).

Variables such as education level (either primary, secondary or tertiary compared to no education), employment status, EMTCT services, divorce HIV positive women and distance to the nearest health facility were not statistically significant according to Table 6.

Table 6: Factors associated with male involvement in EMTCT during antenatal (Crude and Adjusted Odds Ratio)

Factor	Crude Odds ratio (95% Confidence interval)	P-value	Adjusted Odds ratio (95% Confidence interval)	P-value
Age (years)	1.09(1.04-1.13)	0.008	1.05(1.01-1.09)	0.031
Marital status				
Single	1		1	
Married	3.93(1.87-8.26)	0.01	2.98(1.31-6.79)	0.024
Education level				
No education	1		1	
Primary	0.43(0.02-8.08)	0.428	0.55(0.05-6.81)	0.508
Secondary	0.37(0.02-6.54)	0.352	0.69(0.06-8.05)	0.664
Tertiary	0.37(0.02-6.99)	0.362	0.40(0.04-4.46)	0.313
Employment status				
Unemployed	1		1	
Employed	1.39(0.9-2.11)	0.141	2.77 (1.69-4.54)	0.007
Residence				
Rural	1		1	
Urban	0.53(0.33-0.85)	0.024	0.39(0.06-2.70)	0.220
EMTCT services are for				
Women and children	1		1	
Men women and children	5.31(0.50-56.97)	0.111	4.39(0.48-40.45)	0.124
Divorce HIV positive women				
Yes	1		1	
No	1.51(0.91-2.50)	0.83	1.37(0.77-2.46)	0.152
Distance to the nearest facility				
Short(<5km)	1		1	
Long(>5km)	1.47(0.95-2.26)	0.192	0.91(0.13-6.35)	0.888

Table 7 shows factors associated with male involvement in EMTCT during antenatal care visits from the model that fits the data well. Investigator led stepwise application was employed to generate factors influencing male involvement in EMTCT during antenatal care visits. This implies running the multiple logistic regression command with all the predictor variables in the first stage and then removing variables with highest p-values one by one from the model until only predictor variables with p-values less than or equal to 0.05 remains in the model.

Results revealed that one-year increase in age was associated with an increased (aOR: 1.04: 95% CI, 1.01-1.08) chance of male involvement in EMTCT during antenatal care visits. The effect of marriage was that married men had 3 times the odds of male involvement in EMTCT during antenatal care visits compared to single men (aOR: 3.10: 95% CI, 1.65 -7.10). Employed men had 2 times the odds of male involvement in EMTCT during antenatal care visits (aOR: 2.4: 95% CI, 1.34 - 3.98) than unemployed men. In terms of residence men who reside in urban areas were less likely to be involved in EMTCT during antenatal care visits (aOR: 0.41:95% CI, 0.19-0.87) compared to those who reside in rural areas.

Table 7: Factors associated with male involvement in EMTCT during antenatal from the best fit model

Predictor	Adjusted Odds ratio (95% Confidence interval)	P-value
Age (years)	1.04(1.01-1.08)	0.024
Married to partner		
No	1	
Yes	3.10(1.35- 7.10)	0.023
Employment status		
Unemployed	1	
Employed	2.40 (1.34-3.98)	0.001
Residence		
Rural	1	
Urban	0.41(0.19-0.87)	0.033

CHAPTER FIVE: DISCUSSION

This study aimed at investigating factors associated with male involvement in EMTCT during antenatal in Lukulu District. Findings revealed that the proportion of men involved in EMTCT during antenatal in Lukulu District is low (54.6%). These findings are similar to what was found in rural South Africa (Motlagabo et al., 2017) where the proportion of men who attended and got tested for HIV during antenatal was reported to be 317 (68.5%). A study conducted in Zambia (Matongo et al., 2014) found similar results.

This study found that 212 (54.6%) males who attended ANC with their partners were counselled and tested together for HIV with their sexual partners. These results are similar to findings in a study in Cameroon (Nkuoh et al., 2010) and Ethiopia (Haile and Brhan, 2014) where 58.7% and 78.1% male partners, respectively, were tested for HIV during ANC.

Andersen-Newman Framework for Health Services Utilization (Andersen, 1995) indicates that utilization of health services is influenced by various factors such as population and environmental characteristics. Our findings have showed that various population factors were associated with male involvement in EMTCT during antenatal. The study demonstrated a significant association between age and male involvement in EMTCT during antenatal. This finding is supported by other studies (Tilahun and Mohamed, 2015; Ditekemena et al., 2013). A systematic review conducted in sub-Saharan Africa (Musheke et al., 2013) also revealed similar findings.

Married men were more likely to be involved in EMTCT during antenatal care visits than single men. Our findings are consistent with other studies conducted in Africa (Munda et al., 2017; Motlagabo et al., 2017). Married men are more likely to be involved in EMTCT maybe because they live together and spend more time with their partners hence they have more time to communicate about health related issues and harmonize their schedules (Amano and Musa, 2014).

As observed in other studies (Matongo et al., 2014), employed men were about two times more likely to be involved in EMTCT during antenatal than unemployed men. Similar results were reported by others (Byamugisha et al., 2010; Musheke et al., 2013; Makoni et al., 2015).

Unemployed men are less likely to be involved in EMTCT. A possible explanation may be due to their financial status hence they may not afford transportation and other related costs (Lyatuu et al., 2008; Byamugisha et al., 2010).

A study conducted in southern Ethiopia (Tilahun and Mohamed, 2015) showed that men who lived in urban areas were more likely to participate in PMTCT programs, our study found that men who reside in urban areas of Lukulu were less likely to be involved in EMTCT during antenatal care than those who reside in rural areas. Findings from our study are also inconsistent with what was reported by Byamugisha et al., 2010. A study in Namibia (Shiyagaya et al., 2016) found no association between residence and male involvement in PMTCT. Our findings suggests that most men who reside in urban Lukulu are not benefiting from EMTCT services, thereby raising questions of inequity in accessing health care in EMTCT and ANC. However, it is not clear why men who reside in urban areas were less likely to be involved in EMTCT during antenatal hence further investigation into the dynamics of the association between residence and male involvement in EMTCT is necessary.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study has established that male partner involvement in EMTCT during antenatal is low in Lukulu District. Low male involvement affects successful implementation of the EMTCT program, low uptake of interventions by HIV positive pregnant women and increase in maternal to child transmission of HIV. Age, marital status, employment status and residence influences male involvement in EMTCT during antenatal care visits. The role of male partners is crucial in scaling up EMTCT program to stop new HIV infections among children, improving full EMTCT service utilization and would eventually lead to reduction in paediatric HIV morbidity and mortality.

6.2 Recommendations

The study has provided information on male involvement in EMTCT during antenatal care visits in Lukulu District. Therefore, the following recommendations if implemented may improve uptake of male involvement in EMTCT.

Study findings show that employment significantly influences the involvement of men in EMTCT during antenatal. In line with government policy on health service delivery, there is need to strengthen community involvement to promote male involvement in EMTCT by ensuring that health facility staff intensify outreach services through community health workers and community health assistant by offering monthly outreach antenatal care and EMTCT services. Efforts to bring EMTCT services closer to people may improve male involvement in EMTCT and antenatal as it lowers the costs associated with accessing these services at distant health facilities (Dugas et al., 2015).

Further, intensified health education campaigns by Lukulu District Health Office about the importance of male involvement in EMTCT and reproductive health programs could be done through mass media (radio and television) in local languages. Such a strategy has been shown to be critical in other studies (Lacroix et al., 2014).

Gate keepers have a lot of influence in communities and often play a vital role in promoting health care delivery. (Burket, 2006). We therefore recommend engagement of local leadership structures such as chiefs, village headmen and the target group (men) through sensitization meetings on the importance of male involvement in reproductive health and EMTCT programs. This may help in disseminating information concerning the importance of male involvement in EMTCT during antenatal and may eventually have a positive impact on men's utilization of EMTCT services during antenatal.

We further recommend broadening ANC/EMTCT services by Ministry of health to every weekday as a strategy that can improve male involvement in reproductive health and EMTCT. Currently 1st antenatal registration and subsequent visits are only offered once per week. Hence there is need to improve accessibility of antenatal/ EMTCT services by offering the service every week day. This gives an opportunity to men with busy schedules to access ANC/ EMTCT services.

REFERENCES

- Abuhay, Y., Abebe, L., & Fentahun, N. (2014). *Male involvement in prevention of mother to child transmission of HIV and associated factors among males in Addis Ababa, Ethiopia*. American Journal of Health Research, 17(12):1-13.
- Amano, A. & Musa, A. (2014). *Male involvement in PMTCT and associated factors among men whom their wives had ANC visit 12 months prior to the study in Gondar town, North west Ethiopia*, Pan African Medical Journal, vol. 24, no. 239, pp. 1–8, 2016.
- Amsalu, A., Tiruneh, G., & Abajobi, A. A. (2013). *Level of male partner involvement and associated factors in prevention of mother to child transmission of HIV/AIDS services in Debremarkos town, Northwest Ethiopia*. African Journal of AIDS and HIV Research, 1(2):016-025.
- Andersen, R.M. (1995). *Revisiting the behavioral model and access to medical care: does it matter?* J Health Soc Behav 1995;36(March):1-10.5
- Burket, M.K. (2006). *Improving reproductive health through community- based services: 25 years of Pathfinder International Experience*. Pathfinder International.
- Byamugisha, R., Tumwine, J.K., Semiyaga, N., Tylleskär, T. 2010. *Determinants of male involvement in the prevention of mother-to-child transmission of HIV programme in Eastern Uganda: a cross-sectional survey*. BioMed Central journal; Reproductive Health, 7(12):1-9.
- Central Statistical Office (2010). *Zambia Demographic Health Survey 2007 report*. Lusaka: Central Statistical Office. Zambia.
- Central Statistical Office. *Census of Population and Housing. Population and Demographic Projections 2011 – 2035*. Lusaka: Central Statistical Office. Zambia.

Derksen,S., & Keselman, P.K. (1992). *Backward, forward and stepwise automated subset selection algorithms: frequency of obtaining authentic and noise variables*. Br J Math Stat Psychol 45:265–28.

Desgrées-Du-Loû, A., Brou, H., Djohan, G., Becquet ,R., et al. (2009). *Beneficial effects of offering prenatal HIV counselling and testing on developing a HIV preventive attitude among couples. Abidjan, 2002–2005*. AIDS Behav, 13(2):348–355.

Ditekemena, J., Koole, O., Engmann, C., Matendo, R., Tshefu, A. et al. (2012). *Determinants of male involvement in maternal and child health services in sub-Saharan Africa*. Reproductive Health. reproductive-health-journal.biomedcentral, 31(9):1-8.

Drasiku, A. (2010). Acceptability and satisfaction of male partners with antenatal clinic-based HIV testing for PMTCT at Old-Mulago .Master’s thesis. Makerere University, Kampala, Uganda.

Dugas.M., Bedard.E., Alary. M et al.,(2015). *Outreach Strategies for the Promotion of HIV testing and Care; Closing the gap between health services and female sex workers in Benin*. JAIDS Journal of Acquired Immuno Deficiency Syndrome.68()S205.

Engender health.(2011). *Male as partners, Johannesburg*. [Online]. Available: <http://www.engenderhealth.org/our-work/gender/men-as-partners.php>. [Accessed 15 December 2017].

Falnes, E.F., Moland, K.M., Tylleskär, T., De Paoli, M.M., Msuya, S.E. & Engebretsen, I.M.(2011). *“It is her responsibility”: partner involvement in prevention of mother to child transmission of HIV programmes, northern Tanzania*. J Int AIDS Soc,14(1):21.

Getu, D. K. (2011).Factors related to male participation in prevention of mother to child transmission of Human Immunodeficiency virus in three public hospitals in Addis Ababa, Ethiopia, MPH Thesis, University of South Africa, South Africa.

Haile, F. & Brhan, Y. (2014). *Male partner involvements in PMTCT: a cross sectional study, Mekelle, Northern Ethiopia*. BMC Pregnancy and Childbirth, 14(65): 1-6.

Hurvich, C.M. & Tsai, C.L. (1990). *The impact of model selection on inference in linear regression*. Am Stat 44:214–217.

Kalembo, W., Yukai, D., Zgambo, W. & Jun, O. (2010). *Male partner involvement in prevention of mother to child transmission of HIV in sub-Saharan Africa: Successes, challenges and way forward*. Open Journal of Preventive Medicine, 2(1), 35-42.

Katz D.A., Kiarie J.N., John-Stewart G.C., et al. (2009). *Male perspectives on incorporating men into antenatal HIV counseling and testing*. PLoS One 4(11): 1-7.

Lacroix, J.M., Snyder L.B. Johnson B.T. (2014). *Effectiveness of mass media interventions for HIV Prevention, 1986-2013: A Meta-Analysis*, J Acquir Immune Defic Syndr, 66 Suppl, s329-40.
Larsson EC et al (2010). *Mistrust in marriage-Reasons why men do not accept couple HIV testing during antenatal care- a qualitative study in eastern Uganda*. BMC Public Health, 10:769.

Lipenda, N and Malungo, J.R.S. (2015). *Factors Influencing Male Involvement in Prevention of Mother-To-Child Transmission of HIV: A Case study of Lusaka District*. Master's Thesis . University of Zambia. Lusaka Zambia

Lyatuu, M.B., Msamanga, G. & Kalinga, A.K. (2008). *Client's satisfaction with services for prevention of mother to child transmission of HIV in Dodoma rural district*. East Afr J Public Health, 5:174–179.

Makoni, A., Chemhuru, M., Chimbete, C., Gombe, N., Mungati, M., Bangure, D. & Tshimanga, M. (2016). *Factors associated with male involvement in the prevention of mother to child transmission of HIV, Midlands Province, Zimbabwe, 2015 - a case control study*. BMC Public Health, 16:331.

Matongo, L., Hang'andua, A., Nzala, H. B., & Malebe, T. (2014). *Exploring determinants of male involvement in PMTCT programs in Chibombo district of central province of Zambia*. Asian Journal of Multidisciplinary Studies, 2, (12), 2321-8819.

Misiri, H.E., Tadesse, E. & Muula, A.S. (2004). *Are public antenatal clinics in Blantyre, Malawi, ready to offer services for the prevention of vertical transmission of HIV?* African Journal of Reproductive Health, 08(80):64– 70.

Motlagabo, G. M., Robert, A. C. Violeta, J. et al., (2017). *Factors Associated with Male Partner Involvement in Programs for the Prevention of Mother-to-Child Transmission of HIV in Rural South Africa.* International Journal of Environmental Research and Public Health, 14(11):1333.

Munda, E., Elia, J.M., Ahmed, A. M. & Rogath, S. K. (2017). *Male partner involvement in the prevention of mother to child transmission of HIV infection in Mwanza Region, Tanzania.* Pan Africa Medical Journal, 26(1)27:90-5.

Musheke, M., Ntalasha, H., Gari, S., Mckenzie, O Bond, V., Hilber, A & Merten, S. (2013) . *A systematic review of qualitative findings on factors enabling and deterring uptake of HIV testing in Sub-Saharan Africa.* BMC public health journal. 13(1):122-9.

Ministry of Health & Social Services (2014). Report on the 2010 HIV Sentinel Survey. Windhoek, Namibia: Graphic Printers.

Ndagije, F: (2011). *Cost-effectiveness of male involvement in PMTCT/ANC. Presentation delivered at the subregional consultation to discuss strengthening male involvement in the elimination of mother-to-child transmission of HIV, Kigali, Rwanda.*

Nguni, C. N. (2013). Exploration and Description of barriers to male participation in antenatal and prevention of mother- to-child transmission of HIV (PMTCT) services in Mumbwa district, in Zambia. MPH Thesis, University of Western Cape, South Africa.

Nkuoh, G. N., Meyer, D. J., Tih, P. M. & Nkfusai, J. (2010). *Barriers to men's participation in antenatal and prevention of mother-to-child HIV transmission care in Cameroon.* Africa. Midwifery, Women's Health, 55(4), 363-9.

Osman, R. J., Unkels,R., Aliyu, U., Musa, H.A., Adpa, A.S., & Mathew,O.K., (2012). *Barriers to male involvement in uptake of Prevention-of-Mother-to Child-Transmission (PMTCT) of HIV in Sub-Saharan Africa*. IOSR Journal of Nursing and Health Science, 3 (5), 01-07.

Peltzer, K., Jones, D., Weiss, S.M., and Shikwane, E. (2011). *Promoting male involvement to improve PMTCT uptake and reduce antenatal HIV infection: a cluster randomized controlled trial protocol*. BMC Public Health.11(778):1-10.

Reece, M., Hollub , A., Nangami, M. & Lane, K. (2010). *Assessing male spousal engagement with prevention of mother-to-child transmission (PMTCT) programs in western Kenya*. Pubmed journal, 22(6):743-50.

Roth, D.K., Allen, S. et al (2001). *Sexual practices of HIV discordant and concordant couples in Rwanda: Effects of a testing and counselling programme for men*. International Journal of STD and AIDS, 12(3):181-8.

Sarker, M., Sanou,A., Snow, R., Ganame, J &Gondos, A.(2007). *Determinants of HIV counselling and testing participation in a prevention of mother-to-child transmission programme in rural Burkina Faso* .Tropical Medicine and International Health, vol. 12, no. 12, pp. 1475–1483.

Sinkala, M. (2011). *Community Based Model: Increasing Uptake of PMTCT and Male Involvement in Zambia*. Lusaka: Zambia.

Shiyagaya, K.N., Shikongo, K. K.& Amukugo, H.J. (2016). *Level of male involvement and factors influencing involvement in the prevention of mother-to-child transmission of hiv in the Oshakati District, Oshana region. Namibia*. ejpmr, 2016,3(5), 602-617.

Tilahun. M. & Mohamed, S. (2015). *Male Partners' Involvement in the Prevention of Mother-to-Child Transmission of HIV and Associated Factors in Arba Minch Town and Arba Minch Zuria Woreda, Southern Ethiopia*. BioMed Res Int.12(10):1–6.

Theuring.S., Mbezi. P., Luvanda .H et al. 2009. *Male Involvement in PMTCT services in Mbeya Region, Tanzania.. Aids Behav*,13 (Suppl1):92-102.

40.Tweheyo, R., Konde-Lule, J. & Tumwesigye N.,(2010). *Male partner attendance of skilled antenatal care in peri-urban Gulu district, Northern Uganda*. *BMC Pregnancy and Childbirth*, 10(53): 1-29.

United Nations Programme on HIV/AIDS (2009). *UNAIDS Report on the global AIDS epidemic. Geneva: Joint United Nations Programme on HIV/AIDS (UNAIDS)*.

42. UNAIDS, Joint United Nations Programme on HIV /AIDS. (2011). *AIDS at 30: Nations at the crossroads* [Online]. Available: <http://www.unaids.org/unaids/resources/aidsat30/aids-at-30.pdf>. [Accessed 04 December, 2016].

UNAIDS, Joint United Nations Programme on HIV /AIDS. (2011). *Global HIV/AIDS Response – Epidemic update and health sector progress towards Universal*. [Online]. Available:<http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublicatreporten.pdf>. [Accessed 04 December 2016].

UNAIDS. *New WHO Strategy Calls for Elimination of HIV in Children by 2015.The New PMTCT Strategic vision 2010-2015*.

Watson, N. (2005), *Challenges and opportunities for male involvement in reproductive health in Cambodia. Policy project. Washington (DC): USAID*. [Online]. Available: http://www.synergyaids.com/docunients/Male_involvement-Cambodia.pdf. [Accessed 04 December 2016].

World Health Organization (2001), *Programme for male involvement in reproductive health*. [Online]. Available: <http://www.who.org> [Accessed 10 December 2016].

World Health Organization. (2012). Current issues: *WHO Bulletin. Monthly review*, 94 [Online]. Available: <http://www.who.org> [Accessed 11 November 2016].

Zambia. Ministry of Health (2012). *National Health Policy. Towards a healthy people*. 2012. Lusaka. Zambia

Zambia. Ministry of Health (2010). *Zambia Country Report. General Assembly Special Session on HIV and AIDS*.2010. Lusaka.

Zambia. Ministry of Health. (2016). *Zambia Population-Based HIV Impact Assessment, (2015-2016). Preliminary summary Findings Report*. Lusaka.

Zambia. Ministry of Health.(2016). *Zambia Consolidated Guidelines for Treatment and Prevention of HIV Infection Zambia. Directorate of Clinical Care and Diagnostic Services*. 2016. Lusaka.

Zambia Ministry of health (2014). *Zambia Consolidated Guidelines for Treatment and Prevention of HIV Infection 2013*.

Zambia. National AIDS Council (2014). *Zambia Country Report (2013). Report of Monitoring the Declaration of Commitment on HIV/AIDS and the Universal Access*. Lusaka.

Zambia. National AIDS Council (2010). *National AIDS Strategic Framework 2011-2015. Towards improving the Quality of life of the Zambia People*. Lusaka.

Zambia. Ministry of Health (2014). Department of Mother and Child Health. *Lukulu District Health Office Annual Report for 2014*.Lukulu.

Zimbabwe. Ministry of Health and Child Care (2015). *Organization for Public Health Interventions and Development. Series 2015 report1. Survey on the experiences, attitudes and*

perceptions of male partner's participation in antenatal and PMTCT services Mashonaland East Province, Zimbabwe.

APPENDICES

Appendix 1: Participant Information Sheet

TITLE: “FACTORS ASSOCIATED WITH MALE INVOLVEMENT IN EMTCT DURING ANTENATAL IN LUKULU DISTRICT”

Introduction

I am Nawa Mbumwae, a student at the University of Zambia, School of Public Health. I am undertaking this study for the partial fulfilment of the Master of Science in Epidemiology and Biostatistics.

Purpose of the study

You are invited to participate in this study. The purpose of this study is to investigate factors associated with male involvement in EMTCT during antenatal in Lukulu District. The answers to the questions will be confidential and will not appear anywhere.

Risks

There are no known physical or emotional risks for you in this study, however some questions may be deemed sensitive but confidentiality will be assured throughout the research.

Benefits of the Research and benefits to you

There are no direct benefits to you, however you will be contributing towards the body of knowledge regarding influencing male involvement in EMTCT during antenatal services which can guide on what targeted strategies can be employed to increase male participation in antenatal care and EMTCT services thus contribute to the increased uptake of EMTCT.

Voluntary Participation

Your participation in this study is voluntary and you have the right to refuse to participate. You also have the right to withdraw at any time.

Thank you for your willingness to contribute to the success of this research. For any clarification feel free to contact me or the University of Zambia Research Ethics Committee (UNZABREC).

Contact Details for the Principal Investigator

Nawa Mbumwae: nmnawizi@gmail.com

The University Of Zambia

School of Public Health

Cell: 0978069140

The Chairperson UNZABREC

Ridgeway Campus

P.O BOX 50110

Lusaka, Zambia. unzarec@zamtel.zm. Telephone: 260-1-25

Appendix 11: Translated Participant Information Sheet

TOHO YATABA: “MABAKA ATISA KULI BANNA BAFUMANEHE KAPA BA ABANE MWA SILELEZO YA MATUKU AYAMBUKELA KUZWA KU MUSHEMI WA MUSALI KUYA KU MWANA KANAKO YA SIPIMO SA MULWALO MWA SIKILITI SA LUKULU”

MAKALELO A LIKANDE

Libizo laka kina Nawa Mbumwae. Nimuituti kwa sikolo sesipahami sa University of Zambia koo niituta kaza buino bo bunde bwa batu. Libaka lelituna la patisiso ye ki kubatisisa banna abaswanela kubani kabelo mwa kufeza matuku ayambukela kuzwa kumushemi wa musala kuya ku mwana kanako ya sipimo sa mulwalo mwa sikiliti sa Lukulu.

Nimizibisa kuli ze kaambolwa kaufela kizaluna fela halina kubulelelwa mutu ufi kamba ufi.

BUTATA BWA KUABANA MWA PATISISO YE

Hakuna butata bufi kamba bufi bobuzibahalile kuya ka patisiso ye, Hakuli cwalo, Nimizibisa kuli zo kaombolwa kaufela kizaluna fela halina kubulelelwa mutu ufi kamba ufi.

BUNDE BWA PATISISO YE

Hakuna bunde bo mutafumana mina ka sibili mwa patisisomo kwanda akuli patisiso ye ikaekeza kwa zibo kuamana ni taba ya banna kufumaneha kapa kuabana mwa kufeza matuku ayambukela kuzwa ku mushemi wa musali kuya ku mwana kanoko yeo musali aitwezi (EMTCT). Nto ye ikona kufa monyehelo kapa liseli kamo banna baban’ata kuli ba fumanehele mwa kalulo yaku feza matukuku ayambukela kuzwa ku musali yanani mulwalo kuya kumwana.

BUNDE BWA PATISISO YE

Hakuna bunde bo mutafumana mina ka sibili mwa patisisomo kwanda akuli patisiso ye ikaekeza kwa zibo kuamana ni taba ya banna kufumaneha kapa kuabana mwa kufeza matuku ayambukela kuzwa ku mushemi wa musali kuya ku mwana kanoko yeo musali aitwezi (EMTCT). Nto ye ikona kufa monyehelo kapa liseli kamo banna baban’ata kuli ba fumanehele mwa kalulo yaku feza matukuku ayambukela kuzwa ku musali yanani mulwalo kuya kumwana.*

KUABANA KWA MINA MWA PATISISO

Amuhapelezwi kuabana mwa patisiso mo. Mwakona kuhana kamba ku tuhela kanako ifi kamba ifi.

Nitumezi ahulu kwa kulumela kuabana mwa patisiso ye.

Eba munani lipuzo mulukuhile kunibuza kapa katengo ka University of Zambia Research Ethics Committee (UNZABREC).

Contact Details for the Principal Investigator

Nawa Mbumwae: nmawizi@gmail.com

The University Of Zambia

School of Public Health

Cell: 0978069140

The Chairperson UNZABREC

Ridgeway Campus

P.O BOX 50110

Lusaka, Zambia. unzarec@zamtel.zm.Telephone: 260-1-25

Appendix III: Informed Consent Form

TITLE: “FACTORS ASSOCIATED WITH MALE INVOLVEMENT IN EMTCT DURING ANTENATAL IN LUKULU DISTRICT”

The purpose of the study has been adequately explained to me and I understand the risks and benefits of this study. I hereby consent myself to participate in this research.

Signature/thumbprint:.....

Date:.....

Witness:.....

For further information please contact the following

Contact Details for the Principal Investigator

Nawa Mbumwae: nmnawizi@gmail.com

The University Of Zambia

School of Public Health

Cell: 0978069140

The Chairperson UNZABREC

Ridgeway Campus

P.O BOX 50110

Lusaka, Zambia

unzarec@zamtel.zm

Telephone: 260-1-256067

Thank you for your time and cooperation.

Appendix Iv: Pampili ya Tumelalano

Toho ya Taba: Mabaka atisa kuli banna bafumanehe kapa ba abane mwa silelezo ya matuku ayambukela kuzwa ku mushemi wa musali kuya ku mwana kanako ya sipimo sa mulwalo mwa sikiliti sa Lukulu.

Nibulelezwi libaka patisiso ye hai eziwa. Nizibile bunde ni bumaswe bwa kuabana mwa patisiso ye.

Naitama kuabana mwa patisiso ye.

Amusaine/Kunyatela.....Lizazi.....

Paki
(Libizo).....Amusaine.....
.....

Mwendi munani lipuzo mulukuluhile kunibuza kapa ba katengo ka University of Zambia Research Ethics Committee (UNZABREC).

The Principal Investigator

Nawa Mbumwae: nmawizi@gmail.com

The University Of Zambia

School of Public Health

Cell: 0978069140

The Chairperson UNZABREC

Ridgeway Campus

P.O BOX 50110

Lusaka, Zambia

unzarec@zamtel.zm

Telephone: 260-1-256067

LUITUME KA KU TAMAHANA HAMOHO.

Appendix v: Data Collection Tools

THE UNIVERSITY OF ZAMBIA

SCHOOL OF PUBLIC HEALTH

Questionnaire Identification Number |__|__|__|__|__|

Catchment Area Code _____

Introduction: “My name is..... I am a Postgraduate student at the University of Zambia. I am currently gathering information relating to factors associated with of male involvement in EMTCT during Antenatal. The information that you will provide to me is very important and it will help me prepare a thesis which is a requirement for my Master programme of study. The information you provide with be treated with strict confidence and your name will not be published.

DATE OF INTERVIEW: ____ \ ____ \ ____

NAME OF INTERVIEWER _____ :

Section A: Demographic Characteristics, Social and Economic Factors

No	Questions	Response	[]		Code s
Q.1	How old were you on your last birthday?			[]
Q2	Marital status?	(0)Single	[]		[]
		(1) Married	[]		
Q.3	What is your level of education?	(1) No education	[]		[]
		(1) Primary	[]		
		(2) Secondary	[]		
		(3) Tertiary	[]		
Q4	What is your current employment status?	(0)Unemployed	[]		[]
		(1) Employed	[]		
Q.5	What is your type of residence	(0)Rural	[]		[]
		(1)Urban	[]		

Section B: Attitudes and beliefs about EMTCT

Q.6	Should a man accompany his pregnant wife/partner to Antenatal/EMTCT?	(2) Yes	[]		[]
		(2)No	[]		
		(3) Don't know	[]		
Q.7	A man who accompanies his pregnant wife /partner to /EMTCT clinic is bewitched	(1)No	[]		[]
		(2)Yes	[]		
		(3)I don't know	[]		
Q.8	A man who accompanies his pregnant wife /partner to /EMTCT clinic is weak	(1)No	[]		[]
		(2)Yes	[]		
		(3)I don't know	[]		
Q.9	EMTCT services are for	(1)Women and children only	[]		[]
		(2)Men,women and children	[]		
Q10	Should a man and his pregnant wife/partner undergo HIV counselling and testing together during antenatal?	(0)No	[]		[]
		(1)Yes	[]		
Q11	A woman who tests positive to an HIV test should be	(1)yes	[]		[]
		(2)No	[]		

	divorced?	
--	-----------	--

Section C: level of male Participation in EMTCT during Antenatal

Q.12	Did you attend antenatal clinic with your wife/partner	(0)No	[]		[]
		(1)Yes	[]		
Q.13	If you attended antenatal clinic with your wife/partner, where you both counselled	(0)No	[]		[]
		(1)Yes	[]		

Section D: Health Facility Related Factors

Q.14	How long kilometers does it take you to walk to the nearest health facility?		[]	[]
Q.15	How often is the service offered during the week?	(1)Once in a week	[]	[]
		(2)Twice in a week	[]	
		(3)More than twice a week	[]	

THANK YOUR FOR YOUR CO-OPERATION

Appendix VI: Pampili ya Lipuzo

THE UNIVERSITY OF ZAMBIA

SCHOOL OF PUBLIC HEALTH

Questionnaire Identification Number |__|__|__|__|__|

Catchment Area Code _____

Libizo laka kina: Nimuituti wa Masters degree kwa sikolo sesipahami sa University of Zambia. Kacwalo ni sweli kubatisisa mabaka atisa kuli kini baana abaswanela kunga kuabana kapa kufumaneha mwa silelezo ya matuku ayambukela kuzwa ku mushemi wa musali kuya ku mwana kanako ya sipimo sa mulwalo. Kufumaneha kappa kuabana kwa mina mwa patisso mo ku katisa kuli sikolo sesa University of Zambia sinife Master Degree. Nimizibisa kuli ze kambolwa kaufela ki zaluna fela halina kubulelelwa mutu ufi kamba ufi.

Lizazi la patisiso: _____

Mubuzi wa lipuzo: _____

Section A: Demographic Characteristics, Social and Economic Factors

No	Lipuzo	Likalabo	[]		Code s
Q.1	Ne munani lilimo ze kai fa mukiti wa mina wa kupepwa ofelile?			[]
Q.2	Maemo amina kuamana litaba za manyalo	(0) Anisikanyala	[]		[]
		(1) Ninyezi	[]		
Q.3	Muitutile kufita kai	(0) Hanisikakena sikolo	[]		
		(1) Sitopa sapili za 1 kufita 7	[]		

		(2) (1) Sitopa zabu 8 kwisa 12	[]		[]
		(3) Kwa likolo zepahami	[]		
Q.4	Muezan'i mwa bupilo	(0) Hani beleki	[]		
		(1) Na beleka	[]		[]
Q.5	Mupila mwa sibaka sesicwani?	(0) Matakanyani	[]		
		(1) Tolopo	[]		[]
Section B: Attitudes and beliefs about EMTCT					
Q.6	Ki swanelo kuli munna wakona kuya ni musalaahae kapa nyazi ya itwezi kwa sipimo nji?	(1) Eni	[]		[]
		(2) Batitli	[]		
		(2) Hanizibi	[]		
Q.7	Kana munna ya sindeketa musala hae kamba nyazi ya itwezi kwa sipimo u loilwe?	(1) Batili	[]		
		(2) Eni	[]		
		(3) Hani zibi	[]		[]
Q.8	Munna ya kona kuya ni musala hae ya itwezi kamba nyazi ya hae kwa sipimo ubulelwe kuli ki ya fakola	(1) Batili	[]		
		(2) Eni	[]		[]
		(3) Hani zibi	[]		
Q.9	Mungendenge wa kufeza matuku ayambukela kuzwa kumushemi wa musali kuya ku mbututu ki w abo mani?	(1) Basali ni banana fela	[]		
		(2) Banna, basali ni banana	[]		[]
Q.10	Kana munna ni musalaa hae kapa mulikani ya itwezi ba swanela ku bulelelwa ni kutatubiwa ka kokwani ka HIV	(0) Batili	[]		
		(1) Eni	[]		[]

	kwa sipimo				
Q.11	Musali ya fumanwi ni kakokwani ka HIV u swanela ku ezwa cwani?	(1) Ku lelekiwa	[]		[]
		(2) Ku zwela pili mwa linyalo la hae.	[]		

Section C: level of male Participation in EMTCT during Antenatal


Q.12	Kana ne muile kwa sipimo niba kumina kamba bo mulikanaa mina fa mulwalo kapa hane baitwezi?	(0) Batili	[]		[]
		(1) Eni	[]		
Q.13	Haiba ne muile kwa sipimo niba kumina kamba bo mulikanaa mina, kana ne mueleli zwe ni ku tatubiwa ka kokwani ka HIV?	(0) Batili	[]		[]
		(1) Eni	[]		

Q14	Ne muzaille makilomita afita kai kuyo fita kwa sipatela ko nemuile fa sipimo?			[]	[]
-----	---	--	--	-----	-----

Section D: Health Facility Related Factors

Q.15	Sipimo sibanga hakai mwahala sunda	(1) Hamu ka sunda	[]	
		(2) Habeli	[]	[]
		(3) Hanata mwa sunda	[]	[]
<i>LUITUMEZI KA KU TAMAHANA HAMOHO</i>				

Appendix VII: Permission Letters


THE UNIVERSITY OF ZAMBIA
BIOMEDICAL RESEARCH ETHICS COMMITTEE

Telephone: 260-1-256067
Telegrams: UNZA, LUSAKA
Telex: UNZALU ZA 44370
Fax: + 260-1-250753
E-mail: unzarec@unza.zm
Assurance No. FWA00000338
IRB00001131 of IORG0000774

Ridgeway Campus
P.O. Box 50110
Lusaka, Zambia

13th September, 2017.

Your Ref: 023-06-17.

Nawa Mbumwae,
University of Zambia,
School of Public Health,
P.O Box 50110,
Lusaka.

Dear Sir/Madam,

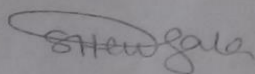
RE: RESUBMITTED RESEARCH PROPOSAL: "PREDICTORS OF MALE INVOLVEMENT IN EMTCT DURING ANTENATAL IN LUKULU DISTRICT" (REF. NO. 023-06-17)

The above-mentioned research proposal was presented to the Biomedical Research Ethics Committee on 12th September, 2017. The proposal is approved.

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 this office. 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.
- Any serious adverse events must be reported at once to this Committee.
- Please note that when your approval expires you may need to request for renewal. The request should be accompanied by a Progress Report (Progress Report Forms can be obtained from the Secretariat).
- Apply in writing to National Health Research Authority for permission before you embark on the study.
- **Ensure that a final copy of the results is submitted to this Committee.**

Yours sincerely,



Dr. S. H Nzala PhD
VICE-CHAIRPERSON

Date of approval: 13th September, 2017. Date of expiry: 12th September, 2018.