

**FACTORS RELATED TO MALE PARTICIPATION IN PREVENTION OF MOTHER-
TO-CHILD TRANSMISSION OF HUMAN IMMUNODEFICIENCY VIRUS IN THREE
PUBLIC HOSPITALS IN ADDIS ABABA, ETHIOPIA**

by

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“To all couples who have or intend to have kids”

DECLARATION

STUDENT NUMBER: 42063302

I declare that **FACTORS RELATED TO MALE PARTICIPATION IN PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HUMAN IMMUNODEFICIENCY VIRUS IN THREE PUBLIC HOSPITALS IN ADDIS ABABA, ETHIOPIA** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references, and that this work has not been submitted before for any other degree at any other institution.



DANIEL KINDE GETU

JUNE 2011

Full Name

Date

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FACTORS RELATED TO MALE PARTICIPATION IN PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HUMAN IMMUNODEFICIENCY VIRUS IN THREE PUBLIC HOSPITALS IN ADDIS ABABA, ETHIOPIA

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ABSTRACT

This study aimed at assessing factors related to male participation in PMTCT in three public hospitals in Addis Ababa, Ethiopia. A quantitative, descriptive correlational design was used to assess correlation between male participation and socio-demographics, knowledge and awareness in HIV/PMTCT, socio-cultural belief, programmatic factors and reported risk. Male partners (n=216) were interviewed and reviews of HIV counselling and testing (HCT) acceptance formats were made. The major findings were 54.5% (n=156) males reported receiving HCT during their visit to partner's antenatal care. Some 71.5 % (n=677) of women were accompanied to labour wards by male partners; 86.5% (n=208) of males accepted intra-partum HCT; 55.1% (n=216) scored above the mean score (10) on a 15-point scale for male participation. Male participation in PMTCT was found to have a statistically significant but weak correlation with educational level (r=0.193), income (r=0.167), PMTCT knowledge and awareness (r=0.172), socio-cultural belief (r=-0.164) and reported risk (r=-0.23).

KEYWORDS: Addis Ababa; Ethiopia; HIV/AIDS; intra-partum HIV-testing; male participation; labour wards; prevention of mother-to-child transmission (PMTCT); knowledge in PMTCT; programmatic factors; risk of HIV; socio-cultural belief.

ACRONYMS AND ABBREVIATIONS COMMONLY USED IN THIS REPORT

AACAHB	Addis Ababa City Administration Health Bureau
AIDS	Acquired Immuno-Deficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral therapy
ARV	Antiretroviral drug
AZT	Zidovudine
CCP	Centre for Communication Programs at Johns Hopkins Bloomberg School of Public Health University
CD4 count	Count of a subset of T-lymphocytes with CD4 receptor per micro litre of blood
CDC	Centre for Disease Control and prevention
CHCT	Couple HIV counselling and testing
ECSA	Ethiopian Central Statistical Authority
EMOH	Ethiopian Ministry of Health
ETHARC	Ethiopian AIDS Resource Centre
FAO	Food and Agriculture Organisation
FHAPCO	Federal HIV/AIDS Prevention and Control Office
FHI	Family Health international
FMOH	Federal Ministry of Health of Ethiopia
HAPCO	HIV/AIDS Prevention and Control Office
HCT	HIV counselling and testing
HIV	Human immune-deficiency Virus
ICPD	International conference on population Development
IGWG	Interagency Gender working Group
ILO	International labour organisation
L&D	Labour and delivery
MCH	Maternal and child health
MTCT	Mother-to-child Transmission of HIV
NGO	Non-Governmental Organisation

NVP	Nevirapine
PCC	Population Census Commission of Ethiopia
PEPFAR	President's Emergency Plan for HIV/AIDS Relief
PMTCT	Prevention of mother-to-child transmission of HIV
PPFGD-EMOH	Policy planning and finance general directorate of Ethiopian Ministry of Health
RH	Reproductive Health
SRH	Sexual and Reproductive Health
STI	Sexually Transmitted Infection
UNAIDS	United Nation Aid on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
UNISA	University of South Africa
UN	United Nations
USAID	United States Agency for International Development
VCT	Voluntary Counselling and Testing
WHO	World Health Organisation

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CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

According to United Nation Aid on HIV/AIDS (UNAIDS) globally, an estimated 33.4 million people are now living with human immunodeficiency virus (HIV), about 2.1 million of who are children (UNAIDS 2009:6). Around 430,000 new HIV infections and 280,000 AIDS-related deaths occurred among children under the age of 15 in 2008 (UNAIDS 2009:6), with over 90% of new infections believed to stem from mother to child transmission (MTCT), which encompasses transmission *in utero*, during delivery, or post-partum, as a result of breastfeeding (Family Health International (FHI) 2004:1; UNAIDS 2009:8). In the absence of any interventions for prevention of mother to child transmission (PMTCT), 30% of infants born to HIV-infected women will be infected with HIV through such routes (FHI 2004:1). Sub-Saharan Africa remains the region most heavily affected by paediatric HIV infections, contributing 91% of new HIV infections among children in 2008 (UNAIDS 2009:21). According to the single point HIV prevalence estimate for Ethiopia, the national prevalence for adult females in 2009 was 2.8%, with an estimated 84,189 HIV-positive pregnant women and 14,140 HIV-positive births. Meanwhile, in Addis Ababa the adult female HIV prevalence was estimated to be 10.1%, with 7,876 HIV-positive pregnant women and 906 HIV positive births (Ethiopia Ministry of Health (EMOH)/HIV/AIDS Prevention and Control Office (HAPCO) 2007b:8).

Reported rates of MTCT in the absence of any intervention are higher in those breastfeeding through 18 to 24 months (30-45%) than those not breastfeeding (15-30%) (De Cock, Fowler, Mercier, Vincenzi, Saba, Hoff, Alnwick, Rogers & Shaffer 2000:1176). This indicates higher MTCT rates in developing countries, where breastfeeding is more likely than in developed ones where breast milk substitutes are a possibility. Various factors, such as offering HIV-testing as part of routine antenatal care; a combination of antiretroviral drug regimens and elective caesarean section; and adoption of complete avoidance of breastfeeding have cut MTCT transmission of HIV to

below 2% among the limited number of HIV-infected women in developed countries (FHI 2004:1). However, in developing countries, where the majority of HIV-infected women of reproductive age group live, MTCT rates remain high due to poor access to PMTCT interventions, and are compounded by the almost universal practice of breastfeeding for prolonged periods of time (FHI 2004:1).

Poor male participation could also contribute to the problem, as women in developing countries may depend on a partner's decision and support for both HIV-testing and adherence to recommended PMTCT interventions. It has been shown that fear of conflict with the male partner, defined as verbal or physical abuse, and fear of separation and divorce, are among the major obstacles to disclosure of HIV sero-status to partners among women tested positive (Antelman, Fawzi, Kaaya, Mbwambo, Msamanga, Hunter & Fawzi 2001:1870). This has a negative bearing on women's participation in voluntary HIV counselling and testing (HCT), and further programme enrolment. Joint counselling and HIV-testing for couples seem to be key to success in this regard (Theuring, Mbezi, Luvanda, Jordan-Harder, Kunz & Harms 2009:93). This needs to happen in all maternal and child health service outlets, including antenatal care (ANC), labour and delivery (L&D) and postnatal units.

1.2 RESEARCH PROBLEM

In this section, the origin, background and statement of the research problem are presented.

1.2.1 Source (origin) of the research problem

Research problems may arise from many sources, such as clinical practice; observation of health-related patterns; interactions with stakeholders; literature; theory; ethical dilemmas and established research priorities. The research problem for this study originates from the first four sources mentioned by Brink (2006:59), and Polit and Beck (2010:148). As PMTCT advisor, the investigator has had a chance to follow

closely the Ethiopian national and regional PMTCT programme achievements and challenges since 2006. While there has been progress in the PMTCT programme, there remain some challenges of which low male partner participation is one. In most formal maternal and child health (MCH)/PMTCT documents, presentations and meetings, it is probable that poor male participation is mentioned as a bottleneck for PMTCT programmatic achievement. In addition, MCH service providers encountered during PMTCT training and during site level mentoring and supportive supervision of facilities in Ethiopia, tend to complain that sub-optimal male participation in PMTCT poses a significant challenge to provision of the PMTCT service. This experience added to the investigator's motivation to know more about factors hindering male partner participation in ANC/PMTCT. Observation in some of the facilities visited during the four years of professional work indicated that males tend to accompany their female partner during L&D. This is an opportunity to assess on whether HCT to males is possible in an L&D setting.

1.2.2 Background to the research problem

A number of studies have been conducted to assess women's attitudes towards male partner participation in PMTCT and HIV status disclosure to partners worldwide (Maman, Mbwambo, Hogan, Weiss, Kilonzo & Sweat 2003; Manzi, Zacharia, Teck, Bhendwa, Kazima, Bakali, Firmench & Humblet 2005; Medley, Garcia-Moreno, McGill & Maman 2004; United States Agency for International Development (USAID) /Synergy 2004). However, only limited research has been performed into the male perspective on ANC or sexual and reproductive health (SRH) services or barriers to participation in those services, and review of recent literature indicates that even this has been gleaned from research conducted among women (Peacock 2003:5; Theuring et al 2009:93), and those studies that did involve males were mainly qualitative in nature (Tshimbubu 2006:26). The situation is worse in Ethiopia, with only two pieces of research having interviewed males to gain their perspectives on ANC/PMTCT (Tesfa 2009; Worku 2007). Three other studies assessed male influence on ANC/PMTCT service uptake through women (Biratu & Lindstrom 2000; Takele 2007; Worku 2005). Uptake of intrapartum HCT in a programmatic setting, and its usefulness in counselling and testing

male partners, either alone or together with their partners, has not been well evaluated in Africa (Homsy, Kalmaya, Obonyo, Ojwang, Mugumya, Opio & Mermin 2006:149). The literature review failed to show Ethiopian studies focusing on acceptance of HCT by males in labour wards, except one which evaluated performance of Nekemte hospital (Wondale, Merdassa, Ababyneh, Awano, Tafesse, Gutema, Tizazu, Zewde & Melaku 2009:85). The evidence thus implies that little is known of factors related to male participation in PMTCT, or whether intra-partum HCT is acceptable for couples.

In order to influence health policy makers, devise effective strategy to tackle impediments to male participation in PMTCT, and improve couples' HIV counselling and testing (CHCT), which is vital for couples' joint effort in PMTCT, more strong and reliable data on factors affecting male participation in PMTCT is needed¹. Whether HCT is acceptable to males in health facility settings, particularly L&D where they are more likely to appear, needs to be determined. This is therefore a key motivation for this research.

Globally, coverage for services in PMTCT rose from 10% in 2004 to 45% in 2008, and the drop in new HIV infections among children in 2008 suggests that these efforts are saving lives (UNAIDS 2009:9). According to UNAIDS (2009:13) estimate the provision of prophylactic antiretroviral drugs (ARV) to HIV positive pregnant women exclusively contributed to the aversion of 200 000 cumulative new paediatric HIV infections in the past 12 years. The full range of services to prevent mother-to-child transmission of HIV had more impact though it is difficult to measure the degree of impact by these wide-ranges of services.

In the absence of comprehensive measures to prevent paediatric HIV infections, MTCT rates range from 15-25% in industrialized countries, to 25-35% or higher in developing countries, with infants in eastern and southern Africa particularly at a higher risk as a consequence of high fertility rates and high HIV infection rates among women of childbearing age (ETHARC 2010).

¹ Although 'data' is a Latin plural of datum it may also be treated as an uncountable entity, thus acting grammatically as a singular noun, as is the case in this paper.

MTCT rate in Ethiopia is computed to be 16.7% using the single point estimate figures for 2009 (EMOH/APCO 2007b:8). Children who contracted HIV from their mothers face high rates of mortality and morbidity, especially in settings where specialized paediatric HIV care is not adequately available (EMOH/HAPCO 2007c:3). PMTCT interventions therefore need further strengthening in such settings, Ethiopia being one, if the majority of new paediatric infections are to be averted.

In Ethiopia, the Hareg project, an integrated PMTCT programme, was implemented in 2003 with the help of United Nations Children's Fund (UNICEF) and its partners (EMOH, HAPCO, USAID and the Centre for Disease Prevention and Control (CDC)) (UNICEF 2006:2; IntraHealth International/Hareg Project 2008:3). The President's Emergency Plan for HIV/AIDS Relief (PEPFAR) has supported the national PMTCT programme since 2004, with annual uptake of PMTCT services in Ethiopia having remained consistently low, and one of the lowest in PEPFAR's focus countries. From July 2007 to June 2008, the Ethiopian Ministry of Health reported 719 PMTCT sites in the country, in which 215,851 ANC clients (8% of all estimated pregnant women in the country) were counselled and tested, and 8,534 (4%) new ANC clients found to be HIV-positive. Of these HIV-positive pregnant woman, only 4,478 (53%) received ARV prophylaxis and only 3,502 (48%) HIV-exposed infants received ARV prophylaxis. (Federal HIV/AIDS Prevention and Control Office-Ethiopia (FHAPCO-ETHIOPIA) 2009; PEPFAR-ETHIOPIA 2008). By June 2008, of patients who had started on Antiretroviral therapy (ART), only 1,455 (1%) were pregnant women (PEPFAR-ETHIOPIA 2008). According to Policy planning and finance general directorate of Ethiopian Ministry of Health (PPFGD-EMOH) (2010:12) the ANC coverage for Addis Ababa is over 100% (probably because of pregnant woman from the outskirts and other regions visiting ANC clinics in Addis Ababa), and the proportion of deliveries attended by skilled birth personnel is 56% (42,832). Currently there are a total of 30 public health facilities (six hospitals and 24 health centres), and 29 private/ Non-Governmental Organisation (NGO) hospitals and labour wards that are officially providing PMTCT services in the city. In Ethiopian Fiscal year (EFY) 2001(corresponding to 2008/9 in Gregorian Calendar (G.C.)), out of 49,372 pregnant women who visited facilities providing PMTCT service, 36,659 (74.3%) were counselled and tested for HIV, of whom 1,509 (4%) tested positive (PPFGD-EMOH 2010:47).

MTCT of HIV accounts for 90% of the HIV infections in children younger than 15 in developing countries, but with current interventions, the overall risk can be reduced from 35% to 2%. However, service uptake in developing countries, including Ethiopia, is very low, due to several factors, among which poor male participation is said to be significant. In order to influence policymakers and devise effective strategies to address barriers to male participation in PMTCT, and to contribute to prevention of new paediatric infection, more data on factors related to failure of participation of males in PMTCT is needed. It is also known that males usually accompany their partner in labour to the health facility, but in most are not offered HIV-testing. This may be a missed opportunity for involving males in PMTCT, and if so there is a need to know whether HCT for males at labour wards is acceptable.

This study was conducted to determine the factors related to male participation in PMTCT services and acceptance of HCT offered to them on labour wards at three public hospitals in Addis Ababa.

1.2.3 Statement of the research problem

A research problem is a perplexing and troubling condition (Polit & Beck 2010:146) that one wishes to study (Babbie 2007:114), and it provides the focus for an argument that supports the need for investigation (Polit & Beck 2010:146). Limited or lack of male partner participation in PMTCT services is one of the major impediments in scaling up and increasing population coverage of it. Male participation is said to be very low in many health facilities in Ethiopia, and is one of the potential programme gaps adversely affecting PMTCT service uptake in the country (EMOH/HAPCO 2007a:54; HAPCO & GAMET 2008:42). However, the factors associated with poor male participation are not well known in Ethiopia and need to be investigated to help the country devise reasonable strategies to address this bottleneck. Moreover, while males usually fail to appear in an ANC clinic and are not tested for HIV, the majority tend to accompany their partner to the labour ward, as they regard this as a major event. HCT offered to men in an L&D setting may be a good opportunity for entry to their participation in PMTCT. However, uptake of intra-partum HCT in a programmatic setting, and its

usefulness in counselling and testing male partners, either alone or together with their partner, has not been evaluated in Africa (Homsy et al 2006:149). In Ethiopia, a literature search revealed only one evaluation of intra-partum CHCT of Nekemete hospital, conducted by Wondale et al (2009:85). This study therefore investigated factors related to male participation in ANC/PMTCT service and the acceptability and uptake of intra-partum HCT by males in an urban setting.

1.3 AIM OF THE STUDY

This section addresses the research's purpose, specific objectives and questions.

1.3.1 Research purpose

Research purpose is the aim of a study (Parahoo 2006:167), which establishes the general direction of the inquiry (Polit & Beck 2010:152). It is usually stated in a single sentence that reflect the essence of the study, including the variables, the population and often also the research setting (Brink 2006:59). The purpose of this study is to determine factors related to male participation in PMTCT and male acceptance of HCT, for PMTCT, in a labour ward at three public hospitals in Addis Ababa, Ethiopia.

1.3.2 Research questions and objectives

The following are questions that this study investigated:

- What is the proportion of women in labour who are accompanied by their male partner at three public hospitals in Addis Ababa
- What is the acceptance of HIV-testing by males accompanying their partners to a labour ward in three public hospitals in Addis Ababa

- What is the proportion of males with optimal participation in ANC/PMTCT, optimal participation being defined as achieving a score greater than the mean score on the male participation scale.
- What are the factors related to participation in ANC/PMTCT among male partners of women in labour presenting to the three public hospitals in Addis Ababa?
- What are the contribution to variation of male participation in PMTCT by independent variables

The objectives of this research are thus:

- To determine the proportion of males accompanying their partner in labour
- To determine acceptability of routine HCT for male partners in an L&D setting
- To determine the proportion of males with optimal level of participation in ANC/PMTCT
- To determine factors related to participation in ANC/PMTCT of males accompanying their partner to labour wards at three hospitals in Addis Ababa
- To determine the relative contribution of independent variables to variation of level of male participation in ANC/PMTCT.

1.4 SIGNIFICANCE OF THE STUDY

The research aims to provide information on factors related to male participation in ANC/PMTCT and male acceptance of intra-partum HCT. The findings can be used to help design and implement programmes to improve CHCT in MCH service outlets, especially ANC and L&D, thereby improving uptake of PMTCT/MCH interventions. This would ultimately contribute to a reduction in new paediatric HIV infections, which is the ultimate goal of PMTCT.

The findings could also serve as baseline information for comparison purposes in future studies on related topics. Exploratory analysis of data collected in this study may also generate hypotheses for examination in further studies (Morrone & Myer 2007:121).

The study participants themselves would also benefit, as subjects referred to testing units will have a chance to know their HIV status and take appropriate measures, depending on the result. The testing units will also link those who test positive to an ART clinic for HIV care and support based on eligibility assessment. Even those who tested negative will have a chance to receive information and make better decisions to remain negative, as well as protecting their family from infection. Participants will also have ready access to information on care of HIV-exposed infants.

It is assumed that this study will increase understanding of factors related to male participation in PMTCT in an urban setting of Ethiopia. It would also inform whether the L&D setting could be an acceptable opportunity to counsel and test males for HIV, and thus paving the way for their participation in subsequent PMTCT endeavours. This information should be of paramount importance to influence and inform policymakers and programme managers in matters pertaining to improving male participation in HCT in MCH service outlets and other aspects of PMTCT/MCH interventions.

1.5 CLARIFICATION OF KEY CONCEPTS

Conceptual definition presents the abstract or theoretical meaning of the concepts to be studied, while operational definition of a concept specifies the operations performed or methods used to measure the concept (Fulton & Krainovich-Miller 2010:58; Polit & Beck 2010:66-67). The conceptual and operational definitions of key terms, concepts and variables used in this study are presented below:

HIV is an abbreviation for human immunodeficiency virus, referring to either of the two strains of a retrovirus, HIV-1 or HIV-2, that destroys the immune system's T-helper cells, the loss of which causes AIDS (*Microsoft Encarta* 2008).

PMTCT is an abbreviation for prevention of mother-to-child transmission, and refers specifically to interventions and efforts in this regard.

Male is defined in this study as a male biological gender of a married and/or sexual partner of a woman who is pregnant or in labour. To avoid confusion, a more descriptive phrase of 'male partner(s)' is used instead of 'male(s)' in some cases.

Partner is defined in this study as one who is married to or cohabitating with another individual of opposite sex. Sometimes either of the words "female" or "male" is added to indicate the sex of partner.

Male participation in ANC/PMTCT - in this study male participation is assessed by:

- Self-initiating discussion on HCT
- Reminding female partner of her ANC follow up schedule
- Covering the medical expense of partner's ANC follow up
- Having gone to ANC/PMTCT sites, accompanying the female partner
- Entering ANC room together with partner during ANC/PMTCT visit
- Having requested one's partner to have HIV-testing during pregnancy
- Having actually been HIV counselled and/or tested at ANC/PMTCT sites
- Consenting to partner's HIV-testing at labour ward
- Accepting intra-partum HCT
- Readiness for PMTCT participation as assessed by:
 - willingness to disclose HIV-positive test result to one's partner
 - acceptance of provision of ARV to partner and the newborn in case of HIV-positive result in the latter
 - willingness for HIV-exposed follow up of newborn in case of HIV-positive result in the partner
 - willingness to continue partnership in case of discordant HIV test result with partner's result being positive
 - willingness to use a condom consistently if necessary.

Intra-partum HIV counselling and testing is taken as counselling and testing conducted at a testing unit in the labour ward for males who accompanied their female partner during admittance to the labour ward. *Acceptors of intra-partum HIV-testing* are those who accept the offer for voluntary HIV-testing and counselling, with the testing conducted on their blood sample, while *non-acceptors of intra-partum HIV-testing* are

those who are offered voluntary HIV testing and counselling but decline it.

Socio-economic and demographic factors include age, ethnic group, religion, marital status, residence (living in same house), level of education, occupation, income, number of biological children born from couples, and duration of relationship with female partner.

Knowledge and awareness of ANC/PMTCT relates to knowledge of the routes of transmission of HIV, including MTCT, PMTCT, and the benefits of HIV-testing and awareness of the existence of PMTCT service in health facilities in Addis Ababa.

Socio-cultural factors include males' opinions, perceptions and role as relating to ANC/PMTCT and HCT.

Programmatic factors (male friendliness of health facility) relate to male opinion of the related barriers to male participation and what could be done to make the health facilities sufficiently friendly to promote male participation in ANC/PMTCT. These include issuing a medical certificate; service in special hours and weekends; special waiting area for males; allowing entrance of males into ANC/L&D units; sending invitations for male service attendance; signposting; invitations for males to attend ANC/PMTCT clinics; and routine offers of HIV-testing for males. Barriers related to confidentiality are also considered to measure male friendliness in this study.

Reported actual and perceived risk refers to male perception of self-risk of contracting HIV and the actual HIV risks. Actual HIV risks are assessed by determining whether there are multiple sexual partners of the interviewee or his partner, the use of condoms in case of multiple sexual partners, having sex with individuals known to have HIV, and the history of STI in the interviewee and/or his partner.

1.6 FOUNDATIONS OF STUDY

In this study, male participation in PMTCT is assessed by three parameters, which are pro-PMTCT/ANC actions taken by the males during their partner's pregnancy, male readiness for participation in PMTCT, and their acceptance of intra-partum HIV-testing.

It is assumed that male participation is influenced by extrinsic and intrinsic factors (Theuring et al 2009:98) and vice versa, indicating a bi-directional interaction. The extrinsic factors, which are structural, organisational or institutional in nature (Theuring et al 2009:98), are assessed in this study by male knowledge and awareness on PMTCT and male friendliness of ANC/PMTCT sites, while on the other hand the intrinsic factors, which are led often by cultural and traditional beliefs and/or strong emotions such as fear (Theuring et al 2009:98), are assessed by socio-cultural factors and actual and perceived risks.

This study assumes that socio-demographic and economic factors affect both extrinsic and intrinsic factors unidirectionally (Selvan, Ross, Kapadia, Mathai & Hira 2001:781). Interventions to overcome intrinsic factors are assumed to be more difficult and long-winded processes compared to those aimed at addressing extrinsic factors, thus suggesting the need to strive first to address external barriers for a relatively rapid behavioural changes outcome. This model assumes that slowly increasing the actively participating males in PMTCT will improve the perceived level of normality and external conditions at long sight, and influence traditional paradigms and intrinsic motivations towards higher male participation in PMTCT/ANC services (Theuring et al 2009:98). Reciprocally, as intrinsic factors are tackled they are assumed to shape external factors favourably, thereby improving male participation in the PMTCT service.

1.7 RESEARCH DESIGN AND METHODS

This research is a public health epidemiologic study, in a quantitative paradigm and follows a descriptive correlational design with cross-sectional dimension. There follows a concise summary of the research method employed in the study, which with the design and methodology is treated in greater depth in chapter three.

1.7.1 Study setting

The study was conducted in labour wards of three public hospitals administered by Addis Ababa City Administration Health Bureau (AACAHB). The facilities are Gandhi Memorial Hospital (GMH), Zewditu Memorial Hospital (ZMH) and Yekatit 12 Hospital

(Y12H). The labour ward setting was chosen as it is a unit more male partners visit and stay longer for adequate interaction. Determining proportion of women in labour accompanied to labour ward by their male partners, one of the objective for this study, also justifies why such setting was chosen.

1.7.2 Target population

The target population for this study comprised males who accompanied their partner to the labour ward of public hospitals administered by AACAHB during the period of November 20 to December 8, 2010.

1.7.3 Study population

Males who accompany their partner to a labour ward in the three public hospitals during the study period were considered the study population for this research. Women in labour were initially asked to say if their partner had accompanied them or, if they were not sure, the data collector checked for the respective male partner at the waiting area.

1.7.4 Sampling

Systematic sampling was used, with every other male interviewed. Of the first two males who came to the facility on the first day of the study, the one to be interviewed was determined randomly, and sample size computed at 238 males, with an estimated 10% non-response rate included.

1.7.5 Data sources and collection

The data collection approach for this study was face-to-face interviews, using a pre-tested structured questionnaire. Interviews were conducted in a private room in labour wards by service providers initially trained as interviewers. Review of the HIV-testing acceptance formats at the testing units in the labour wards of the hospitals provided information on the HIV test acceptance of those participants referred to these units.

1.7.6 Data handling and analysis plan

Data entry and analysis was carried out using the SPSS version 15 statistics package. After the data entry was completed, all the records were checked against the original data. The few items that were skipped or had wrong entry details were corrected. Statistical tools such as frequency distribution, percentages, measures of central tendency, measures of variability, and tests of correlation analysis were used where necessary for analysis. The results were presented in the form of tables, graphs, diagrams and scatter plots. The graphs and diagrams were drawn using a software programme for graphics (SPSS 15 and *Microsoft Office Excel 2007*).

1.8 DESIGN VALIDITY AND RELIABILITY

This section summarizes potential factors affecting design validity and reliability, and measures taken to enhance them.

1.8.1 Internal validity

In this study, internal validity was enhanced by consistent implementation of measurements and employment of systematic sampling that could yield a

representative sample (see section 3.6.1.1 for further details).

1.8.2 External validity

Heterogeneity, that is selecting samples at least from three facilities, random sampling and relatively larger sample size could potentially improve the external validity in this study (Burns & Grove 2005:223). Data collectors were also trained to avoid cues as much as possible so as to improve the external validity. Comparison of study findings with those of other related studies conducted in other settings could also shed some light on the external validity (Tshibumbu 2006:37).

1.8.3 Instrument's validity

Through review of related available literature in the field of the research and expert's opinions helped improve the content and face validity of the instrument. Besides adaptation of a questionnaire used in related Zambian study was made to suit to local context thereby overcoming inconsistent validity. However criterion-related validity, predictive validity, concurrent validity and construct validity were not taken into consideration in the development or evaluation of the questionnaire (Brink 2006: 161; Katzenellenbogen & Joubert 2007:120).

1.8.3 Reliability

Use of a standardized questionnaire, appropriate selection of interviewers (service providers with experience in data collection), adequate training on collection of data using the instrument, supervision and periodic checks on the work of interviewers (Katzenellenbogen & Joubert 2007:119) were all issues that were given due consideration to increase reliability of information collected in this study.

1.9 ETHICAL AND LEGAL CONSIDERATIONS

Ethical and legal considerations were strictly adhered to during the study. Before any interview, the participants received information about the purpose of the study and their right freely to decide whether to participate. Participants were referred to HIV-testing services after explicitly being informed of their right to opt out of the HIV-testing offered. Consent was obtained in writing before any interview and verbally before referral to HIV-testing units. The interviews were conducted in a private room, ensuring both visual and auditory privacy, and no personal identifiers were written on the questionnaire. These precautions were to ensure that the responses were not linked to these identifiers.

The research was conducted with no harm to participants, except the risk of discomfort that may be anticipated in case the referrals turned out to be HIV-positive. Even in such cases, the testing units in the institution were responsible for and capable of appropriate post-test counselling and referral for care and treatment services. All participants received information that would help them to reduce the risk of MTCT of HIV. Those who tested HIV-positive received appropriate post-test counselling and were linked to ART clinics.

In keeping with academic propriety and convention, and to avoid the risk of plagiarism, all sources referred to in this dissertation are properly acknowledged in the text and in a listing of references. The investigator, prior to this study, gained reasonable knowledge and skill in research methodology through successfully completing courses and seminars by accredited academic institutions and exposure during professional work. The research proposal was reviewed by AACAHB and University of South Africa (UNISA) ethics review board, and was amended according to the feedback. The research was conducted only after approval and authorisation from the concerned authorities in AACAHB and the hospitals.

1.10 SCOPE AND LIMITATIONS OF STUDY

The study was conducted in public hospitals, thus limiting its generalisation to other settings such as health centres or private facilities in Addis Ababa. That these facilities are used by urban dwellers makes the study unrepresentative of the picture of rural settings. Nor would the sample represent male partners of women who deliver at home or those who failed to accompany their female partners to a labour ward. Social desirability bias is also inevitable, especially with questions assessing socio-cultural domains, readiness for support in PMTCT, and perceived and actual risk.

1.11 STRUCTURE OF THE DISSERTATION

The content of this dissertation is organized into seven major parts described below:

Abstract: gives an overview of the main events discussed in the dissertation and provides keywords pertaining to the study.

Chapter 1 (orientation to the study): provides orientation and introduction to the study.

Chapter 2 (Literature review): discusses the literature reviewed in the context of the study.

Chapter 3 (Research design and methods): gives an account of the research design, sampling procedures, data collection method and process, and measures taken to improve validity and reliability of the study findings.

Chapter 4 (Analysis, presentation and description of the research findings): deliberates on the data analysis procedures employed, the research findings and their correlation and contrast to findings of literature reviewed.

Chapter 5 (Conclusions and recommendations): draws conclusions generated in line with the research questions and the statement of the problem and makes recommendations based on the findings.

Annexure: This includes list of references; consent form, the questionnaire, referral

form for HCT; letters ensuring approval by AACAHB and approval from UNISA.

1.12 SUMMARY

This chapter has described and discussed the research problem; the purpose and objectives; the significance; key concepts and variables; foundation of the study; the research design and methods; the design validity; ethical and legal considerations; limitations of the study; and the structure of the dissertation.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews literature in terms of types, source, theme, and content. It covers both primary and secondary sources used in investigating the research topic, developing the study design and methods, and formulating the framework of the study. A literature review is a compilation of resources that lay the foundations or groundwork for a study (Fulton & Krainovich-Miller 2010:57; Polit & Beck 2010:170) and help to position the research problem in the context of what has been discovered (Brink 2006:12). It also directs the argument about the need for a new study, the research methods and the conceptual or theoretical framework (Polit & Beck 2010:170). In line with this, a preliminary systematic search of literature was carried out to develop a more feasible research problem and research methodology, and to write both the research proposal and report. Subsequently, an in-depth literature review was conducted prior to the data collection to complete an understanding of the research problem, the conceptual framework, and the design and methodology (Fulton & Krainovich-Miller 2010:59).

In order to explore and investigate the link between the research findings and the existing body of knowledge the review proceeded to the post-analysis stage and extended the relevant information captured from the literature (Unisa 2010:50&58). In summary, the investigator conducted the literature review to obtain comprehensive understanding of the research topic; shape the research question; refine the framework, design and methodology; and guide the data collection, analysis and interpretation process (Brink 2006:67; Fulton & Krainovich-Miller 2010: 59; Polit & Beck 2010:170; Volmink 2007:66).

2.2 SOURCES AND THEMES OF THE LITERATURE REVIEW

The sources reviewed include mainly primary sources and, to a limited extent, secondary sources. Primary sources are either research studies or statistical reports that are written and reported by individual/s who actually conducted the investigation, while secondary sources summarize, paraphrase and/or interpret other sources (Brink 2006:69; Polit & Beck 2010:171). As interpretation is influenced by an author's perceptions and bias, use of secondary sources may increase the likelihood of errors and misinterpretation of the information conveyed in the primary source (Brink 2006:70). They may also fail to provide adequate details about the information in the primary source (Polit & Beck 2010:171). This justifies the limited use of secondary sources in this study.

The literature was in various formats, including journals, books, reports, dissertations, conference proceedings and guidelines. As to themes of literature, Brink (2006:68-9) summarizes types of information potentially to be included in five categories, namely facts, statistics and research findings; theories or interpretation; methods and procedures; opinions; and anecdotes, or clinical impressions or narrations of incidents and situations. The literature reviewed for this research project coincided largely with the first three, which are more objective in nature and are briefly summarised below.

Conceptual framework sources consulted and used in this study include books on health behaviour theories, a guide for health promotion practice, health behaviour research articles, theses and journal articles which relate to the conceptual framework. Research methodology text books were also referred to in order to gain a better understanding of the concepts (conceptual framework and conceptual model) and their application to guide this study. The theoretical sources were useful in identifying and refining concepts and formulating their interrelationship and interaction in the context of male participation in PMTCT. *Theory at a glance: A guide for health promotion practice* (second edition) by Rimer and Glanz (2005) was especially useful in identifying health behaviour theories that best suit this study. Studies by Selvan et al (2001:781), Tshimbubu (2006:15) and Theuring et al (2009:98-100), and a chapter on social

cognitive theory by Bandura (1989) in the sixth volume of the *Annals of Child Development* also contributed significantly to crafting the conceptual framework and model.

With the aim of exploring facts, statistics and research findings relevant to male participation in PMTCT and acceptance of intra-partum HCT, electronic and printed literature of primary and secondary origin was reviewed, especially the former. These empirical sources were retrieved mainly through an internet search and UNISA e-journal, using the key words for this study, i.e., PMTCT, male participation in PMTCT, Intra-partum HCT. As can be seen from the discussion under 2.4.4, studies (empirical sources) relating to males' perspective in reproductive health (RH) focused more frequently on family planning, and only a few were conducted in the context of PMTCT. Even in the few that studied male perspectives in the context of PMTCT, they frequently used women as source of information about attitude, knowledge and practice of males; and are qualitative in nature.

Due attention was paid not only to the 'what has been found' but also to 'how it was found', that is the literature review gave reasonable focus to investigating and understanding the approaches, control of research situation, operationalisation and measurement of variables, and statistical methods identified in the related studies (Brink 2006:69). To this end, dissertation and journal articles of similar scope and methodology were reviewed to help develop the structure of the study. Classic and current research methodology and statistical books were also consulted, to guide appropriate selection and application of the research methods and analysis relevant to the study.

2.3 FRAMEWORKS OF THE STUDY

This section presents and describes the conceptual model and conceptual frameworks that lay the foundation for the study.

2.3.1 Conceptual model

According to Burns & Grove (2005:128), a conceptual model is a set of highly abstract, related constructs that broadly explain phenomena of interest, express assumptions, and reflect a philosophical stance. Brink (2006:23) defines conceptual model as an organized framework that schematically (symbolically) represents relationships in a phenomena so as to define and guide specific research tasks.

The conceptual model depicted in Figure 2.1 (below) was used to guide this research. Tshimbubu (2006:15), in his study of factors affecting men's involvement in *Prevention of Mother-To-Child-Transmission of HIV Programmes in Zambia* used a conceptual model inspired by a model employed by Selvan et al (2001:781) in their study of perceived norms, beliefs and intended sexual behaviour among high school students in india. The conceptual model for this study primarily stemmed from those used by Tshimbubu (2006) and Selvan et al (2001:781). It was also influenced by the discussion of Bandura's (1989:2) social cognitive theory to explain developmental changes in people and of Theuring et al (2009:98-100), in their study of male involvement in PMTCT services in Mbeya Region, Tanzania.

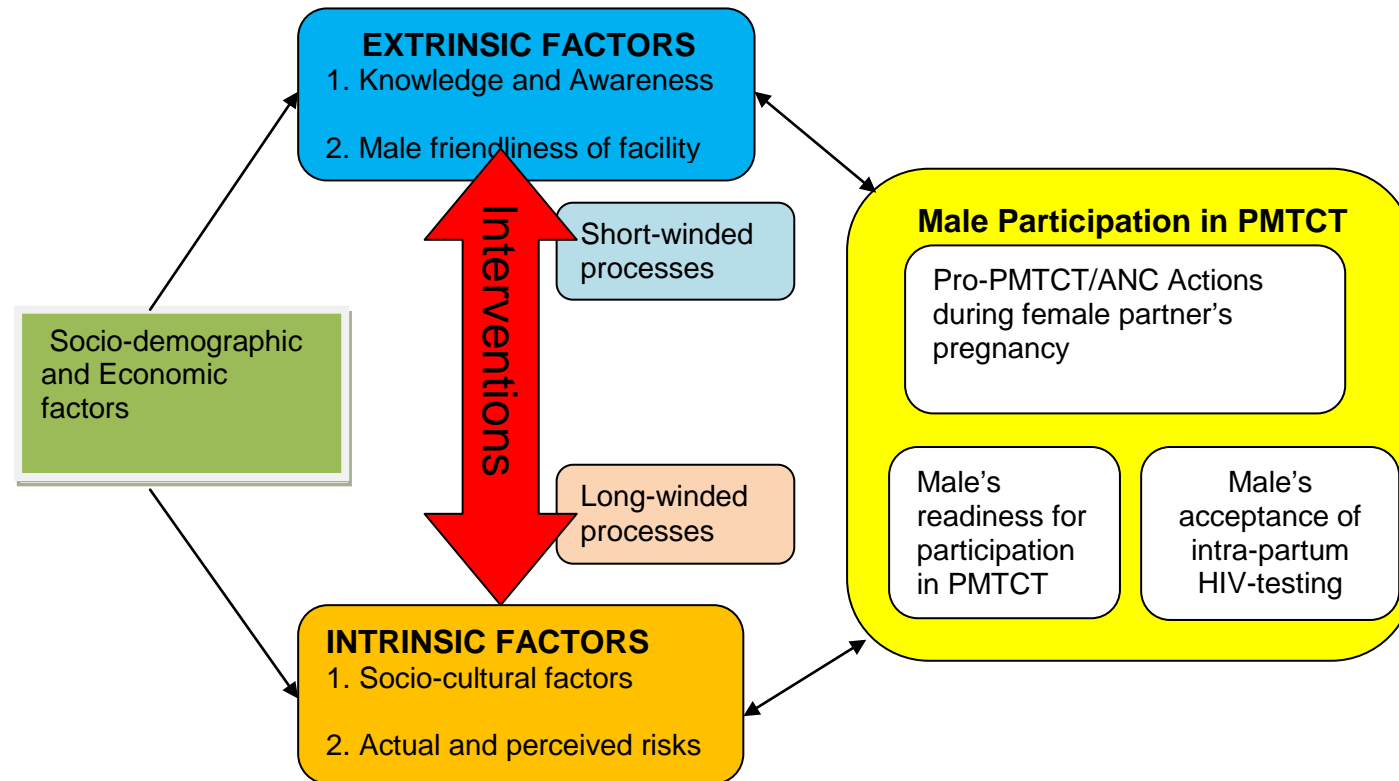


Figure 2.1: Conceptual model for the study

(Adapted from Selvan et al 2001:781; Bandura 1989:3)

2.3.2 Conceptual frameworks

Parahoo (2006:157) describe a conceptual framework as a network of interrelated concepts drawn from various theories and research findings to guide a study. This framework can be considered as a research tool intended to assist the researcher in developing awareness and understanding of the situation under scrutiny and to communicate this to others (Smyth 2004). According to Rimer and Glanz (2005:36), researchers can begin using known health behaviour theory to develop a set of assumptions about factors contributing to health-related conditions. In this case, several theoretical approaches may need to be employed to frame the study, conveying a better relationship among the concepts concerned, especially when multiple levels (individual, organisational, community) of such health-related conditions as male participation in PMTCT are targeted (Rimer & Glanz 2005:36).

On the other hand, Brink (2006:24) and Burns and Grove (2005:121) contend that in quantitative studies the framework can be a testable theory, defining concepts and proposing their interrelationship that may emerge from a conceptual model, or that may be developed inductively by the researcher from published research or clinical observations. This study combines both approaches and takes up concepts from Social Cognitive theory (SCT), the Health Belief model and three studies (Selvan et al 2001:781; Theuring et al 2009:98-100; Tshimbubu 2006:15) to formulate assumptions about the possible factors (and their interrelationships) related to male participation in PMTCT.

2.3.2.1 *Health Belief Model and Social Cognitive Theory as part of male participation in Prevention of Mother-To-Child Transmission*

According to the Health Belief model, perceived susceptibility is one of six main constructs that influence people's decisions on whether to take action to prevent, screen for, and control illness (Rimer & Glanz 2005:13). In this study actual and

perceived risk was taken up and adapted, from the Health Belief model, as possible factors related to male participation in PMTCT. In addition, SCT favours a dynamic triadic reciprocal determinism in which personal factors, environmental factors, and human behaviour exert influences of varying strength and time dimensions upon each other bi-directionally (Bandura 1989:2; Rimer & Glanz 2005:19; Stone 1998:3). This study took up environmental factors, personal factors and human behaviour from SCT and adapted them as extrinsic factors, intrinsic factors (terms used by Theuring et al 2009:98-100) and male participation respectively.

2.3.2.2 Three parameters in male participation in Prevention of Mother-To-Child Transmission

This study assessed male participation in PMTCT by three parameters, namely (i) pro-PMTCT/ANC actions taken by the males during their female partner's pregnancy; (ii) male readiness for participation in PMTCT; and (iii) their acceptance of intra-partum HIV-testing.

2.3.2.3 Intrinsic and extrinsic factors in male participation in Prevention of Mother-To-Child Transmission

As can be seen from the conceptual model in figure 2.1, it is assumed that male participation is influenced by extrinsic and intrinsic factors (Theuring et al 2009:98) and vice versa, indicating a bi-directional interaction (Bandura 1989:2; Rimer & Glanz 2005:19, Stone 1998:3). The extrinsic factors, which are structural, organisational or institutional in nature (Theuring et al 2009:98), were assessed in this study by male knowledge and awareness on PMTCT/HIV and male friendliness of ANC/PMTCT sites.

The intrinsic factors, which are led often by cultural and traditional beliefs and/or strong emotions such as fear (Theuring et al 2009:98), were assessed by socio-cultural

determinants, and against actual and perceived risks. According to Stone (1998:3), biological factors (e.g., age, sex, ethnicity) fit in the personal category of the triad of SCT. These biological factors, that correspond to the socio-demographic field, are depicted in this study's model as separate rather than as intrinsic. This is done purposefully, as the central intervention arrow in the model (Figure 2.1, above), linking the extrinsic and intrinsic factors, does not make sense for biological factors. Intervention aimed at improving male participation may thus not have direct influence on the biological factors.

The large central intervention arrow reflects the emphasis on interventions based on research findings. Interventions to overcome intrinsic factors are assumed more difficult and long-winded than those processes aimed at addressing extrinsic factors, thus suggesting the need to strive first to address external barriers for a relatively rapid behavioural changes outcome. This model assumes that improvement of male participation in PMTCT will gradually have a positive bearing on the community's perceived level of normality of male participation in ANC/PMTCT. This in turn will prepare the way for improved external conditions to influence positively the traditional paradigms and intrinsic motivations towards higher male participation in PMTCT/ANC services (Theuring et al 2009:98). Reciprocally, as intrinsic factors are tackled, they are assumed to shape external factors favourably, thereby improving male participation in PMTCT service (Bandura 1989:2; Rimer & Glanz 2005:19, Stone 1998:3).

2.4 PREVENTION OF MOTHER-TO-CHILD TRANSMISSION

This section reviews relevant empirical literature on PMTCT and male participation.

2.4.1 Transmission of Human Immunodeficiency Virus

HIV can be transmitted through sexual intercourse (vaginal, anal or oral), sharing of contaminated sharps and needles, transfusion of blood and blood products, and occupational exposure (Disease Prevention and Control Department 2005:9-10). However, according to the World Health Organisation (WHO) (2010a:8), MTCT, also referred to as vertical or perinatal transmission of HIV, contributes to more than 90% of HIV infections in infants and children. Without any interventions, around 5 to 10% of HIV-infected pregnant mothers transfer the infection to their children during pregnancy, 10 to 15% during L&D, and 5 to 20% during breastfeeding (WHO/CDC 2008:7). Table 2.1 (below) summarises the risk factors associated with increased MTCT.

Table 2.1: Factors associated with increased mother-to-child transmission of HIV

Maternal factors	Infant factors	Obstetric and delivery practices
<ul style="list-style-type: none"> • Viral load, advanced HIV disease • Low CD4 count, • New HIV infections in the mother • Viral, parasitic and other infection of placenta • Nutritional deficiency (iron foalte, Vitamin A, and Zinc deficiencies) • Breast conditions (nipple fissures, cracks, mastitis and breast abscess) 	<ul style="list-style-type: none"> • First infant in multiple birth • Preterm low birth weight • Prolonged duration of breastfeeding • Mixed breastfeeding • Oral lesions in the infant 	<ul style="list-style-type: none"> • Rupture of membrane for more than 4 hours (routine artificial rupture of membrane) • Birth canal injury during child birth(Instrumental assisted delivery unless absolutely indicated) • Ante-partum procedures (Amniocentesis and external cephalic version) • Invasive procedures (routine episiotomy and foetal scalp monitoring) • Delayed infant cleaning and eye care • Routine infant airway suctioning • Vaginal delivery • Prolonged labour

(Adapted from guidelines for prevention of mother-to-child transmission of HIV in Ethiopia (EMOH/HAPCO 2007a:9-10).

2.4.2 Strategies to prevent mother-to-child transmission of HIV

In settings with limited or no specialised paediatric HIV care and treatment, 50% of children who are HIV-infected through MTCT would die by the age of two (EMOH/HAPCO 2008:17). Therefore, the most cost-effective strategy to tackle paediatric HIV infection and the related high degree of mortality in such settings is to strengthen PMTCT services (EMOH/HAPCO 2008:14). For this reason, WHO and other United Nations (UN) organisations emphasize increasing availability and access to PMTCT services.

2.4.3 Four-pronged strategic frameworks in Prevention of Mother-To-Child Transmission

A declaration by the UN General Assembly Special Session on HIV/AIDS (UNGASS) held in June 2001 reflected this position, setting a goal for 20% and 50% reductions in paediatric HIV infection by 2005 and 2010 respectively, through provision of PMTCT services to 80% of pregnant women accessing antenatal care (WHO 2003:3). To achieve this ambitious UNGASS goal, WHO and the UN have recommended a comprehensive, four-pronged strategic framework for preventing MTCT of HIV, encompassing:

- Primary prevention of HIV infections
- Prevention of unintended pregnancies among HIV-infected women
- Specific interventions to prevent transmission of HIV from infected women to their children
- Provision of care, treatment and support for HIV-infected mothers and their infants and families (WHO 2003:2)

2.4.3.1 Primary prevention of human immunodeficiency virus infection

Preventing HIV in women, particularly young women, and their partners is the best way to ensure that secondary transmission to infants does not occur (FHI 2004:2; WHO 2003:9). This could be achieved through implementation of behavioural change communication, scaling up of HIV-testing and counselling, improvements in case detection and management of STIs, making blood supply safer, and addressing contextual factors that increase women's vulnerability to HIV (e.g., schooling, economic dependency, cultural and social practices) (EMOH/HAPCO 2007a:3; FHI 2004:2). WHO emphasizes at least four areas to address primary prevention efforts in the context of PMTCT programmes:

- Expansion and intensification of HIV prevention efforts
- Strengthening of links between programmers to prevent MTCT of HIV and other HIV prevention efforts
- Focus on HIV prevention during pregnancy and lactation
- Promotion of male participation in PMTCT (WHO 2003:9).

2.4.3.2 Prevention of unintended pregnancy among women living with human immunodeficiency virus

That more than 50% of all births in some countries are due to unintended pregnancies indicates the great potential of contraception to prevent thousands of cases of vertical HIV transmission (FHI 2004:4). USAID-funded analysis of the costs and benefits of adding family planning services to PMTCT programmes found that in PEPFAR focus countries, family planning can double the cost effectiveness of PMTCT services in

averting new paediatric HIV infections (Stover, Fuchs, Halperin, Gibbons, & Gillespie, 2003:1)².

A study of the cost-effectiveness of Nevirapine (NVP) in eight African countries found only a moderate reduction (5.6% to 12.4%) of unintended pregnancy rate among HIV-infected women had same impact as a single dose. An exception was Rwanda, where a 35% reduction in unintended pregnancy rate was required for an equivalent drop in infant HIV infection (Sweat, O'Reilly, Schmid, Denison, & Zoysa 2004). Two other studies have also found of the integration of family planning services with PMTCT interventions in sub-Saharan and other PEPFAR focus countries to be cost-effective (Reynolds, Janowitz, Homan, & Johnson 2006; Reynolds, Janowitz, Wilcher, & Cates 2008). The contribution to PMTCT of family planning services integrated into HIV care services is therefore not to be underestimated.

2.4.3.3 *Prevention of transmission of human immunodeficiency virus infection from infected women to their children*

In the broader sense, prevention of transmission of HIV infection from infected women to their children will involve a range of strategies and activities, including improved availability, quality and use of MCH services; HCT in the context of PMTCT services; antiretroviral chemoprophylaxis for PMTCT; infant feeding counselling and support; and safer obstetric practices (EMOH/HAPCO 2007A:3; FHI 2004:5-10; WHO 2003:11-12).

² PEPFAR focus countries include Botswana, Cote d'Ivoire , Ethiopia, Guyana, Haiti, Kenya, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Vietnam and Zambia

2.4.3.3.1 *HIV counselling and testing for Prevention of Mother-To-Child Transmission*

Routine offers of HCT to ANC clients (an opt-out HCT approach) help identify many HIV-infected women and provide an opportunity to empower these women to make crucial decisions regarding specific PMTCT-related issues such as antiretroviral drugs (ARVs), infant feeding, and SRH (FHI 2004:5). Studies have found that the opt-out approach contributes to high uptake of HIV-testing in many countries and programmes around the world (Chandisarewa, Stranix-Chibanda, Chirapa, Miller, Simoyi, Mahomva, Maldonado, shetty 2007:848; Holmes, Preko, Bolds, Baidodo, & Jolly 2008:13; Pai, Tulsy, Cohan, Colford, & Reingold 2007:167). For PMTCT interventions to have the greatest impact, women and their male partners should be encouraged to take an HIV test regardless of when they present for services, whether during pregnancy or L&D (FHI 2004:6).

2.4.3.3.2 *Administration of antiretroviral drugs*

A number of studies have shown the administration of ARV drugs to the mother, starting from pregnancy or only at onset of labour, and to the infant after delivery, to be effective in reducing MTCT rates (Moodley, Moodley, Coovadia, Gray, McIntyre, Hofmyer, Nikodem , Hall , Gigliotti , Robinson , Boshoff & Sullivan 2003; Petra study team 2002; Taha, Kumwenda, Hoover, Fiscus, Kafulafula, Nkhoma, Nour, Chen, Leomba, Miotti, & Broadhead 2004:206; Volmink, Siegfried, Merwe, & Brocklehurst 2007).

In 2010, WHO issued new guidelines on PMTCT that recommended two options without preference of one over the other. Option A recommends ante-partum twice-daily *Zidovudine* (AZT), starting from 14 weeks of gestation plus single dose NVP at onset of labour, plus AZT and *lamivudine* during labour and delivery and for 7 days post-partum for HIV-infected mother not eligible for ART. If the mother has received more than four weeks of AZT during pregnancy, the intra-partum NVP and post-partum

ARVs can be omitted. In option A, breastfeeding infants will receive daily NVP from birth until one week after complete cessation of breastfeeding, while non-breastfed infants receive daily NVP from birth or single dose NVP at birth plus twice daily AZT from birth until four to six weeks of age. Option B recommends that mothers not eligible for ART receive ante-partum daily triple ARV prophylaxis starting from 14 weeks of gestation until delivery, or, if breastfeeding, until one week after complete cessation of breastfeeding. This option recommends that infants, irrespective of infant feeding practices, receive daily NVP or twice daily AZT from birth to four to six weeks (WHO 2010b:35-36).

2.4.3.3.3 Breastfeeding and Prevention of Mother-To-Child Transmission

Breastfeeding alone contributes to a significant proportion of MTCT rates (WHO/CDC 2008:7). Complete avoidance of breastfeeding eliminates MTCT risk through breastfeeding but this is not usually affordable in most sub-Saharan countries. In addition, (non-exclusive breast feeding has been shown to double the risk of early postnatal transmission in Zambia (Kuhn, Sinkala, Kankasa, Semrau, Kasonde, Scott, Mwiya, Vwalika, Walter, Tsai, Aldrovandi & Thea 2007). Replacement feeding has also been shown to increase the risk of infant death from other causes (Thior, Lockman, Smeaton, Shapiro, Wester, Heymann, Gilbert, Stevens, Peter, Kim, Widenfelt, Moffat, Ndase, Arimi, Kebaabetswe, Mazonde, Makhema, McIntosh, Novitsky, Lee, Marlink, Lagakos & Essex for the Mashi Study Group 2006: 794).

Exclusive breastfeeding has been shown to be effective as replacement feeding in achieving HIV-free child survival (Kuhn et al 2007). Recent studies have shown that ARVs administered to the infant or mother during breastfeeding result in significant reduction in MTCT, therefore WHO now recommends national authorities adopt either of the two approaches (combination of exclusive breastfeeding and ARV intervention or replacement feeding), based on national considerations (WHO 2009:7).

2.4.3.3.4 Safe obstetric practice and Prevention of Mother-To-Child Transmission

Another important consideration under the third prong is safe obstetric practice. For higher maternal viral load (>1,000 copies/ml), caesarean section has been shown to reduce the risk of MTCT when carried out before the onset of labour and rupture of the amniotic membrane (Bartlet & Gallant 2007:117). However, in resource-constrained settings this may be inappropriate for its limited availability, cost and risk of surgical complications. Invasive obstetric procedures indicated in Table 2.1 (above) increase the risk of MTCT and thus should be avoided unless absolutely necessary (Preble & Piwoz 2001:16; WHO 2003:11). Following labour with partograph routinely should be emphasised as this helps prevent prolonged labour and increase of MTCT risk (Preble & Piwoz 2001:16).

2.4.3.4 Treatment, care and support for human immunodeficiency virus positive mothers, their infants and family members

Providing mothers and their family with care, treatment and support is a natural development of PMTCT programmes. Most Mothers, when offered HIV-testing, would initially ask, “what can you do for my baby?”, but soon expect interventions for their own health also (WHO 2003:12-13). This interest could then extend to other members of the family, including the partner. According to WHO (2003:13) and FHI (2004:11), there are several justifications for care, treatment and support of HIV-infected mothers and their families.

This prong meets the ethical obligation to treat mothers and family members when ART is indicated, which in turn positively influences the support and use of PMTCT services. It would also improve both the survival and quality of life of parents, thereby enhancing survival of their HIV-exposed infant. Through facilitation of HIV status disclosure, this prong supports medical follow up of parents and HIV-exposed infants; initiation of pediatric ART when indicated; and adherence to ARV regimens and infant feeding

choice. The fourth prong offers a more efficacious intervention to prevent MTCT as antiretroviral treatment, when indicated, significantly decreases the maternal viral load and the risk of MTCT as compared to short course ARV prophylaxis.

2.4.4 Male Participation in antenatal care and Prevention of Mother-To-Child Transmission

Male participation is a wide concept whose meaning varies depending on the couple and community considered: some males may express their participation by accompanying their female partners during a facility visit, and volunteering for HIV-testing and counselling. On the other hand, many prefer not to accompany but instead agree to cover the fees for transportation and ANC/PMTCT services (Rutenberg, Kalibala, Mwai, & Rosen 2002:29).

Theuring et al (2009:97) in the Mbeya region, Tanzania, found a rather vague perception of the concept of active paternal role in pregnancy and PMTCT among male interviewees (83% being in a marital relationship). For most of these respondents, active paternal role meant ensuring daily subsistence and surviving of the family through food supply, security and broad aspects of health. The same study, however, evaluated other parameters in an attempt to understand male perspectives on PMTCT services. These parameters included willingness for, or actual ANC service attendance, undergoing CHCT, attending to the baby's health, and providing support in housework.

Tshimbubu (2006:33) asked a relatively more comprehensive set of questions to measure the level of male participation in Mambwe district, Zambia. These included awareness of partner's HCT status; discussion with partner about HCT; male MCH/PMTCT attendance; male HIV-testing with partner; willingness to support partner in ARV prophylaxis; and infant feeding. Failure to find an agreed upon measure of the level of male participation in PMTCT is considered as a methodological challenge in the undertaking of this research.

2.4.4.1 *The significance of male participation*

De Paoli, Manongim, & Klepp (2004:411) posits that male partner commitment and participation is critical to ensuring full engagement of pregnant women and mothers in PMTCT, and thus maximizing the benefits thereof. Male participation in PMTCT/MCH is important for at least three main reasons: firstly, it influences women, as some males care about their partners and support them while others stand in their partner's way or make decisions on the partner's behalf. Thus, male readiness and active participation in PMTCT/MCH can determine whether women can adhere to the recommendations to prevent MTCT.

Secondly, males are also important as clients themselves, as they make the decision of whether or not to use male condoms. They also have concerns regarding STIs, HIV infections and MTCT of HIV that deserve the attention of the healthcare system and providers. Thirdly, decisions on matters of reproductive health(RH), including PMTCT, e.g. infant feeding, occur within relations that affect both males and their partners (WHO & Centre for Communication Program (CCP) 2007:270; Food and Agriculture Organisation (FAO), World Health Organisation(WHO), International Labour Organisation(ILO) , & United Nations Educational, Scientific and Cultural Organisation(UNESCO)1998:15). It has been noted in previous research that social support plays a critical role in enabling women to make favourable decisions and adhere to the course of PMTCT/MNCH interventions recommended (Theuring et al 2009:93).

The social support should involve male partners, who are key decision makers in issues of SRH in many societies. Male partners have a high potential to impact on pregnant women's health-seeking behaviour in a range of SRH issues, including prenatal care utilisation (Biratu & Lindstrom 2000:84), uptake of HCT, and PMTCT services (Sarker, Sanou, Snow, & Gondos 2007:1475; Semrau, Kuhn, Vwalika, Kasonde, Sinkala, Kankasa, Shutes, Aldrovandi & Thea 2005:603).

According to Takele (2007:52), communication with the partner plays a vital role in women's uptake of HIV-testing at MCH clinics and subsequent PMTCT interventions;

therefore, encouraging women to engage in a discussion about testing with their partners may be a feasible intervention to improve couples' participation in PMTCT (Sarker et al 2007:1475).

Several studies have shown that couple counseling would improve HCT acceptance and PMTCT service uptake. Semrau et al (2005:603), for example, found that couple-counselled women were more likely to accept HIV-testing (96%) than women counselled alone (79%). A strong association was also observed in Cambodia between HCT acceptance in ANC and partner participation in PMTCT (Kakimoto, Kanal, Mukoyama, Vuoch Chheng, Lengchou & Sedtha 2007:381). Similarly, partner participation in Voluntary Counselling and Testing (VCT) and ANC couple-counselling increased uptake of NVP and formula feeding (Farquhar, Kiarie, Richardson, Kaburay, John, Nduati, Mbori-Ngacha, John-Stewart 2004:1620; Msuya, Mbizvo, Hussain, Uriyo, Sam, & Stray-Pedersen 2008:700) and were also associated with greater likelihood of condom use (Farquhar et al 2004:1620). However, Semrau et al (2005:603) found no improvement in NVP uptake among couple-counselled women.

Several other African studies have also proven the influence males may have on HIV test uptake. Studies conducted on ANC attendees in developing countries (Uganda, Nigeria, Zimbabwe, Namibia, Tanzania, and Ethiopia) revealed that pregnant women declined HIV-tests either because they wanted to consult their male partners prior to the testing or were afraid of their reaction and rejection should they test positive (Dahl, Mellhammar, Bajunirwe & Björkman 2008:746; Iliyasu ,Kabir, Galadanci , Abubakar & Aliyu 2005; Perez, Zvandaziva,Engelsmann & Dabis 2006:514; Toivo 2005:37; Urassa, Gosling, Pool, & Reyburn 2005:842; Worku 2007:26).

In general, the potential benefits of male participation in SRH and PMTCT include expanded rights for women, better communication between partners, joint and informed decision-making within households, and improved family health, including reduction of risk of paediatric HIV infection (Walston 2005:3). However, Clark (2000), while of favourable opinion regarding participation of males in RH programmes and services, recommends consideration be given to tackling two important potential caveats, i.e., a "paternalistic" approach that jeopardises women's interest, and "subtraction of

resources from women's programs". He instead states that male participation should always protect women's interest and bring additional resources into existing women's programmes. On the same line, the Population Council annual report (2001:20) states that programmes should be equally sensitive to those women who want their partners' participation in RH issues and those who do not.

2.4.4.2 Paradigm shift of male participation in reproductive health

Previously, women had almost been the sole focus of healthcare providers and researchers during planning of RH programmes and services, especially with regard to family planning, prevention of unwanted pregnancy and of unsafe abortion, and promotion of safe motherhood (WHO 2002:vii). However, according to the WHO report (WHO 2002:viii), in recent years efforts have been made in many countries to promote males' understanding of their potential familial and social roles in SRH issues. For instance, a Cambodian policy project document confirms that recognition is increasingly growing on a global scale that the participation of males in RH policy and service delivery offers both males and women important benefits (Walston 2005:v). This interest in engaging males in SRH has been reflected in the report of the Cairo International conference on population Development (ICPD) program of Action, which states:

... special efforts should be made to emphasize men's shared responsibility and promote their active involvement in responsible parenthood, sexual and reproductive behavior including family planning; prenatal, maternal child health; prevention of sexually transmitted diseases, including HIV; prevention of unwanted and high-risk pregnancies; shared control and contribution to family income (Paragraph 4.27) (UN, 1994:30)

According to the Interagency Gender working Group (IGWG) report (IGWG 2006:1), the increasing number of programmes involving males in RH indicate the attention given to, and promising changes in the field. Males are central to SRH, and the growing number

of male engaging programmes reflects an understanding and approval of how male participation contributes to their health and that of their partners and children and, potentially, to broader gender equity objectives.

However, according to Walston (2005:v), though several government policies and strategies offer strong opportunities for male participation, this may suffer when it comes to real implementation on the ground. For example, in Cambodia RH services usually focus on men who are suspected to be at high risk, e.g., military personnel and migrants.

2.4.4.3 *The status of male participation in Prevention of Mother-To-Child Transmission*

Efforts to prevent MTCT of HIV will be more effective if males are involved in the RH of their partners. In line with this, Aluisio, Richardson, Bosire, John-Stewart, Mbori-Ngacha and Farquhar (2011) found that antenatal partner attendance and reported prior partner HIV-testing both lowered the combined risk of MTCT of HIV or infant death. In order to improve male participation in PMTCT, several activities have been attempted, including sending invitation letters to males; providing a token monetary incentive to any male who accompanies partner to first antenatal visit (Nkuoh, Meyer, Tih & Nkfusai 2010:364); and integrating male HCT to delivery settings where males may tend to show up (Wondale et al 2009:85).

Measures taken to engage males in ANC/PMTCT have resulted in varying modes and rates of male participation in different parts of the world. Orne-Gliemann, Tchendjou, Miric, Gadgil, Butashvili, Eboko, Perez-Then, Darak, Kulkarni, Kamkamidze, Balestre, Desgrées du Loû and Dabis (2010) found low couple discussion about HIV, as reported by most women interviewed in India and Cameroon. Similarly, Byamugisha, Tumwine, Semiyaga and Tylleskar (2010a), in eastern Uganda, found that only three in ten males interviewed discussed intervention at ANC clinics. However, Katz, Kiarie, John-

Stewart, Richardson, John, and Farquhar (2009) found that six in ten males expressed having discussed HIV-testing with their partner previously while nearly all males (97%) covered financial expenses of ANC follow up in eastern Uganda (Byamugisha et al 2010a). Similarly almost all males (98%) in Tanzania and 73.4% of males in Cameroon felt covering financial expenses of ANC visits as their primary role in MCH (Nkuoh et al 2010:366; Theuring et al 2009:97). It was also found that half of the interviewed male partners in Uganda remembered their partner's ANC appointments (Byamugisha et al 2010a).

Male attendance of partner's ANC visit ranging from 5% to 81% has been reported in different countries (Boniphace [Sa]:25; Byamugisha et al 2010a; Katz et al 2009; Nkuoh et al 2010:366; Orne-Gliemann et al 2010; Singh & Ram 2009:87; Theuring et al 2009:95-6; Tweheyo, Konde-Lule, Tumwesigye & Sekandi 2010). Similarly the proportion of male partner who received HCT during partner's pregnancy or CHCT also differed across countries ranging from 36 % to 58 % (Homsy et al 2006:151; Nkuoh et al 2010:366; Orne-Gliemann et al 2010; Theuring et al 2009:96).

2.4.4.4 Male acceptance of human immunodeficiency virus counselling and testing in labour and delivery setting

Despite continuous efforts to attract male partners of pregnant women to ANC, male attendance has remained minimal. In Ethiopia, as in most other African countries, MCH clinics have traditionally focused on women only. PMTCT programmes are attempting to reverse this trend and open the services to males and couples, but as MCH service delivery structure has not changed, very few males are attending ANC clinics. According to Homsy et al (2006:153), of the few males who appeared in ANC most wanted to test individually before deciding to receive post-test counselling with their partners. In contrast, more males spontaneously accompanied their partner to the labour ward and readily accepted testing for HIV and sharing of their results. Similarly, anecdotal observation in Ethiopia indicates that a larger number of males do accompany their female partner in labour to labour wards than they do in ANC clinics.

Thus, the labour ward may provide a window of opportunity for engaging males in CHCT and PMTCT (Wondale et al 2009:85).

According to Homsy et al (2006:149), during a 10-month period in a 200-bed rural Uganda Hospital, 45% (721/1594) women presented with undocumented HIV status and 25% (180/721) of these did so in a labour ward with their male partners. All males were offered HCT and 98% accepted, with 72% (n=180) being counselled and tested together with their female partners. Other African studies have also indicated encouraging results of intra-partum HCT of women or couples (Stringer, Sinkala, Kumwenda, Chapman, Mwale, Vermund, Goldenberg & Stringer 2004:61; Bulterys, Jamieson, O'Sullivan, Cohen, Maupin, Nesheim, Webber, Dyke, Wiener and Branson, (Bulterys, Jamieson, O'Sullivan, Cohen, Maupin, Nesheim, Webber, Dyke, Wiener & Branson 2004:219; Taha, Kumwenda, Hoover, Fiscus, Kafulafula, Nkhoma, Nour, Chen, Liomba, Miotti and Broadhead, 2004:205; Wondale et al 2009:85-6)

In Ethiopia, Wondale et al (2009:86) found that during a nine-month period, of 1,709 labouring mothers who presented to labour ward of Nekemte Hospital, 77% presented with undocumented HIV status and were thus offered HCT, with 94% of these women accepting and 34% of male partners of those women with undocumented HIV status being counselled and tested intra-partum.

2.4.4.5 Factors related to male participation in antenatal care and Prevention of Mother-To-Child Transmission

The following sub-sections discuss the findings of reviewed literature on potential factors that affect male participation in ANC/PMTCT.

2.4.4.5.1 Socio-demographic factors

Socio-economic and demographic situation may influence male participation in PMTCT. For instance, according to Walston (2005:v) the cost of reproductive/PMTCT services is more influential in preventing males than women from seeking RH/PMTCT services for couples. Wynter and Hamilton (2002:108) also state that males do value their RH role and are naturally responsible, but their demonstrated participation is constrained by limited economic status. Tshibumbu (2006:57-59) found that age and level of education have weak positive associations, while duration of relationship had weak negative association with level of male participation in PMTCT, though the association was statistically significant for age only. Contrary to this, Kassaye, Lingerh and Dejene (2005:129) found longer duration of marital or sexual partnership had a positive effect on women's disclosure to their male partners of their HIV status, and receipt of support from the latter. In Uganda, Bwambale, Ssali, Byaruhanga, Kalyango and Karamagi (2008) found that at age 35 or younger, secondary or tertiary education, non-subsistence occupation and a monthly income of more than 50,000 Uganda Shillings were associated with VCT use (which is an entry point to PMTCT) among males.

2.4.4.5.2 Knowledge and awareness of antenatal care and Prevention of Mother-To-Child Transmission

It is evident that males at least need to be aware of ANC/PMTCT programmes and their existence if they are expected to participate in these programmes. However, further research is needed into whether more knowledge and awareness could actually be linked with male's greater participation in PMTCT. According to Ntabona (2002:55), male's attitude to minimal participation in safe motherhood programmes could be attributed to the limited information males have about the variety of pregnant women's needs and lack of clarity about male's roles and responsibilities in meeting these needs. Kamal (2002:76) states that males who took a seminar on safe motherhood promised

to pass on the information to their friends, and requested such information be made available to their partners and other women. Similarly, Wynter and Hamilton's (2002:108) survey findings among males in Jamaica indicated that males are interested in fertility issues and would like to know more about and participate in RH . This suggests awareness may pave the way for better male participation in RH and PMTCT. Studies have also suggested that poor male participation in RH can be linked with lack of information on RH. A study conducted in Gujarat state of India by Action Research in Community Health and Development (2000:15) concluded that a perceived "neglect" of RH by males may be linked to a serious lack of information regarding RH matters. Similarly Mullany (2006) also found out that low levels of knowledge is one of the prominent barriers to male participation in maternal health. According to Theuring et al (2009:98), lack of knowledge was the most frequently mentioned reason for male's failure to attend ANC/PMTCT services in both recent and non-recent fathers who participated in the qualitative study conducted in Tanzania.

2.4.4.5.3 Socio-cultural norms

Certain socio-cultural practices and norms hinder males from active participation in maternal and child health in general and PMTCT in particular, with pregnancy and childbirth traditionally being seen as the domain of women (Ntabona 2002:55). For instance, RH is usually assumed to be a woman's concern in Cambodian households (Walston 2005:vi), as well as in service provision and even at policy level. Males themselves oppose their participation in RH as they regard RH as the concern of women (Walston 2005:5). Women also find it very difficult to discuss RH issues with males for cultural reasons (Walston 2005:10). A study conducted by the Foundation for Research in Health Systems (2000:8) in India revealed that although the majority of males did accompany their partners in their first ANC with the intention of confirming pregnancy, their partner generally went alone or with some other female member of the family for subsequent visit . Social stigma and shyness as barriers of male participation were also reported in Nepal by Mullany (2006). Cultural belief that death could be

hastened because of enormous stress resulting from knowing one's HIV positive status could also prevent males from seeking HCT with their partners. For example, Bwambale et al (2008) found that males were worried about an HIV test because of perceived imminent death in the case of HIV positive results.

2.4.4.5.4 Male friendliness of facilities with antenatal care and Prevention of Mother-To-Child Transmission services

The set up of facilities and providers' attitude and skills could potentially influence male engagement in PMTCT/MNCH activities. According to Muwa, Mugume, Buzaalirwa, Nsabagasani, Kintu and Nkwake (2007:6), low male participation in PMTCT is attributable to the traditional attitude of healthcare providers coupled with notices warning against entry to MCH units. Orne-Gliemann et al (2010) also reported that males did not have access to ANC consulting rooms across the four hospitals in India, Cameroon, Georgia and the Dominican Republic.

In Tanzania, Theuring et al (2009:102) found the majority of fathers felt shy as a man in the presence of many women in ANC waiting areas, while some said they were not allowed to enter the examination room. In the same study, respondents suggested special HCT hours within ANC services, weekend HCT services, a special waiting area for males, letters of invitation sent by way of women, and a medical certificate for male ANC attendance, to improve male attendance for ANC/PMTCT services (Theuring et al 2009:95-98). According to a Cambodian policy project on challenges and opportunities for male involvement, ANC/PMTCT and other RH services should be made more "male-friendly," with service providers undergoing additional training and engaging in effective outreach activities (Walston 2005:vi).

While most reproductive services allow male participation in RH , the number of more specific initiatives targeting males is limited. If males are going to seek RH care, it is necessary to change the environment in which that care is offered, address the cultural traditions associated with seeking healthcare, and alter the approach to many aspects of SRH (Walston 2005: v).

2.4.4.5.5 *Perceived and actual risk to human immunodeficiency virus*

Evidence suggests that male's perception of risk limits their participation in the RH of their family (Walston 2005:5). According to a survey conducted in Cambodia, males are motivated to use condoms primarily to protect themselves from STI but not to prevent STI transmission to their sexual partners (Sopheab, Phalkun, Leng, Suwantha & Gorbach 2000: 21). Another indicator of level of male perception of risk is the rate of HIV-testing among high-risk groups. Sopheab et al, (2000:25), in Cambodia, found that 71% of the military and 81% of "*motodop*" drivers had never undergone an HIV test. Bwambale et al (2008) also found out that only 9.1% (n=780) of males perceived themselves at high risk of acquiring HIV, indicating that males are either unclear about or refuse to acknowledge their own vulnerability and the danger to which they expose their partners (Walston 2005). Most women also mentioned low risk perception as a reason for refusal of confidential intra-partum HIV-testing and counselling (Celentano 2008:694).

2.5 **STRENGTHS AND WEAKNESSES OF STUDIES REVIEWED**

Some of the studies that used males as respondents drew their subjects from the community and not from the facility, and this could be considered as a strength. Studies that used data collected from different countries have strength in illustrating the variation of gender norms across different cultures. The recent nature of most studies could also be taken as strength.

However, as weaknesses, most of the studies reviewed used women as respondents; were qualitative in nature; and used small sample sizes. In addition, the majority were conducted outside Ethiopia and so may not reflect the latter's true picture. Most studies lacked thoroughness in assessing factors related to or affecting male participation in PMTCT.

2.6 CONCLUSION FROM THE LITERATURE REVIEW

A literature review should conclude with a concise summary of the evidence on the topic (Polit & Beck 2010:185), as here. The studies referred to underscore the significance of male participation and support for better outcome of a wide range of RH services including PMTCT. They assessed the level of male participation in RH services and PMTCT, and some assessed the obstacles and opportunities for male participation in RH issues. According to this literature, variables related to socio-demography, knowledge and awareness on RH/PMTCT, socio-cultural belief and practice, facility male friendliness, and actual and perceived HIV risk are potential factors that determine the degree of male participation in RH/PMTCT. In addition, some of the studies cited have indicated that offering intra-partum HCT to couples is an acceptable and feasible strategy to improve engagement of males in PMTCT. The literature review has also indicated that male participation in PMTCT and male acceptance of intra-partum HCT has not adequately been studied in the Ethiopian context.

From the above discussion, it follows that there is a need for quantitative study involving males themselves to assess factors related to their active participation in PMTCT in an Ethiopian setting. Male acceptance of intra-partum HCT in labour wards also needs be studied, thus strengthening the motivation for this study.

2.7 CHAPTER SUMMARY

In general, the sources cited in this section have helped to guide the methodology and theoretical framework and to place this study in the context of empirical sources. The empirical literature in particular has led to a better understanding of concepts such as PMTCT of HIV, what and why of male participation in PMTCT, and factors related to male participation in PMTCT/RH. Even though the literature review has shed light on

male participation in PMTCT and male acceptance of intra-partum HCT, it has also indicated a knowledge gap in these subjects, specifically in the Ethiopian context, thereby further justifying this study. The strengths and weakness of the literature reviewed have also been noted.

CHAPTER 3

RESEARCH DESIGN AND METHODS

3.1 INTRODUCTION

This chapter elaborates on the research design and methodology adopted by providing description of procedures followed and their justification. It discusses the design, the study population, the eligibility criteria, the sampling methods and sample size, the research instrument, data collection process, ethical and legal considerations, and data analysis process.

3.2 RESEARCH DESIGN

Morrone and Myer (2007:77) and Bowling (2009:158) refer to study design as the 'architecture' or overall structure of a study because its choice determines how the population is sampled, as well as how measurements are collected and data analyzed. It is the plan that answers the questions 'what?' and 'how?' one is going to observe and analyze data in a proposed study (Babbie 2007:87). According to Burns and Grove (2005:211), a research design is a blueprint for conducting a study that maximizes control over factors that would interfere with the validity of the findings. Consultation with a statistician is thus essential at the design stage of a study such as this (Bowling 2009:159), i.e., a public health epidemiologic study, in a quantitative paradigm and following a descriptive correlational design with cross-sectional timeframe.

3.2.1 Epidemiologic studies

Epidemiologic studies focuses on gathering of information on health-related conditions in groups of people, and on agents in the environment that contribute to or prevent changes in such a health condition (Brink 2006:106). As this study collected information from males (groups of people) to assess potential factors related to male participation in PMTCT (health condition), it falls under the category of epidemiologic study.

3.2.2 Cross-sectional studies

Cross-sectional studies are those in which all the information is collected during one data collection period (Polit & Beck 2010:239). Such studies describe the frequency (or level) of an attribute (health-related event) in sample of a population at a given point in time (Martin 2005:120). In this study, male partners were interviewed once to collect information on their level of participation in PMTCT and potential factors related to their participation. Collecting all the required information at a single contact with respondents makes this research a cross-sectional study.

3.2.3 Descriptive correlational study

A descriptive correlational design aims at examining the relationship that exists in a situation and using it facilitates the identification of many interrelationships in a situation in a short time (Burns and Grove 2005:240). An investigator thus examines the relationship between two or more variables, as well as its strength (LoBiondo-Wood & Haber 2010:200). Advantages of correlational studies include increased flexibility for investigating complex relationships among variables that cannot inherently be

manipulated; efficient and effective methods of collecting large amounts of data; potential for evidence-based application in a clinical setting; and setting a foundation for future experimental or other types of studies. However, it has one major limitation of inability to determine causal relationship between variables because of lack of manipulations, control and randomization (LoBiondo-Wood & Haber 2010:201). As this study investigates the interrelationship between male participation in PMTCT with factors related to it, descriptive correlational design is appropriate.

3.3 RESEARCH METHODS

Research methodology refers to techniques and practices used in the course of sampling, data collection, data processing and analysis (Bowling 2009:158; Parahoo 2006: 185; Polit & Beck 2010: 567)).

3.3.1 Study setting

Polit and Beck (2010:568) define study setting as “the physical location and conditions in which data collection takes place in a study”. The study was conducted at three public hospitals in Addis Ababa, the capital and largest city of Ethiopia, situated in the centre of the country at an elevation of about 2,440 m (about 8,000 ft) above sea level, on a plateau crossed by numerous streams and surrounded by hills (*Microsoft Encarta* 2008). (See figure 3.1. below). There are 10 sub-cities and its projected population in *Ethiopian Fiscal year (EFY) 2001* (from September 2008 to August 2009, in the Gregorian calendar, G.C.) was estimated to be 2,854,462. Males made up 47.6% (n=2,854,462) of the total population (PPFGD-EMOH 2010:3), with 34.6% (n=2,854,462) women in the reproductive age group, and a total number of expected pregnancies being 76,414 (PPFGD-EMOH 2010:12).



Figure 3.1: Administrative Map of Addis Ababa

<http://www.addisallaround.com/Portals/0/maps/1038055563.jpg> (accessed 10 May 2011)

Currently there are a total of 34 public health facilities (9 hospitals and 25 health centres) and 30 private/NGO hospitals and labour wards that are officially providing PMTCT services in Addis Ababa. Of these, 55 are administered by AACAHB and the remaining five hospitals (Black Lion Hospital, St. Paul Hospital, Armed Forces General Hospital, Police General Hospital, Bella Hospital) are administered by Federal Ministry of Health of Ethiopia (FMOH) (ETHARC [Sa]; Kiflemariam 2010:7). The study was conducted at labour wards of Gandhi Memorial Hospital , Zewditu Memorial Hospital and Yekatit 12 Hospital . Of the four public hospitals with PMTCT service under the

administration of AACAHB, Saint Peter Hospital was intentionally dropped because it started delivery service only recently and the number of deliveries was significantly minimal. The Labour ward setting was chosen for three reasons. Firstly, anecdotal evidences in Ethiopia suggest that males consider partner's L&D as a major event worth attending and thus more males can be accessed in labour wards as compared to other MCH settings. Secondly, as the process of child birth takes some time and mothers are kept in hospital for at least 6 hours after delivery, the males are more likely to stay around for adequate interaction with data collectors. Last but not least, proportion of women in labour that are accompanied to labour wards by their male partners was an objective for this study thereby justifying why the labour ward setting was chosen.

3.3.2 Target Population

The target population, simply referred to as 'the population', is the entire set of individuals who meet the sampling criteria (Burns & Grove 2005:342), and is thus the group or collection to which the researcher is interested in generalizing the research findings (Babbie 2007:190; Haber 2010:222) Polit & Beck 2010:307;). The population for this study comprises males who accompany their partner to a labour ward in a public Hospital of Addis Ababa.

3.3.3 Study Population

The study population, sometimes called 'the accessible population', is the portion of the target population to which the research team has reasonable access (Burns & Grove 2005:342; Polit & Beck 2010:307). It is the group from which the sample is actually selected (Babbie 2007:190). Males who accompanied their partner to a labour ward in

one of the three public hospitals during the study period are considered the study population for this research.

3.3.4 Inclusion (Eligibility)/Exclusion Criteria

Eligibility criteria (inclusion criteria) relate to the characteristics that delimit the study population (Polit & Beck 2010:306), though researchers may also establish the exclusion criteria which define population in terms of characteristics that people must *not* possess (Polit & Beck 2010:306). Such inclusion/exclusion criteria need to be explicitly indicated in a study (Joubert & Katzenellenbogen 2007a:94) to form the basis for investigator's decision of whether an individual would or would not be classified as a member of the population in question (Brink 2006:124).. The inclusion and exclusion criteria are as follows:

Inclusion criteria

- Male sex
- Man who accompanied his female partner to a labour ward of one of the three public hospitals in the study period

Criteria not included as inclusion criteria

- The man's consent for referral to HCT in the labour wards was not considered as inclusion criterion, as those who gave consent for the interview but declined HIV-testing were also included in the study
- The man's age, ethnicity, political or religious affiliations

Exclusion criteria

- Male partner who could not stay in the hospital for the interview, because he had to accompany his partner who was in labour and was referred to another facility

- Person not willing to participate in the study.

3.3.5 Sampling

Sampling is a process of selecting a sample that is a representative portion of the target population (Babbie 2007:190; Brink 2006:124; Haber 2010:221; Polit & Beck 2010:307). Researchers take samples to study because it is more economical and practical to do so. (Haber 2010:221; Parahoo 2006:256; Polit & Beck 2010:307). Researchers cannot usually identify all the members of the population, which fortunately is not necessary as a carefully selected sample can provide representative data allowing the drawing of inferences about the population (Parahoo 2006:256). The sampling procedure, rationale and sample size calculation are described below.

3.3.5.1 Method of selecting sample

Systematic random sampling was used to select the sample to be studied in this research project. According to Joubert and Katzenellenbogen (2007a:100), systematic sampling selects individuals at fixed intervals from some list or ordering after choosing the first participant at random. As far as the ordering has no cyclical pattern and the first client or patient is selected at random, a researcher can aim to select a random sample from admissions or visits to a hospital using a systematic sampling technique (Brink 2006: 130; Joubert and Katzenellenbogen 2007a:100). This sampling method falls under a probability sampling, an approach that selects sampling elements by random means (Polit & Beck 2010:313), wherein every sampling element has a known chance (or probability greater than zero) of being included in the study (Haber 2010:230 ; Parahoo 2006: 259; Polit & Beck 2010:313). The advantages of systematic sampling are that it is a relatively convenient and inexpensive way to draw up a probability

sample (Brink 2006:129; Polit & Beck 2010:315)); and the complete population need not be known before one starts to select the sample (Joubert & Katzenellenbogen 2007a:100).

The main disadvantage is that the order of the elements should not have a cyclic pattern (Parahoo 2006:265). In this study, the investigator wrote “one” on a piece of white paper and “two” on another piece of white paper of the same size. The pieces of paper were then folded several times to equal size and a colleague was asked to pick one blindfold. The colleague picked the piece with “two” written on, so of the first two males whose partners were admitted to the labour wards on the first day of the study, that of the woman who was admitted next was interviewed. Every other male was then interviewed until the required sample size was achieved.

It would have been more useful to use simple random sampling to select from a sampling frame of male partners of Ethiopian women who were either pregnant or lactating, however this would be impractical. Covering a wider geographic area, collecting community-based data or at least that from public, private, armed forces, police and NGO health facilities of all levels, would have been more useful as far as representation and generalisation are concerned, however this would require a greater budget, more time and other resources, as well as raising feasibility concerns which the researcher could not afford or contemplate.

3.3.5.2 *Size of sample*

A study should be conducted on a sample which is neither too large nor too small, as these would lead, respectively, to wastage and unmanageable data, and wastage and non-conclusive data. (Joubert & Katzenellenbogen 2007a:102).

The sample size was calculated by estimating the single proportion of optimal male participation in ANC/PMTCT using the formula indicated below (Sayed 2007:347).

Male attendance of partner's ANC is taken as a proxy for male participation in PMTCT. Takele (2007:46) found that 10.0% of women were accompanied by their partners to PMTCT clinics at five public hospitals in Addis.

$$N_1 = (Z)^2 [P (1- P)/ d^2]$$

$$N = N_1 + 0.1(N_1)$$

Where:

N_1 = sample size assuming 100% response rate

N = Sample size adjusted for a non-response rate of 10%

P = anticipated proportion of males with optimal participation in ANC/PMTCT. This is assumed to be 10% (i.e. 0.1) as per the assumption made above

Z = cut off (Critical value) at 95% confidence level of certainty (1.96)

d = the margin of error between the sample and the population assumed to be 4% (i.e. 0.04)

Computation for N gives 238.

3.3.5.3 Sampling procedure

The sampling procedure is schematically represented below.

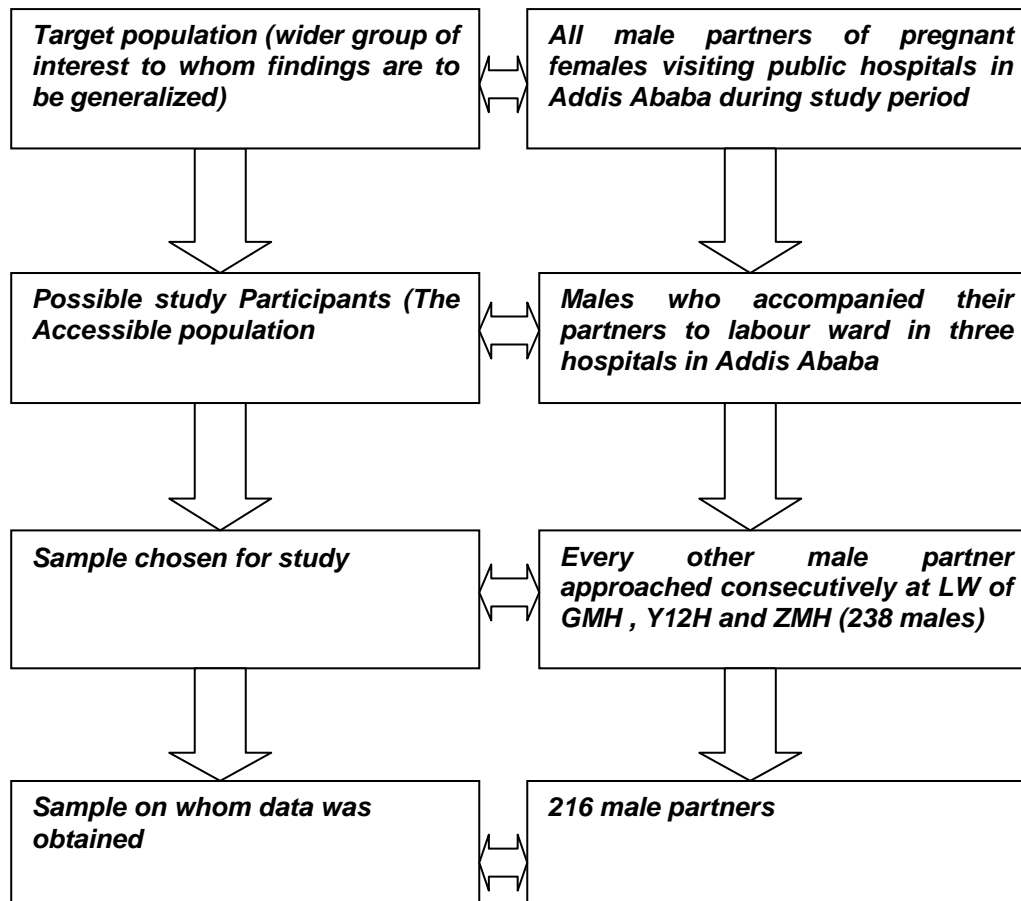


Figure 3.2: Schematic representation of target population, accessible population and sample for the study

(Adapted from Polit & Beck 2010:308).

3.3.5.4 Ethical issues in sampling

The following ethical issues related to sampling were taken into consideration. In order to avoid wastage of resources, appropriate sample size was used, while the investigator gave due emphasis to the sampling plan. Several research methodology and statistics books and studies with similar design were reviewed. Two professionals with statistics background were consulted and feedback incorporated. Besides,

reasonable detail of sampling procedure was presented and a description given of the target population, accessible population and sample.

3.3.6 Data collection

This section describes the data collection approach, development of the data collection instrument, its structure and the variables it measures, the data collection process, and the ethical considerations taken.

3.3.6.1 *Data Collection approach and method*

The data collection approach for this study was face-to-face interviews using a pretested structured instrument for the large part. Information on test acceptance was also obtained from pre-coded HIV-test acceptance forms kept in the testing units of labour wards. Advantages of pretested structured instrument are that the same sets of questions are asked in the same sequence, thus increasing the objectivity of the collected data (Polit & Beck 2010:345). It allows for the collection of unambiguous and easy-to-count answers, leading to quantitative data for analysis (Bowling 2009:283), and non-dependence on the literacy levels of respondents (Bowling 2009:282). Other advantages are higher response rate (Bowling 2009:282), greater likelihood of completion of questionnaires, less likelihood of misinterpretations of questions, and reduction of cost and time that would be high if the study were conducted through home visits. Use of health professionals as data collectors can add to the advantages of the approach as they usually have prior experience of data collection and are available for its entire duration. The health professionals were off-duty during data collection.

According to Bowling (2009:284 & 286), the weaknesses of this data collection

approach are non-comprehensiveness of pre-coded response choices; the same wording and order may not be perceived in the same manner by different providers; interviews may be expensive and time-consuming compared to questionnaires; and there is scope for bias (interviewer, recall, framing and social desirability bias).

Information on HIV test acceptance was extracted from the pre-coded HIV test referral forms, on which the counsellors indicated only HIV test acceptance. Use of code for referrals and same-day access of the forms ensured easier retrieval of required information. Using codes alone, instead of other personal identifiers safeguarded respondents' privacy and confidentiality. The disadvantage of such methods of generating data is difficulty in gaining access to institutional records (Polit & Beck 2010:338), though investigators have obtained approval to access such records from both AACAHB and respective hospital administration.

3.3.6.2 *Development and pretesting of the instrument*

Use of a standardized questionnaire, with some adaptation to suit to local situation, is useful as it avoids unnecessary efforts in designing a new one from scratch and facilitates the comparison of findings between studies (Katzenellenbogen & Joubert 2007:109). The interview protocol was mainly adapted from one developed by Tshimbubu (2006:72) who conducted a study on factors influencing male's involvement in PMTCT in Zambia. This researcher developed the questionnaire specifically for the Zambian study using different approaches: adaptation of items from related questionnaires, review of literature and professional experience (Tshimbubu 2006:31). The instrument used for the Zambian study was then modified to suit Ethiopian context. Besides researcher's considerations, a series of inputs from literature review, fellow professionals and males in the local community were used in the adaptation of the questionnaire. Findings from relevant studies (Theuring et al 2009; Tshimbubu 2006) also helped greatly in adapting the questionnaire, while the investigator's background as trainer and advisor on the PMTCT programme made a contribution to the crafting of

some of the questions. Such inputs led to modification, addition and omission of several items in the questionnaire used for the Zambian study. The process followed in adapting the instrument is described below.

In developing a questionnaire, a series of small pilot studies with a few subjects (5-20 individuals) for each is required to refine the questionnaire. A pilot study can be conducted at an early stage on colleagues in order to assess the wording and clarity of the questionnaire, but at a later stage it should be conducted on groups that are increasingly similar to the target population (Katzenellenbogen & Joubert 2007:116; Parahoo 2006:309). The study protocol was initially tested on two colleagues to pick up and correct glaring problems (Katzenellenbogen & Joubert 2007:116). They commented on the wording and order of items, suggested removing some items and offered additional ones for inclusion in the questionnaire. Input from the colleagues was used to modify the questionnaire. The investigator also discussed the draft protocol of the English version with the research advisor at Akaki campus of UNISA regional learning centre, and incorporated the feedback. Then the Amharic version of the questionnaire was submitted to five colleagues (health professionals with programmatic and clinical experience in PMTCT/MCH services) to rate each item, based on a rating of 4 scales and after briefing. The rating guide was: 1 - Not relevant 2 - Somewhat relevant (unable to assess relevance without major item revision), 3 - Quite relevant (relevant but needs minor alteration), and 4 - Very relevant and succinct (Peirce 1995:86). There was agreement among the ratings, and all except three items were rated 3 or 4, with the majority being 4. The three items were rated as 1 by a single professional while the other four again gave a rating of 3 or 4. Comments taken from these professionals were used to refine the questionnaire further.

The Amharic version of the tool was then pretested to three married males in the locality of the investigator and items that were ambiguous to these interviewees were modified. It was finally pre-tested by the investigator and two other data collectors amongst the 18 males accompanying their female partner presenting in labour to labour wards of the three hospitals. Using the inputs from pre-testing, the questionnaire was then refined and made ready for data collection. The instrument was translated into English and back into Amharic, a local language, to check for consistency of meaning.

The English version of the interview schedule was sent electronically to the research advisor who gave approval with no additional comments. Upon approval, the instrument was used to collect required data. The data from pre-testing was not included in the final analysis of sample data.

3.3.6.3 Variables measured by the instrument

In quantitative studies, concepts are usually operationalised through their expression in measurable forms to yield variables (Polit & Beck 2010:64). A variable refers to quality, property or characteristic of study subjects that change or vary, and thus can assume more than one possible value (Brink 2006:85; Parahoo 2006:169; Polit & Beck 2010:64). The variables measured by the research instrument and the HIV test acceptance format were 'level of male participation in PMTCT'; 'five factors related to male participation'; and 'male acceptance of intra-partum HCT'. The dependent and independent variables are described as follows:

Dependent variables

Dependent variables, sometimes referred to as 'outcome variables', are those that are presumed to change because of change in the independent variable(s) (Brink 2006:85; Parahoo 2006: 169; Polit & Beck 2010: 65;). The Dependent variable for this study is "level of male participation in ANC/PMTCT".

Independent variables

Independent variables, also called 'predictors' or 'exposure variables', are believed to influence the dependent variable (Brink 2006:85; Parahoo 2006: 169; Polit & Beck 2010: 65). The independent variables for this study are: socio-demographic factors, knowledge and awareness of ANC/PMTCT, socio-cultural norms, male friendliness of health facilities, and actual and perceived risks.

3.3.6.4 Structure of the instrument

The study questionnaire had 60 main items categorized into six sections, each reflecting one of the variables described above. The sections and items were arranged in such an order that less difficult questions were asked first. All questions were closed ended and two Likert scales (to measure socio-cultural norms and male friendliness of the health facility) were employed as the one developed by Tshimbubu (2006:72). The general guide for the structure of the research instrument was as follows:

- Section 1: socio-demography related questions: 10 questions
- Section 2: knowledge and awareness of ANC/PMTCT: 6 questions
- Section 3: socio-cultural norms: 10 questions
- Section 4: programmatic factors (male friendliness of health facilities): 10 questions
- Section 5: level of male participation in ANC/PMTCT and male readiness for participation: 14 questions
- Section 6: perceived and actual risk: 9 questions
- Section 7: HIV testing acceptance format (separate section filled, torn and given to respondents who were willing to meet the HIV counsellor)

Besides the questionnaire there was a tally sheet used to indicate the number of women in labour who presented to labour wards with and without their male partners. The tally sheet and section 7 helped to answer the 1st and 2nd research objectives respectively while the remaining sections served for the remaining objectives (see section 1.3.2).

3.3.6.5 Data collection process

The Interview was conducted in a private room in labour wards by the investigator and two male midwives initially trained as data collectors for the study. The interviewers asked questions in a standard way and recorded the respondents' responses in a uniform way, both serving to increase the reliability of the information gathered (Katzenellenbogen & Joubert 2007:107). Information on HIV test acceptance was extracted on a daily basis from the pre-coded HIV test referral forms, on which the counsellors indicated only HIV test acceptance. Data collection was conducted from 8:00 am to 10:00 pm, from November 20 to December 8 2010. Male partners of those women admitted from 10:00pm to 8:00 am were interviewed the following day, as they might still be in labour or at the postnatal unit, thereby increasing the likelihood of availability of the males. Interviews with each respondent took 25 to 30 minutes. To identify the proportion of women accompanied by a partner, data collectors marked with pencil "1" when women were accompanied by a male partner and "0" when not accompanied, against identifiers in the L&D admission logbook. The marks were then tallied and erased every day, so that there would be no likelihood of linking the interviewed respondents with the identifiers of their partner in the future. The investigator collected the completed questionnaires daily to check for completeness and consistency. The tallies in proportion of admitted women accompanied by male partner were also obtained daily. Feedback was given the next morning when appropriate.

3.4 ETHICAL AND LEGAL CONSIDERATIONS

Ethical obligations for the researcher in observational studies include obtaining true informed consent that relates to individual autonomy, privacy and confidentiality; balancing the right of the individual and the welfare of society; and communicating the

results regarding risks to subjects to prevent diseases (beneficence) whilst balancing the benefits and costs of communicating findings (principle of utility) (Gordis 2009:350-1). As description of steps taken to have legal access to study participants are important elements of the ethics section of a research report (Joubert & Katzenellenbogen 2007b:52), these are elaborated upon as follows:

3.4.1 Voluntary participation

Before any interview, the participants received information in a simple form of the local language regarding the purpose of the study, notably their rights to decide freely whether to participate, to refuse to respond to any questions they did not wish to, and to withdraw from the interview at any time. Furthermore, participants were reassured that refusal to participate in the study would not compromise in any way the services offered to self, partner or the newborn. Similarly, they were referred to the testing units in the labour wards, where counsellors, as part of the routine HCT activity, gave pre-testing HIV information including the right to opt-out of the HIV test, and conducted point of care HIV-testing only for those who gave verbal consent. These procedures were taken to ensure voluntary participation and to respect the decisions of the study population.

3.4.2 Informed consent

After provision of adequate and relevant information about the study as described above, written consent was obtained from each study participant prior to the interview. Those who volunteered to participate signed on the front page of the questionnaire bearing the consent form. Three participants refused to participate in the study and two requested to discontinue the interview. The right of these participants not to participate was respected. Verbal consent was also obtained before any referral to HIV-testing units.

3.4.3 Confidentiality and privacy

The interviews were conducted in a private room, ensuring both visual and auditory privacy, and no personal identifiers were written on the questionnaire. This precaution was to ensure that the responses were not linked to these identifiers. Interviewers collected information only on HIV test acceptance from the coded HIV-testing referral formats on which counsellors recorded only status of HIV test acceptance. No information on the specific HIV test result of referrals was collected. The information from participants including their HIV test acceptance is kept confidential and publication of the findings would be made without relating the research findings to the respondents. Even though service providers, who would serve as data collectors, are assumed to respect the principle of client confidentiality and privacy as part of their professional obligation, these issues were emphasized during training and orientation of the data collectors.

3.4.4 Minimizing risk to participants and the institution

The research was conducted with no harm to participants, except minor discomfort felt by some on hearing the loud shouts of women in labour. Data collectors reassured anxious participants by explaining the stage and progress of labour of their respective partners. Reaction to an HIV-positive result was a potential risk for males referred to the testing units in labour wards, though even in such cases the testing units in the institution were responsible for and capable of appropriate post-test counselling and referral for care and treatment services.

Two off-duty male nurse midwives were employed for data collection in consultation with hospital authorities, a precaution taken so as not to compromise quality of service provision by utilizing official working hours of health professionals employed by the government. The investigator covered all the expenses of data collection.

3.4.5 Benefit to participants (beneficence)

At the end of each interview, participants received information that would help them reduce the risk of MTCT of HIV. According to information obtained from the counsellors, they provided appropriate pre-test HIV information and post-test counselling for all males referred to them. The investigator learned from counsellors that two anonymous participants tested positive and were linked to ART clinic on a voluntary basis.

3.4.6 Scientific honesty

In accordance with academic propriety and convention, and to avoid the risk of plagiarism, all sources referred to in this dissertation are properly acknowledged in the text and in the listing of references. No information obtained from secondary sources was used without cross-referencing the original source. The same principle will be followed in any future publication of the research findings.

3.4.7 Competency

The investigator successfully completed and passed the courses in research methodology and analytic health measurement offered at UNISA, as well as gained experience in research during the undergraduate community health attachment through conducting a study on prevalence of determinants of non-communicable diseases. Working in the department of public health at Armed Forces Teaching General Hospital, the investigator had an opportunity to advise undergraduate students of health sciences on their research projects. A research proposal on prevalence and determinants of hypertension among active military personnel in Addis Ababa, written by the investigator together with other colleagues, won the 14th cycle of a local research grant

by the then Ethiopian Science and Technology commission. Finally, the investigator successfully completed a summer biostatistics and epidemiology course at Johns Hopkins University Bloomberg School of public health.

3.4.8 Review by institutional ethics review board

The written proposal was submitted to and approved by the AACAHB Ethical Clearance committee on 30 July 2010GC, i.e., 23/11/2002 in the Ethiopian calendar (see annexure 4) and the Health Studies Research and Ethics Committee of UNISA on 9 November 2010 (see annexure 5).

3.4.9 Permission from concerned authorities

After securing ethical clearance from AACAHB and UNISA, an official letter of approval and support was sent by AACAHB to the hospitals where the study was conducted. On communicating with chief executive officers, medical directors and heads of the obstetric units of the three hospitals, permission was given to conduct the study.

3.5 DATA HANDLING AND ANALYSIS

In order to make data handling less cumbersome completed questionnaires and referral formats were collected and carefully checked on daily basis by the investigator. All questionnaires and referral formats were checked for consistency, accuracy and completeness of data collected. The questionnaires were coded with consecutive numbers (subject codes) before data entry. Preparation before data entry made the entry process simpler and automatic thereby reducing data entry errors and time required for data entry (Burns & Grove 2005:438). Data was entered using *EpilInfo version 3.5.1* software, as this was found to be user-friendly for data entry. The data

was then transferred into *SPSS version 15.0*, as the latter is one of the best-known and most powerful statistics packages for data analysis (Burns & Grove 2005:456)

After the data entry was completed, all the records were checked with the original data by another data clerk and the investigator. The few items that had been skipped or had a wrong entry were corrected. All the graphs and diagrams in this research report were made using *SPSS version 15.0* and *Microsoft Office Excel 2007*.

3.6 VALIDITY AND RELIABILITY

This section discusses potential factors affecting design validity and reliability, and measures taken to reduce these threats.

3.6.1 Validity

Validity reflects the accuracy with which research findings reflect the phenomenon being investigated. In other words, it is concerned with processes involved in determining how truthfully the final findings represent the phenomenon of interest (Myer & Karim 2007:156; Parahoo 2006:80). Similarly, the validity of an instrument determines the extent to which it actually reflects the abstract construct being examined or measured (Burns & Grove 2005:376). Measures to enhance internal and external validity are described below.

3.6.1.1 Internal validity

Internal validity is the degree to which the effects or findings detected in a study are a

true reflection of reality rather than the results of extraneous variables (Burns & Grove 2005:215; Parahoo 2006: 236). It determines whether the independent variables really caused the changes in the outcome variable. Thus in the process of establishing internal validity, a researcher need to rule out other factors or threats as rival explanations of the relationships between the variables (LoBiondo-Wood 2010:166). Threats to internal validity include unplanned and unrecognized events such as maturation (e.g., growing wiser, stronger or more experienced during the longer course of the study); unrelated events inside or outside experimental setting that occur during the study and may have an effect on the outcome variable, known as history; selection bias (non-random selection of study participants) (Burns & Grove 2005:215-16; LoBiondo-Wood 2010: 167-69); testing (familiarity because of previous exposure to data collection tool or pre-testing); Instrumentation (bias resulting from lack of similar training of data collectors or becoming more proficient in interviewing skill in the course of data collection); mortality (loss of subjects because of non-response in this study); and diffusion of study condition (possibility of sharing the information to potential interviewees as males shared similar waiting area in the hospitals) (LoBiondo-Wood 2010: 167-69; Parahoo 2006: 237-40) In this study, internal validity was enhanced by consistent implementation of measurements, for example, by presenting the interview in a similar way to all participants; training data collectors and observing them for consistency (Burns & Grove 2005:221); and keeping the study environment relatively consistent (conducting the interview in a private room in all facilities) for all study subjects so as to not affect the measurement of variables of interest (Burns & Grove 2005:220).

Employment of systematic sampling of those males who presented to labour wards of the three public hospitals during the study period would help ensure representativeness, thereby improving internal validity. No recognisable event that could affect the data collection was documented by interviewers. Maturation and testing were not a key concern for this study as each participant gave only 25 to 30 minutes for the study and were less likely to be exposed to a similar study as, to the knowledge of the investigator, such was not conducted in Addis Ababa.

3.6.1.2 External validity

External validity is concerned with the degree to which study findings can be generalised beyond the sample and setting used in the study (Burns & Grove 2005:218-19; LoBiondo-Wood 2010:170; Parahoo 2006:241). It asks under what conditions and what types of subjects the same findings are expected to occur (LoBiondo-Wood 2010: 170). Threats to external validity include the reactive effect also called Hawthorne effect (alteration of study participants' responses because they are made aware of their participation in the study during informed consent and data collection process); the Rosenthal effect (influence of participants' responses by unintentional verbal or non-verbal cues from data collectors); and setting (the setting in which the study is conducted). History, testing and selection bias similarly could affect external validity (LoBiondo-Wood 2010: 171-2). Respondent's responses in a labour ward setting, where they are anxious about the outcome of labour, may affect the external validity of this study. Similarly, the Hawthorne and Rosenthal effects and selection bias may also affect the external validity. Heterogeneity (selecting samples from at least three facilities) and attempts to improve representativeness through use of systematic sampling were measures taken to improve the external validity (Burns & Grove 2005:220). Data collectors calmed respondents by informing the progress of labour of the respective partner and addressing questions from the respondents. Every respondent was initially informed the value placed on getting what the respondent actually believes, knows or does but not what it should be. This was done to somehow overcome Hawthorne effects. Data collectors were also trained to avoid cues as much as possible so as to overcome Rosenthal effect thus improving the external validity. Comparisons of the study findings with those of other related studies conducted in other settings could also shed some light on the external validity of the study (Tshibumbu 2006:37). In an attempt to examine the external validity (for comparison purpose), it was planned to collect socio-demographic characteristics of those males who could not stay for the interview because their partners had been referred to other hospitals. However, this was not possible because budgetary constraints prohibited the hiring of additional data collectors at emergency obstetric wards where women were evaluated

before admission to the labour ward. Had such data been collected, comparison to assess significant difference could have been a possibility, thus shedding light on the extent of external validity (Burns & Grove 2005:219). It is worth mentioning that most referrals occurred between the three facilities and thus most of the males may have been interviewed in the other hospitals where the study was conducted.

3.6.1.3 *Instrument's validity*

Instrument validity focuses on determining whether an instrument accurately measures what it is supposed to measure, given the context in which it is applied (Brink 2006:159). Three of the concepts related to instrument validity were considered to improve the validity of the questionnaire in this study. A comprehensive review of available literature in the related field was made to ensure content validity, i.e., to ensure that the instrument accounted comprehensively to the essential elements of the variables or concepts measured. In an attempt to improve content validity and face validity, the instrument was then presented to five experts in the field of PMTCT who critically evaluated each item with regard to the degree to which the variables are represented as well as made intuitive judgement on content clarity and instrument's overall suitability for use (Brink 2006:160; Katzenellenbogen & Joubert 2007:120). Modifications, additions and omissions were made based on comments the panel reach at consensus. Adaptation of a questionnaire used in related Zambian study was made to suit to local context thereby overcoming inconsistent validity. However criterion-related validity, predictive validity, concurrent validity and construct validity were not taken into consideration in the development or evaluation of the questionnaire (Brink 2006: 161; Katzenellenbogen & Joubert 2007:120).

3.6.2 Reliability

The reliability of an instrument is the consistency or reproducibility of measures obtained using that instrument and is an indication of the extent of random error in the measurement method (Bowling 2009:162; Burns & Grove 2005:374; Polit & Beck 2010:373). According to Katzenellenbogen and Joubert (2007:119), poor reliability (variation between measures) for a study can stem from differences among interviewers (inter-observer variation) as well as in the same interviewer on different occasions (intra-observer variation). To assess reliability of an instrument, researchers use parameters (tests) such as test-retest reliability (ascertained by testing the same subjects on two separate occasions using the same instrument and comparing the scores) ; inter-rater reliability (degree of congruency in the measurements made by two independent observers); and internal consistency (ascertaining the consistency of items in scales and tests that involve summing item scores to measure one unitary attribute (Bowling 2009:162; Polit & Beck 2010:373-76). Use of standardized questionnaires; appropriate selection of interviewers (service providers with experience in data collection); adequate training for three days on collection of data using the instrument; and supervision and periodical checks on the work of interviewers, were measures taken to reduce variation between measures. (Katzenellenbogen & Joubert 2007:119). Lack of reliability testing was a drawback in this study.

3.7 CONCLUSION

This chapter has elaborated the design and methodology used in the study, which employed a quantitative paradigm with descriptive correlational design of cross-sectional timeframe. It used a systematic sampling technique and collected data using a face-to-face structured questionnaire from 216 male partners who accompanied their partner to labour wards of GMH, Y12H and ZMH. It also reviewed the HIV test

acceptance forms to gather information on HIV test acceptance of males referred to the HCT unit in the labour wards. The chapter also presented the ethical and legal considerations taken in this study. The potential threats to and measures taken to improve validity and reliability of the study were presented.

CHAPTER 4

ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH FINDINGS

4.1 INTRODUCTION

This chapter gives an account of methods and procedures employed in the data analysis; presents and describes the research findings; and discusses the correlation and/or contrasts of the study findings with those reported in the literature review. The statistical tests used, values of calculated statistics, and their significance are also covered.

4.2 DATA MANAGEMENT AND ANALYSIS

Data collection took place from November 20 to December 8, 2010. Completed questionnaires were collected on a daily basis and the investigator did data cleaning on a timely basis. This helped early rectification of problems related to consistency, accuracy and completeness of data collected. The questionnaires were coded with consecutive numbers and then entered in an electronic data entry field of *EpilInfo version 3.5.1*. Data was then transferred to *SPSS version 15.0* for analysis.

4.3 RESEARCH RESULTS

This section discusses the research findings.

4.3.1 Response rate and sample size

A total of 238 males were approached, and data collected from 216 respondents through face-to-face interviews with a structured questionnaire. Out of the 22 who were not interviewed, thirteen left home and could not be traced, three refused to participate, two asked to discontinue the interview, three hardly understood the Amharic language, and one had a hearing problem. The response rate was thus 90.8%, which keeps with the study's assumption of a 10% non-response rate.

4.3.2 Socio-demographic characteristics

Much of the socio-demographic information is presented in tables. A descriptive summary of socio-demographic data is also presented.

4.3.2.1 Item 1.1 - Age

Table 4.1 (below) shows the age distribution of the respondents by five-year age categories. The majority fall in the 25-29 and 30-34 categories (31% and 31.9% respectively). The aggregate age group between 20-39 years contributes to 84.7% (n=216) of the sample, which is closely comparable to 83.5% (n=106) and 78.3% (n=402) reported for same age group in Tshibumbu (2006:41) and Takele (2007:29) respectively. However, it differs significantly from 45.1% (n= 1,305,387) accounted for by the same age group (20-39 years) male population of Addis Abeba in the 2007 Ethiopian census report by Population Census Commission of Ethiopia (PCC) ([Sa]:74). The difference could be explained by the census having included the two extreme age groups, thus inflating the denominator. These extremes, especially the lower, are less

likely to have a sexual relationship with women of childbearing potential and thus are far less represented by the study sample. The respondents' ages range from 20 to 70, with a mean age of 32.8 and standard deviation of 7.2.

Table 4.1: Age distribution of respondents by five-year age groups (n=216)

Age group	Frequency (F)	Group mean (X ¹)	F X ¹	percentage
20-24	12	22	264	5.6
25-29	67	27	1809	31.0
30-34	69	32	2208	31.9
35-39	35	37	1295	16.2
40-44	19	42	798	8.8
45-49	7	47	329	3.2
50-54	3	52	156	1.4
55-59	3	57	171	1.4
70-74	1	72	72	.5
	$\Sigma F=216$		$\Sigma FX^1=7102$	100.0
Mean= $\Sigma FX^1/N=7102/216=32.8$; Standard Deviation =7.2				

4.3.2.2 Item 1.2 - Ethnicity

The pie chart below (Figure 4.1) shows the distribution of respondents by ethnic origin, indicating that 42% (n=214) belong to the Amhara group, while one in four and one in five are Oromo and Gurage respectively. Silte constitutes 6% (n=214) of the respondents, while other ethnic groups, namely Tigire (6), Kambata (2), Hadiya (2), Gamo (1), Wolayita (1) and Somali (1), contribute to 6% (n=214). Two respondents refused to report their ethnic origin. The figures, except those of Tigire and Silte, closely relate to ethnic composition of males in the 2007 census of Addis Ababa region, where 586,548 (44.9%) are Amhara; 249,090 (19.1%) Oromos; 227,186 (17.4%) Gurages; 82,701 (6.3%) Tigires; and 44,954 (3.4%) are Silte (PCC [Sa]:30-31). The findings also parallel the ethnic composition of male partners reported by Takele (2007:29), which include Amhara 51.5% (n=402); Oromo 21.6% (n=402); Gurage 13.2% (n=402) and Tigire 7.5% (n=402).

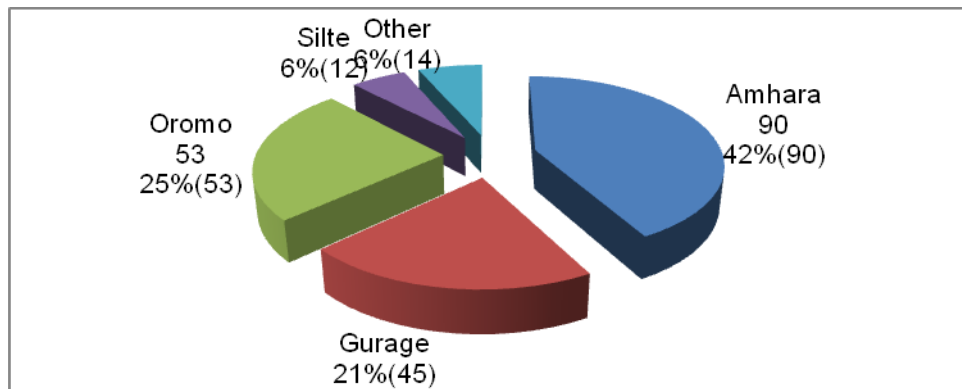


Figure 4.1: Respondent's ethnicity

4.3.2.3 Item 1.3 - Religion

The religious affiliations of respondents are shown in the Table 4.2 (below). The majority (seven in ten) were Orthodox-Christians, while one in six and one in ten were Muslims and Protestants respectively. One respondent was Catholic while another one claimed that, while believing in God and the Bible, he did not belong to any of the religious affiliations. The distribution closely relates to that of the male population of Addis Ababa from the 2007 census in Ethiopia, in which 958,177 (73.4%) were Orthodox-Christian; 231,402 (17.7%) Muslim; 97,430 (7.5%) Protestant; and 6,476 (0.5%) Catholic (PCC [Sa]:75). Similarly, the findings in this study are in keeping with religious affiliations of male partners as reported by Takele (2007:29), where Orthodox Christian accounted for 72.9% (n=402); Muslims 14.7% (n=402); and Protestant 10.0% (n=402).

Table 4.2: Religious affiliation of respondents (n=216)

Religious affiliations	Frequency	Percentage
Orthodox-Christian	153	70.8
Muslim	38	17.6
Protestant	23	10.6
Catholic	1	.5
Other	1	.5
Total	216	100.0

4.3.2.4 Item 1.4 - Marital status

The doughnut chart below (Figure 4.2) presents the distribution of respondents by marital status. Seventy percent (n=216) were married while 30% (n=64) were cohabitating. The ratio of married males to those males cohabitating with a female partner in this study is 2:3, which is far lower than 263:8, a ratio computed from 2007 census data for male population in Addis Ababa in the age range 20 to 74, inclusive of currently married (n=391,515) and living together as husband and wife (n=1484) (PCC [Sa]:77). Among the married males, 69.1% (n=152) were married by traditional means, while 30.9% (n=47) had a registered marriage (registered by local marriage registration institutions).

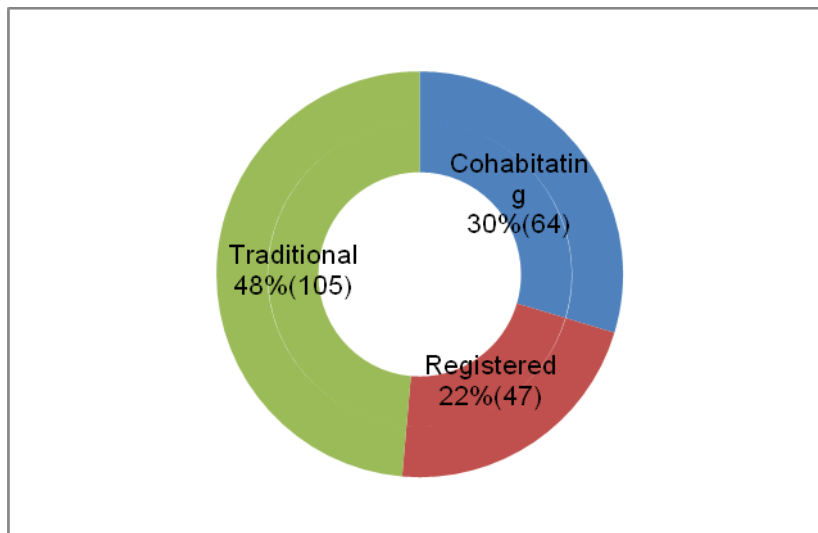


Figure 4.2: Respondents' marital status

4.3.2.5 Item 1.5- Living in the same house

Almost all respondents reported living in the same house as their partner, while only two reported that they were not sharing a house. Similarly, Katz et al (2009) found that of the 312 males who, following invitation for HIV-testing, accompanied their partner to antenatal clinic in Nairobi, 98% lived with their partner (Figure 4.3, below).

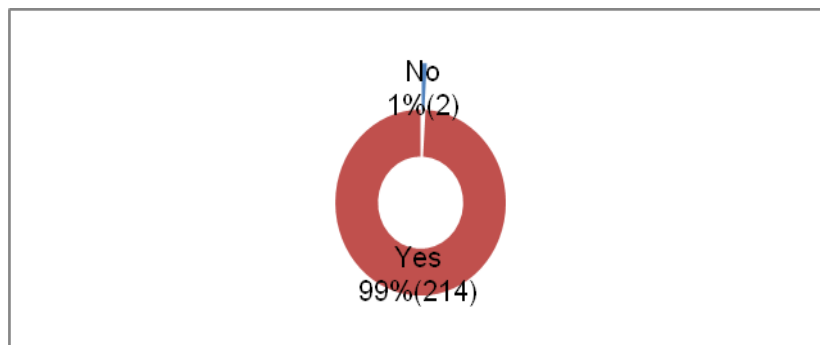


Figure 4.3: Response to the question “Are you currently living together in the same house?”

4.3.2.6 Item 1.6 - Duration of marriage or cohabitation

Information on duration of relationship in marriage or cohabitation was extracted as the number of months. For the sake of comparison, this has been classified into three categories of duration of relationship: less than 5 years, 5-10 years and more than 10 years. Table 4.3 (below) presents the distribution of duration of relationship with current partner. Respondents reported a relationship duration ranging from 0.3 years to 22 years with a mean of 4.3 years and standard deviation of 4.0 years. It was found that 63.4% (n=216) had been in a relationship for less than 5 years, 29.2% (n=216) for 5-10 years and 7.4% (n=216) for beyond 10 years. The majority had a recent relationship, compared to male respondents in a study by Tshibumbu (2006:42) who found 33.1% (n=127) of less than 5 years, 36.2% (n=127) of 5-10 years and 30.7% (n=127) beyond 10 years.

Table 4.3: Duration of marriage or Cohabitation (n=216)

Duration of relationship	Frequency	Percentage
less than 5 years	137	63.4
5 to10 years	63	29.2
More than 10 years	16	7.4
Total	216	100.0

Mean = 51.6 months (4.3 years); SD = 48.3 months (4.0 years);
Minimum = 4.0 months (0.3 years); maximum = 264 (22 years).

4.3.2.7 Item 1.7 - Number of living biological children born from the couple

Table 4.4 (below) presents the number of live children common to the couple (excluding stepchildren), conceived mutually by both the respondent and corresponding partner. The number ranges from 0 to 4 with mean of 0.5 (and SD of 0.8). The mean value of the number of live children obtained in this study is slightly lower than the average children ever born per woman of 1.4 from 2007 census data for Addis Ababa (PCC [Sa]:164). One possible explanation for the difference could be that the census included the total number of children (including alive, dead and those born from a partner other than the current one). The majority of respondents, 69.9% (n=216) had no living child, while 18.5% (n=216) had one living biological child and 30.1% (n=216) had at least one living child born from the index partner. The low mean number of respondents' biological live children born from current partner (mean of 0.5), is in agreement with the finding that most respondents had a recent relationship.

In this study 96.8% (n=216) of male respondents had 2 or fewer living children, which is higher than the 57.8% (n=5274) of Ethiopian males (15-59 years old) with 2 or fewer living children, as reported in Ethiopian Central Statistical Authority (ECSA) and ORC Macro (2006:43), and slightly higher than the 82.5% (n=452) of ANC attendants with 2 or fewer children, as reported in Worku (2007:23), a study conducted in the western Amhara region. The difference could reflect that couples in more urban settings have fewer children than those residing in semi-urban and rural areas. Contrary to the finding of this study, Katz et al (2009) found that of the 312 males who, following invitation for

HIV-testing, accompanied their partner to an antenatal clinic in Nairobi, 55% had at least one living child.

Table 4.4: Number of live biological children of respondents born from the current partner (n=216)

Number of live children born from the current partner	Frequency	Percentage
.00	151	69.9
1.00	40	18.5
2.00	18	8.3
3.00	6	2.8
4.00	1	.5
Total	216	100.0
Mean=0.5 ;SD=0.8;		

4.3.2.8 Item 1.8 - Highest level of education attained

Information on both highest grade completed and category of educational attainment was obtained from respondents. For those with tertiary education, the number of years spent in it is added to the highest secondary school grade completed (either Grade 10 or 12). Respondents who could read and write without having attended formal education are conventionally considered as Grade 1 completed, while the illiterate ones are assigned Grade 0 in this study. Table 4.5 (below) presents educational attainment, the highest grade attended by respondents ranging from 0 to 18 Grade, with mean of 9.6 Grade and standard deviation of 4.5 Grade. Ninety-seven percent (n=216) of the respondents were literate, which corresponds with a higher male literacy rate of 93.6% (n=1,204,748) and 91.3% (n=292) in Addis Ababa (ECSA & ORC Macro 2006: 36; PCC [Sa]:116 respectively). Two percent, 39.3%, 23.1% and 32.4% of the 216 respondents had attained 'read and write', primary or junior secondary, high school (9-12 Grades) and tertiary level of education respectively.

Computation from the 2007 Addis Ababa Census literacy data gives a total of 759,790 literate males 20 years and older of which 7,723 (1.0%), 12,402 (1.6%), 284, 109

(37.4%) , 289,858 (38.2%) and 165,698 (21.8%) fall under pre-school, 'read and write' or non-regular, primary or junior secondary (Grade 1-8) , high school (Grade 9-12) and tertiary level of literacy respectively (PCC [Sa]:137). The study population has more tertiary level but fewer high school level of attainment compared to educational level of males of the same age groups in Addis Ababa. The literacy level of respondents is closely comparable to findings in Takele (2007:30), who reported 4.2% (n=402), 19.9% (n=402), 37.8 (n=402), 32.8 (n=402) for 'read and write', primary, secondary (Grades 8-12) and tertiary level of attainment respectively.

Table 4.5: Educational attainment of respondents (n=216)

Educational category	Number	Percentage
Illiterate	7	3.2
Read & write	4	1.9
Primary (1-6)	48	22.2
Junior secondary (7-8)	37	17.1
Medium secondary (9-10) (Junior High school)	21	9.7
Senior secondary (11-12) Senior High school	29	13.4
Some tertiary	14	6.5
Tertiary complete	56	25.9
Total	216	99.9
Mean= 9.6 ; SD=4.5; Minimum=0 (Illiterate); Maximum=18		

4.3.2.9 Item 1.9 - Occupation and employment type (n=216)

Respondents were asked to state the specific activity in which they had been engaged for income generation in the previous 12 months, and the type of employment. In case of multiple activities, the one the respondent spent more time in was taken as the major occupation. The income-generating activities obtained were then classified into eight occupational categories and the type of employment into five categories. Table 4.6 (below) summarizes the occupation and employment type. Respectively, 45%, 30.6%, 17.1% and 6.0% of the 216 respondents were self-, private, government, and NGO employed. Respectively, 23%, 20.4%, 14.8%, 14.4%, and 13.9% of the 216

respondents were engaged in manual labour, less advanced service, advanced professional or managerial work, trading, and technical or handicraft work. Two respondents were retired. In this study, less advanced service conventionally means those services rendered without the person being trained at tertiary institution, whereas advanced professional or managerial work requires the individual to attend tertiary level to acquire knowledge and skills required for that service.

Table 4.6: Respondents' occupation and employment type (n=216)

Type of work	Employment Type					Total	Percentage
	Self - employed	Private organisation Employee	Government Organisation employee	NGO employee	Retired		
Manual labourer	24	23	2	0	0	49	22.7
Less Advanced service	14	16	9	5	0	44	20.4
Advanced Professional/ managerial Work	7	5	18	2	0	32	14.8
Trader	30	1	0	0	0	31	14.4
Technical/handicraft work	14	10	6	0	0	30	13.9
Driver	7	11	2	1	0	21	9.7
Religious work	2	0	0	5	0	7	3.2
Retired	0	0	0	0	2	2	.9
Total	98	66	37	13	2	216	100.0
Percentage	45.4	30.6	17.1	6.0	.9	100.0	

4.3.2.10 Item 1.10 - Monthly income (n=216)

Monthly income of respondents from single or multiple sources were obtained. If payment of income was not effected on a monthly basis, respondents were asked to state the interval of payment and number of working days in a month to calculate the monthly equivalent. Table 4.7 (below) presents the monthly income of respondents. Respectively, 19%, 36.6%, 20.4%, and 23.1% of the 216 respondents earned a total monthly income that fall in to 250-650, 651-1400, 1401-2500 and 2500-10,000 in Ethiopian Birr. Two respondents refused to disclose their income. After omitting two

outliers (income of 27,500 and 13,000) respondents' income ranged from 250 to 10,000, with a median income of 1200.0 (mean income 1894.1 and standard deviation of 1797.6). Takele (2007:29), gathered information on monthly income of male partners from 402 women visiting antenatal clinics in five public hospitals at Addis Ababa and found that 4.7%, 38.6%, 30.6%, 14.4% of male partners earned monthly income in the ranges of 1-150, 151-650, 651-1400, and more than 1400 in Ethiopian Birr respectively. Of the pregnant women, 11.7% (n=402) did not know the monthly income of their male partners. Respondents in this study earned more than those found in Takele (2007:29). Ethiopian male partners may not tell the exact sum of salary they earn to their partners to avoid high expectations from the latter, and this may partly explain the differences in the findings of the two studies conducted at similar health facilities in Addis Ababa. The discrepancy could also be attributed to the salary increment to adjust to the cost of living in Ethiopia, as these studies were conducted three years apart.

Table 4.7: Monthly income of respondents in Ethiopian Birr (n=216)

Categories of income	Number	Percentage
250-650	41	19.0
651-1400	79	36.6
1401-2500	44	20.4
2500-10,000	48	22.2
Outliers	2	0.9
Refused to tell	2	0.9
Total	216	100.0

4.3.3 Findings on Knowledge and awareness about antenatal care, prevention of mother-to-child transmission and human immunodeficiency virus

Findings on knowledge and awareness of ANC/PMTCT and HIV are summarized in the following sub-sections.

4.3.3.1 Item 2.1: Knowledge on means of transmission of human immunodeficiency virus (n=216)

Respondents were asked five questions to assess their knowledge on means of transmission of HIV. All (100%), 97.7% and 84.7% of the 216 respondents respectively knew that HIV is transmitted through unprotected sexual intercourse, contaminated sharps and needles, and blood transfusion. Only 11.6% and 12.5% of the 216 respondents erroneously believed that HIV could be transmitted through eating from the same plate and social kiss respectively. The respondents had fewer misconceptions than those reported by ESCA and ORC Macro (2006:183), which found that 20.0% (n=6033) of male respondents believed HIV could be transmitted by sharing food or utensils with people living with HIV. A larger proportion of respondents (70.4%) knew the three routes of transmission and rejected the two misconceptions posed. ESCA and ORC Macro (2006:183-185) reported that 28.7% (n=6033) of Ethiopian male respondents and 54% (n=266) of male respondents from Addis Ababa had comprehensive knowledge of HIV transmission and prevention.

Table 4.8: Knowledge of means of transmission

Items	Yes		No		Uncertain		Total		Correct	
	N	%	N	%	N	%	N	%	N	%
Unprotected sexual intercourse	216	100	0	0	0	0	216	100	216	100
Eating from same plate*	7	3.2	193	89.4	16	7.4	216	100	193	89.4
Sharing contaminated sharps and needles	211	97.7	5	2.3	0	0	216	100	211	97.7
Social kiss*	9	4.2	189	87.5	18	8.3	216	100	189	87.5
Blood transfusion	183	84.7	19	8.8	14	6.5	216	100	183	84.7

* Item with negative connotation (whose answer is known to be "No")

4.3.3.2 Item 2.2 - Knowledge of mother-to-child transmission (n=216)

Respondents were asked whether HIV could be transmitted from an HIV-infected mother to her baby. Then, regardless of their response, questions on when the transmission could occur were posed. 79.2% (n=216) of the respondents agreed that HIV could be transmitted from mother to baby. Nearly equal percentage (82.9%) of males rejected the misconception that HIV transmission to baby could occur by simply sharing the same bed with an infected mother. However, some respondents did not have accurate knowledge of periods of MTCT of HIV. Respectively, 42%, 35.2% and 25.5% of the 216 respondents were unaware that MTCT of HIV could occur during pregnancy, L&D, and breastfeeding. ECSA and ORC Macro (2006:185) reported that 75% (6,033) of male respondents knew that HIV could be transmitted through breastfeeding, which is comparable to the findings of this study. Katz et al (2009) also found that 88.4% (n=293) male partners knew HIV could be transmitted during delivery. In accordance with finding of this study, Theuring et al (2009:95) found that the majority of respondents [85 (68%)] knew what PMTCT was.

Table 4.9: Knowledge on mother-to-child transmission of HIV

Items	Yes		No		Uncertain		Total		Correct	
	N	%	N	%	N	%	N	%	N	%
Transmission from HIV-infected Mother-to-child	171	79.2	25	11.6	20	9.3	216	100.0	171	79.2
Mother-to-child transmission during pregnancy	125	57.9	32	14.8	59	27.3	216	100.0	125	57.9
Mother-to-child transmission during labour and delivery	140	64.8	24	11.1	52	24.1	216	100.0	140	64.8
Mother-to-child transmission through sharing same bed with the baby*	8	3.7	179	82.9	29	13.4	216	100.0	179	82.9
Mother-to-child transmission during breastfeeding	161	74.5	18	8.3	37	17.1	216	100.0	161	74.5

*-Item with negative connotation (whose answer is known to be “No”)

4.3.3.3 Item 2.3 - What helps reduce mother-to-child transmission? (n=216)

To assess knowledge on possible interventions to reduce risk of MTCT of HIV, seven questions addressing the four prongs of PMTCT interventions were posed to study participants. The majority of the 216 respondents knew that HCT of pregnant women (96.3%), HCT of male partner of pregnant women (88.4%) and provision of ARVs (71.8%) could help reduce MTCT of HIV. On the contrary, only 22.2%, 59.3%, 15.7% and 39.8% of the 216 respondents were aware that risk of MTCT of HIV could be reduced by caesarean section, total avoidance of breastfeeding, exclusively breastfeeding for the first six months, and use of family planning methods for HIV-infected couples respectively. Theuring et al (2009:95), in the Mbeya region of Tanzania, however, found out that 102 (82%) of male respondents expressed approval for replacement infant feeding to avert paediatric HIV infection.

Consistent with the finding of this study, Nkuoh et al (2010:365) in Cameroon found out that 176 (69.8%) fathers knew ARVs were a means of reduction of MTCT. Contrary to findings of this study, Bwambale et al (2008) in rural western Uganda found that the majority of males in focused group discussions who approved CHCT said that CHCT would help them in decision-making for family planning in the event of an HIV-positive test result.

Table 4.10: Respondents' knowledge of interventions to prevent mother-to-child transmission of HIV (n=216)

Items	Yes		No		Uncertain		Total		Correct	
	N	%	N	%	N	%	N	%	N	%
HIV-testing and counselling of pregnant women	209	96.8	1	0.5	6	2.8	216	100.0	208	96.3
HIV-testing of male partner of a pregnant woman	191	88.4	8	3.7	17	7.9	216	100.0	191	88.4
Antiretrovirals given to HIV-infected mother and the newborn	155	71.8	14	6.5	47	21.8	216	100.0	155	71.8
Caesarean section for HIV-infected pregnant women	48	22.2	20	9.3	148	68.5	216	100.0	48	22.2
Total Avoidance of Breastfeeding is an option	128	59.3	16	7.4	72	33.3	216	100.0	128	59.3
Exclusive breastfeeding for the first six months is an option	34	15.7	75	34.7	107	49.5	216	100.0	34	15.7
Family planning for HIV positive couples	86	39.8	70	32.4	60	27.8	216	100.0	86	39.8

4.3.3.4 Item 2.4: Awareness about local services to prevent mother-to-child transmission (n=216)

A significant proportion of respondents had information regarding local services to prevent MTCT of HIV, with 91.2% (n=216) having heard about the existence of the PMTCT service in Ethiopia, 85.6% (n=216) and 94.4% (n=216) knowing that public health facilities in Addis Ababa provided PMTCT service and HCT for pregnant women in ANC clinics respectively. These findings are higher than those of Tshibumbu (2006:45), who found awareness in the range of 50-60% (n=127) for each of the three similar questions posed to male partners in the Mambwe district of Zambia. Similarly, Theuring et al (2009:95) found that 61 (49%) males in the Mbeya region of Tanzania perceived as a potential obstacle to male service attendance, the lack of information on existence of ANC/PMTCT service or male's need for service attendance. Comparable to the findings of this study, Nkuoh et al (2010:365-66) in Cameroon found that 127

(93.4%) of fathers who identified blood testing as an ANC activity knew that HIV was one of the tests conducted.

Table 4.11: Awareness of local services to prevent mother-to-child transmission (n=216)

Items	Yes		No		Uncertain		Total		Correct	
	N	%	N	%	n	%	N	%	N	%
Heard about PMTCT service in Ethiopia?	197	91.2	13	6.0	6	2.8	216	100.0	197	91.2
Knows that public health facilities provide PMTCT services	185	85.6	17	7.9	14	6.5	216	100.0	185	85.6
Knows pregnant women are tested and counselled for HIV in ANC clinics	203	94.0	5	2.3	8	3.7	216	100.0	203	94.0

4.3.3.5 Level of respondent's knowledge and awareness on routes of transmission of human immunodeficiency virus and prevention of mother-to-child transmission (n=216)

Table 4.12 (below) presents the respondents' score (level) of knowledge and awareness of routes of transmission of HIV and PMTCT services. The scores range from 5 to 19 out of 20. The median score is 15.0, while the mean score is 14.8, with a standard deviation of 2.6. As depicted in Table 4.12, an almost equal proportion of respondents have medium (48.6) and high (47.7%) scores, while only 3.7% have less than half the total score. The respondents' score is better than that of Tshibumbu (2006:46), who found that 24.4% (n=127) of male respondents scored high (8-10 correct answers out of 10).

Table 4.12: Level of Knowledge and awareness on transmission of HIV and P/MTCT (n=216)

Category of Knowledge Score	Category of Knowledge Score	Number	Percentage
Low Score	less than 10	8	3.7
Medium score	10-15	105	48.6
High Score	16-20	103	47.7
	Total	216	100.0

The distribution of the Knowledge and awareness score is depicted by the histogram below (Figure 4.4).

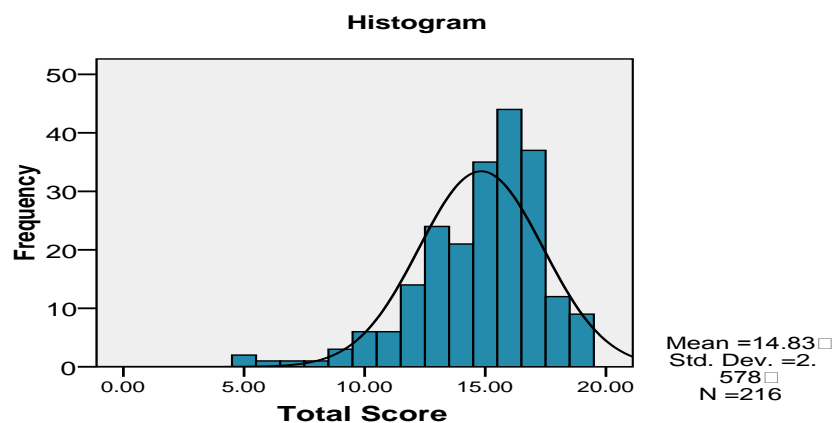


Figure 4.4: Distribution of total score of knowledge and awareness on HIV and PMTCT of HIV.

4.3.4 Findings on socio-cultural factors

The findings on socio-cultural norms with regard to ANC/PMTCT and HIV are summarized in this section.

4.3.4.1 Respondents' beliefs about socio-cultural factors

Respondents were asked to give their opinion regarding ten statements that assessed socio-cultural belief, using a Likert scale of five categories. For simplifying analysis, “strongly agree” and “agree” were clustered into “agreed”, while “strongly disagree” and “disagree” were clustered into “disagreed”. Table 4.13 (below) depicts the responses.

Table 4.13: Responses on statements regarding socio-cultural belief (n=216^β)

S. No.	Items	Agreed		Disagreed		Uncertain		Total		Missing
		N	%	N	%	N	%	N	%	
1*	MCH clinics should focus on only healthcare service of women and children but not male partners	66	30.6	145	67.1	5	2.3	216	100.0	
2*	It suffices that a pregnant woman be accompanied to ANC clinic by less busy relative or friend.	111	51.4	100	46.3	5	2.3	216	100.0	
3	Even if couples believe they are faithful to each other, they should be tested for HIV together during ANC follow up for the sake of PMTCT	211	97.7	3	1.4	2	.9	216	100.0	
4	A pregnant woman can be tested for HIV without the permission of her spouse or partner	197	91.2	17	7.9	2	.9	216	100.0	
5*	An HIV test result of pregnant women indirectly confirms HIV status of her partner.	19	8.8	190	88.0	7	3.2	216	100.0	
6*	It is better to postpone HIV-testing to post-delivery as pregnancy by itself is stressful.	113	52.8	86	40.2	15	7.0	214	100.0	2
7	Couples should use condoms at least until they know both are HIV-negative	192	88.9	15	6.9	9	4.2	216	100.0	
8*	It is better to live with unknown HIV status than live depressed with positive HIV status known	12	5.6	198	91.7	6	2.8	216	100.0	
9	It is appropriate to offer HIV-testing for all clients visiting the facility.	201	93.1	11	5.1	4	1.9	216	100.0	
10*	A positive HIV test result in the spouse/female partner indicates that she is unfaithful?	73	33.8	120	55.6	23	10.6	216	100.0	

*refers to statements with negative connotations and thus triggering a disagreement response if there is favourable socio-cultural influence.;^βFor item 6, n=214.

While most respondents (nine in ten) seem to have shown favourable belief of most items, the responses to items 1, 2, 6 and 10 indicate negative influence of socio-cultural belief for a fairly significant proportion of respondents. Table 4.13 (above) shows that 52.8% (n =214) of the respondents preferred postponing partner's HCT until after pregnancy, and similarly 51.4% (n=216) did not seem to see the need for male partner attendance of partner's ANC visits. Similarly, Tshibumbu (2006:47) found that 51(40.2%) of male respondents in the Mambwe district of Zambia disagreed with the statement that males should accompany their pregnant partners to ANC/PMTCT clinics. However Tweheyo et al (2010) and Nkuoh et al (2010:365) found out that majority of male partners approved attendance of males in partner's ANC visits in the peri-urban Ugandan district [96.1% (n=331)] and Cameroon [67.9% (n=252)] respectively. Moreover, in agreement with the findings of Tshibumbu (2006:47), this study found that 33.8% (n=216) [versus (vs.) 31.5% (n=127)] of males believed a positive HIV test result of the female partner implied her unfaithfulness, and 30.6% (n=216) [vs. 48.0% (n=127)] considered the focus of the MCH clinic to be limited to mother and children alone. Belief of attaching maternal and child health services to the women's domain as hindrance to male participation in ANC/PMTCT was also reported in Uganda (Byamugisha et al 2010a), Cameroon (Nkuho,2010), Botswana (AED: Centre on AIDS and Community Health [Sa]:03) and Tanzania (Boniphace [Sa]:25).

Consistent with this study's findings, Theuring et al (2009:97) and Katz et al (2009) found that 100 (80.6%) of males in the Mbeya region of Tanzania thought male consent unnecessary for partner's health decision-making. However, contrary to this study's findings, Tshibumbu (2006:47) found that only 40 (31.5%) [vs. 91.2% (n=216) in this study] of males in the Mambwe district of Zambia agreed that women can receive HCT without the permission of the male partner. Again, Tshibumbu (2006:47) found a relatively lower proportion, when compared to finding in this study, of males supporting CHCT [93 (73.3%) vs. 97.7%(n=216)] and condom use to prevent MTCT [68 (53.3%) vs. 88.9%(n=216)]. Theuring et al (2009:96) also found that of 84 males in the Mbeya region of Tanzania who had not received CHCT, only 35 (41%) expressed willingness to receive CHCT in future. However, Katz et al (2009) in Nairobi found that 311(99.4%)

of males preferred CHCT; but preference for CHCT by almost all is the expected outcome as all these males came for HCT after being invited through their partners.

Consistent with the finding of this study, partner's HIV test results as proxy for male partners was not entertained by almost all in Kenya (Katz et al 2009), however Orne-Gliemann et al (2010) found that HIV discordance was not understood by most males interviewed in Cameroon. Bwambale et al (2008) again found that 61.8% (n=780) of males in rural western Uganda did not believe there was a possibility for discordant HIV status among couples.

Also consistent with the finding of this study, Nkuoh et al (2010:368) in Cameroon found out that only 2% (n=252) of fathers preferred unknown HIV status to suffering the psychological consequences of knowing their HIV positive status. However, Katz et al (2009) found that the 88.5%(n=304) of males in Nairobi thought that other males failed to accompany the partner to an antenatal visit for fear of knowing their HIV positive test status. Similarly, Bwambale et al (2008) in western Uganda found that many males associated a positive HIV test result with imminent death and thus were worried of taking the test.

4.3.4.2 Respondents' total score on Likert scale assessing influence of socio-cultural belief (n=216)

The total score on influence of socio-cultural belief was calculated using the assumptions presented in Table 4.14 (below), thus it follows from the assumption that the higher the score the stronger the socio-cultural belief, and vice versa.

Table 4.14 : Assumption for scoring Items on socio-cultural belief

Items	Assumed connotation	Scoring Rule
1, 2,5,6,8 and 10	Negative	Strongly agree=5; agree=4; uncertain=3; disagree=2 and strongly disagree=1
3, 4, 7 & 9	Positive	Strongly agree=1; agree=2; uncertain=3; disagree=4 and strongly disagree=5

The two missing responses for Item 6 were calculated using the respective scores of the items with negative connotations. The respondents' (n=216) scores on influence of socio-cultural belief range from 11 to 31, with median of 20, mean of 20.3 and standard deviation of 4.4. The histogram below (Figure 4.5) depicts a nearly symmetrical distribution of the scores. This is also evident from the values of the median and mean, which are almost equal.

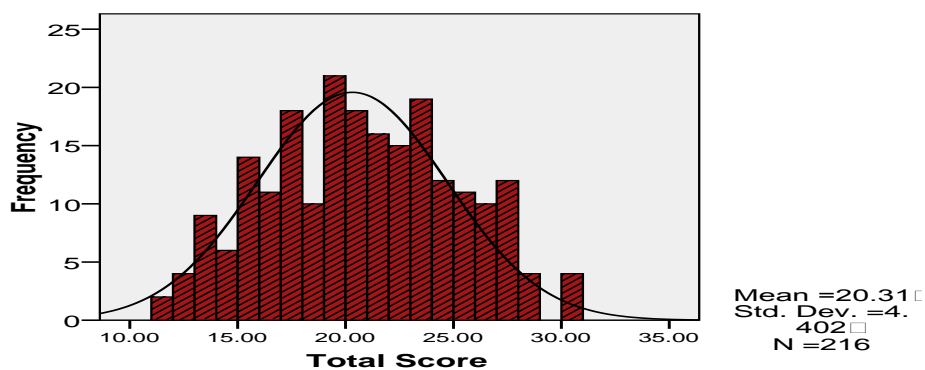


Figure 4.5: Distribution of scores on socio-cultural belief

Respondents' scores were categorized into four groups using cut-offs used by a similar study in Zambia (Tshibumbu 2006:49). As can be depicted from Table 4.15 (below), there is generally low [44.0%(n=216)] to moderate [54.2%(n=216)] influence of socio-cultural belief. The finding in this study is significantly different from that of Tshibumbu (2006:49), where the degree of influence of socio-cultural belief was high, in 30.6% (n=127) of the respondents vs. only 1.9%(n=216) in this study .

Table 4.15: Level of influence of Socio-cultural belief

Degree of socio-cultural influence	Range of scores	Number	Percent
Low	0 -19	95	44.0
Moderate	20-19	117	54.2
High	30-39	4	1.9
Very High	40-50	0	0.0
	Total	216	100.0

4.3.5 Findings on male-friendliness of health facilities (programmatic factor)

This section presents findings of male friendliness of health facilities and PMTCT programmes.

4.3.5.1 *Items on programmatic factors*

Participants were asked to give their opinion on 10 items assessing male friendliness of health facilities and the PMTCT programme. Seven of these were statements with five categories on the Likert scale, while the other three were closed ended questions with “No”, “Yes” and “Uncertain” options. For ease of analysis, “strongly agree” and “agree” were grouped into “agreed”, while “strongly disagree” and “disagree” were grouped into “disagreed”. Table 4.16 (below) presents the responses.

Table 4.16: Responses on statements regarding programmatic factor (n=216^β)

S. NO	Items	Agreed		Disagreed		Uncertain		Total		Missing
		N	%	N	%	N	%	N	%	
1	ANC clinics should be opened on weekends and evening for men to attend these clinics	211	97.7	1	.5	4	1.9	216	100.0	
2	Distance from health facility was major obstacle for you to attend ANC/PMTCT clinic with your partner	45	20.8	167	77.3	4	1.9	216	100.0	
3	Couple HIV counseling and testing for PMTCT should be conducted at villages	187	86.6	21	9.7	8	3.7	216	100.0	
4	ANC clinics should have separate waiting area for men and women.	68	31.5	136	63.0	12	5.6	216	100.0	
5	There should be a different exit after HIV-testing to avoid being identified by the crowd waiting for service	55	25.6	148	68.8	12	5.6	215	100.0	1
6*	From your experience or what you have heard, service providers don't request men in waiting area to get in to ANC together with their partner.	156	72.2	27	12.5	33	15.3	216	100.0	
7*	From your experience or what you have heard, health facilities do give men medical certificate of ANC attendance with their wife/partner if required by employer.	40	18.5	83	38.4	93	43.1	216	100.0	
		Yes		No		Uncertain		Total		Missing
		N	%	N	%	N	%	N	%	
8	You have noticed health facilities inviting/promoting male participation in PMTCT through Mass media.	123	56.9	49	22.7	44	20.4	216	100.0	
9	Have you ever seen a sign board/billboard with picture or message promoting male participation in PMTCT at gate or in premise of any health facilities?	88	40.7	71	32.9	57	26.4	216	100.0	
10	Have you been invited verbally or in written for your attendance by health facility where your partner had ANC follow up? (if spouse/female partner had ANC Follow up)	97	45.1	103	47.9	15	7.0	215	100.0	1-NA

* Items 6 and 7 were posed to respondents last respectively. ^β n=215 for items 5 & 10

It follows from Table 4.16 that the majority of respondents [97.7% (n=216)] would like the PMTCT service to have a flexible time schedule with service provision even during evenings and weekends. This supports Theuring et al (2009:98), who found out that the majority of male respondents in the Mbeya region of Tanzania suggested a special CHCT hours within ANC services [91 (73.4%)] and extending the service to weekends [80 (64.5%)]. Theuring et al (2009:95) also found out that “being too busy/no time” was mentioned by 46 (37%) of the males in the Mbeya region as potential obstacles to male ANC/PMTCT service attendance. Concurrent job demand was also mentioned as a barrier to male attendance of partner’s antenatal visit in India, Cameroon, Georgia and the Dominican Republic (Orne-Gliemann et al 2010), Kenya (Katz et al 2009) Cameroon (Nkuoh et al 2010:365), India (Singh & Ram 2009:87), the peri-urban district of Uganda (Tweheyo, 2010), and Tanzania (Boniphace [Sa]:25). Moreover, the majority of males in this study agreed that the HCT service be brought near their village [86.6% (n=216)], though distance does not seem to be major obstacle, with only 20.6% (n=216) feeling that health facilities were located at a distance.

Similarly, Bwambale et al (2008) in rural western Uganda reported that most males in focused group discussion wanted VCT services to be extended to villages or to their homes in order to save time and cost of transport. However, the majority of males interviewed individually [69% (n=780)] lived within a radius of five kilometres. Tshibumbu (2006:50) also found that only 33.1% (n=127) of the males expressed distant location of PMTCT clinics. In Tweheyo (2010) 34.1% (n=331) of males reported that distance was the main barrier for male ANC attendance, which is statistically significant. Integrating HCT into male centred community events, such as football matches, was reported to be successful in Botswana (AED: Centre on AIDS and Community Health [Sa]:05). Only 25% (n=215) would prefer a hidden exit after HIV-testing, to avoid being identified by people in the waiting area, in case of an HIV-positive test. Similarly, 83.1% (n=780) males in the Kasese district of Uganda said they would not mind if they were seen at the VCT sites (Bwambale et al 2008).

Sixty three percent of the 216 respondents disapproved the idea of separate waiting

area for males and women which goes with finding of Tshibumbu (2006:50) who found out that 65.3%(n=127) of the male respondents rejected the idea of “male only PMTCT clinics”. Theuring et al (2009:98), however, found out that 75(61%) of males in Mbeya region of Tanzania affirmed a special waiting area for males and couples. Similarly AED: Center on AIDS and Community Health ([Sa]:04) from its PMTCT peer male program in Botswana reported that males who accompanied their partner to MCH clinics prefer to be with their peer male than with their female partner.

Table 4.16 (above) also shows that domains trying to engage males seem to be sub-optimal. Only 45.1% (n=215) said they had received an invitation to attend by ANC clinics, 56.9% (n=216) had heard an invitation through the media, and 40.7% (n=216) saw billboards promoting male participation in PMTCT. The majority of respondents (72.2%) agreed that providers did not request males to enter to MCH clinics, even if accompanying their partners. Similarly, Orne-Gliemann et al (2010) reported that males did not have access to ANC consulting rooms across the four hospitals in India, Cameroon, Georgia and the Dominican Republic. Again, Nkuoh et al (2010:367) in Cameroon associated unawareness of activities in antenatal examination rooms by the majority of fathers with males rarely being permitted entrance, even if requested. However, Boniphace ([Sa]:25) found that in Tanzania only 6.8% (N=103) of males experienced their ANC attendance being disregarded by health professionals and pregnant women. Lack of invitation to attend ANC jointly with the partner was mentioned as one of the barriers to male attendance by Tweheyo (2010).

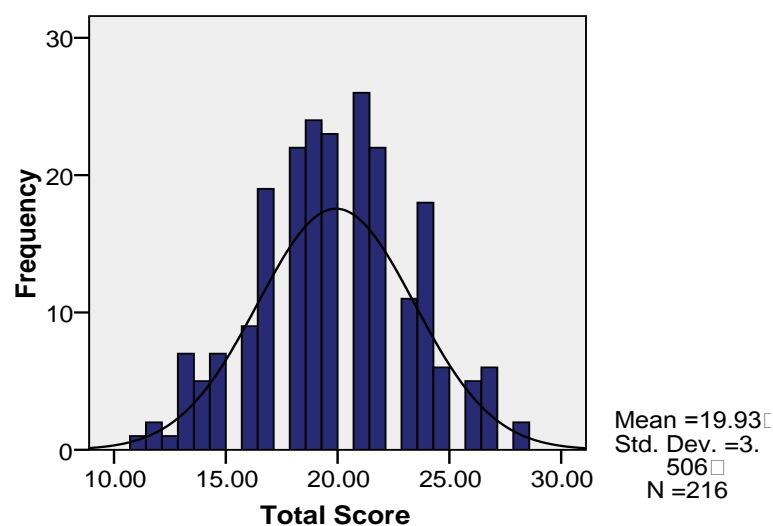
4.3.5.2 Scores on male friendliness of health facilities

Total programmatic scores were calculated for all respondents using the assumptions presented in Table 4.17 (below).

Table 4.17: Assumption for scoring Items on programmatic factors

Items	Description of domain	Scoring Rule
1,2,3, 4,5, 9	Opinions regarding practices PMTCT facilities lack; have negative connotation	Strongly agree=1; agree=2; uncertain=3; disagree=4 and strongly disagree=5
9	Experiences	Strongly agree=5; agree=4; uncertain=3; disagree=2 and strongly disagree=1
3, 4, 7	Experiences	Yes=1; No=0; Uncertain=0

One respondent had a missing response for Item 5 while Item 8 was not applicable for another respondent whose partner had no ANC follow up. The scores for the missing items were calculated using the score of the remaining items. Programmatic scores here indicate degree of male friendliness of the PMTCT programme as assessed by the respondents. The higher the programmatic score the friendlier the PMTCT programme, and vice versa. Total programmatic scores ranged from 11 to 28 out of 38, with a median of 20.0, a mean of 19.9 and a standard deviation of 3.5. The histogram below depicts a nearly symmetrical distribution of programmatic scores.

**Figure 4.6: Distribution of programmatic score of respondents (n=216)**

For comparison, the programmatic scores were classified into the four groups using cut offs comparable to a related study by Tshibumbu (2006) (Table 4.18, below):

Table 4.18: Categories of total programmatic scores (n=216)

Level of influence	Range of scores	Number	Percentage
Low	0 -14	16	7.4
Moderate	15-22	152	70.4
High	23-29	48	22.2
Very High	30-38	0	0.0
	total	216	100.0

As evident from Table 4.18 (above), the total programmatic score of respondents largely lies in the category of 'moderate', which is in keeping with findings of Tshibumbu (2006:52), that 81.8(n=127) fell in that category.

4.3.6 Findings on respondents' reported risk perception and actual risk

This section summarizes the findings on perceived and actual risks reported by respondents.

4.3.6.1 Perceived and actual risk of respondents (n=216)

Respondents were asked nine questions to assess their perceived and actual risk to HIV. Table 4.19 (below) presents the responses obtained from the 216 study participants, with 3 (1.4%) to 12 (5.6%) reporting or implying risk of HIV. According to this study the four most common reported risks are symptom of sexually transmitted infections (STI) in partner [12 (5.6%)], sexual intercourse with HIV-infected woman [11 (5.1%)], symptom(s) of STI in self [10 (4.6%)], and injection or cuts with unsterile needle or sharps [9 (4.2%)]. Of the 11 respondents who reported having had

unprotected sexual intercourse with HIV-infected woman, 10 referred to the sexual intercourse they had engaged in with their current partners who were HIV positive.

The findings on reported history of STI in the previous 12 months and history of injection or cuts with unsterile needle or sharps are relatively higher than those reported in ECSA and ORC Macro (2006:199), where 2% of each of the sexually active woman (n=2,323) and men (n=916) had STI or symptoms of STI while 97.6% of 71 respondents from Addis Ababa reported having received injections with sterile needles from unopened package (ECSA & ORC Macro 2006:201) in the 12 months prior to the survey.

Bwambale et al (2008) found that 24.9% of the males (n=780) in the Kasese district of rural western Uganda reported having had extramarital sex during one year preceding the survey, compared to 4 (1.9%) in this study, and of these males who had engaged in extramarital sex, 76.8% (n=780) reported having used a condom on their latest sexual encounter, vs. 3 (75%) in this study. Bwambale et al (2008) also found that 9.1% (n=780) of males perceived themselves as being at high risk of acquiring HIV [vs. 2.4% (n=211) in this study]. It is also evident from the table that 0.9% to 21.8% of the respondents were not uncertain about their risks. The four most common risks of which respondents were uncertain were likelihood of acquiring the HIV virus (21.8%), doubting faithfulness of partner (11.1%), suspicion of HIV positive status in partner (10.2%), and symptom of STI in partner (8.3%).

Table 4.19: Perceived and actual risk of respondents (n=216)

S. No.	Questions	Yes		No		Uncertain		Not applicable		Total	
		N	%	N	%	N	%	N	%	N	%
1	Do you think you can get the HIV virus?	5	2.3	159	73.6	47	21.8	5	2.3	216	100.0
2	Did you have injection/cuts with unsterile needle/sharps in the last 12 months?	9	4.2	192	88.9	15	6.9	-	-	216	100.0
3	Did you have sexual contact with a woman other than the women in labour in last 12 months?	4	1.9	212	98.1	0	0.0	-	-	216	100.0
4	If yes to Question 3, did you use condom in all sexual intercourses?	3	1.4	1	.5	0	0.0	212	98.1	216	100.0
5	Did you have sexual intercourse with a woman who is diagnosed to have HIV in the last 12 months?	11	5.1	.5	91.2	8	3.7	-	-	216	100.0
6	Do you think your wife has a partner other than you?	5	2.3	187	86.6	24	11.1	-	-	216	100.0
7	Do you suspect that your wife may have HIV?	3	1.4	181	83.8	22	10.2	10	4.6	216	100.0
8	Did you have symptoms of sexually transmitted infection (urethral discharge, pain during urination, genital ulcer, swelling in the groin or scrotum) in the last 12 months?	10	4.6	204	94.4	2	.9	-	-	216	100.0
9	Did your partner have symptoms of sexually transmitted infection (vaginal discharge, ulcer) in the last 12 months?	12	5.6	186	86.1	18	8.3	-	-	216	100.0

4.3.6.2 Total score of respondents' reported risk of HIV (n=216)

The total score of reported risks by respondents was calculated out of eight. Item 3 (“...did you use condoms in all sexual intercourses?”) was applicable only to the four respondents who had multiple sexual partners in 12 months prior to the study. The total scores for these four respondents were calculated out of 9, including the score of Item 3, and were then converted to a score out of 8. For all except Item 3, a score of 1 was assigned to “yes” or “uncertain” and 0 (zero) for “no” responses. For Item 3 a score of 1 was given for “no” and “uncertain” while 0 (zero) for “yes” responses. Uncertainty was assumed as a risk in the total score calculation.

Total scores of reported risk range from 0.0 to 5.3 with a median of 0.0, a mean of 1.0 and a standard deviation of 1.4. The histogram below (Figure 4.7) portrays the distribution of respondents' composite score of reported risks. It indicates asymmetrical distribution.

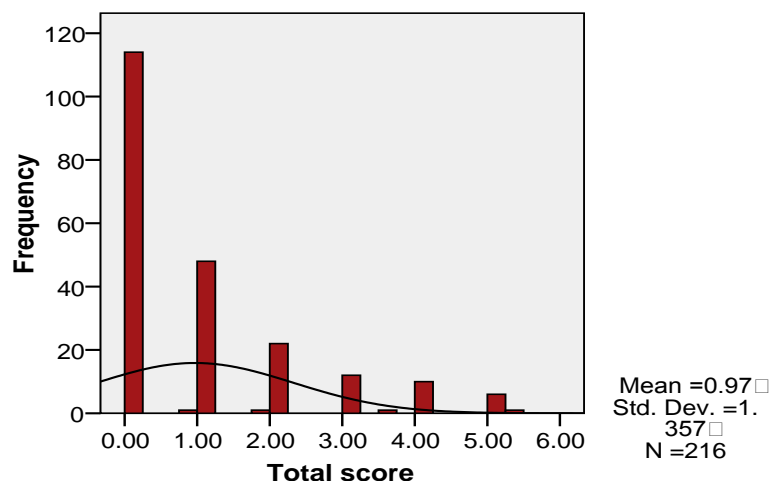


Figure 4.7: Distribution of respondents' composite score of reported risks for HIV

The total score is then grouped into four categories for simplicity of analysis, with 53% percent of respondents having no risk, 33%, 10.6%, and 3.2% having low (less than half of the highest score), medium and high risk respectively.

Table 4.20: Categories of respondents' composite score on reported risk of HIV (n=216)

Category	Score	Number	Percentage
No risk	0	114	52.8
Low risk	0.1 to 2.6	72	33.3
Medium risk	2.7 to 4	23	10.6
High risk	5 to 8	7	3.2
	Total	216	100.0

4.3.7 Findings on level of male participation in PMTCT

Respondents were asked nine questions assessing actions and five evaluating intentions to prevent MTCT of HIV. They were also requested voluntarily to receive the HCT services provided by healthcare providers in the facility. Table 4.21 (below) presents the responses of the 216 respondents.

4.3.7.1 *Male participation in prevention of mother-to-child transmission: Actions*

Table 4.21 (below) shows that the majority of respondents have supported ANC follow up of their partners by covering medical expenses (98.1%); asking what went on during appointment visit (94.9%); reminding follow up schedule (76.9%); and accompanying the partner to ANC clinics at least once (73.1%). Consistent with the findings of this study, Orne-Gliemann et al (2010) found a low couple discussion about HIV as reported by most women interviewed in India and Cameroon. Similarly, Byamugisha et al

(2010a) in eastern Uganda found that 114 (30%) of males discussed interventions at ANC clinics. However Katz et al (2009) found that the majority of males [60.3% (n=312)], prior to pre-testing, mentioned discussing HIV-testing with the partner previously. The majority of males also covered financial expenses of ANC follow up in eastern Uganda [97% (n=387)] (Byamugisha et al 2010a), and the majority considered their primary role in MCH as covering expenses in Tanzania [97 (98%)] (Theuring et al 2009:97) and Cameroon [73.4% (n=252)] (Nkuoh et al 2010:366). Consistent with the findings of this study, Byamugisha et al (2010a) in Uganda found that 214 (55%) remembered the partner's ANC appointments. A similar proportion of male attendance at partner's antenatal visit was reported in rural Ahmadnagar, India [81% (n=1091)] (Singh & Ram 2009:87) and Uganda [65.4% (n=331)] (Tweheyo 2010), but men's ANC attendance was lower in Uganda [18 (5%)] (Byamugisha et al 2010a), Kenya [16%(n=312)] (Katz et al 2009:), Fundong health district of Cameroon [77 (34.4%)] (Nkuoh et al 2010:366), kilimanjaro-Tanzania [38.4% (n=138)] (Boniphace [Sa]:25), the Mbeya region of Tanzania [46(46%)] (Theuring et al 2009:95-6), Pune-India, Yaounde-Cameroon, Georgia and Dominican Republic (Orne-Gliemann et al 2010).

Of the 158 (73.1%) respondents who ever accompanied a partner to the ANC clinic, only 20 (12.7%) entered it. This is in keeping with the finding of Byamugisha et al (2010a) that respondents experienced health workers not allowing males into ANC clinics. Orne-Gliemann et al (2010) also reported that males did not have access to ANC consulting rooms across the four hospitals in India, Cameroon, Georgia and the Dominican Republic. This study also found out that of 214 respondents with no known HIV positive status, 95 (44.4%) were counselled and tested during the partner's pregnancy, of whom 77 (81.1%) were counselled and tested together with the partner. The proportion of male partners who received HCT during partner's pregnancy in this study is comparable with that obtained in Tanzania [57 (46.3%)] in Theuring et al (2009:96). However, the proportion is slightly lower than that reported in Cameroon [147 (58.3%)] (Nkuoh et al 2010:366), while slightly higher than the aggregate report of India, Cameroon, Georgia and the Dominican Republic [36.1% (n=83)] (Orne-Gliemann et al 2010). More males reported receiving CHCT in this study compared to Tanzania [39 (68.4%)] (Theuring et al 2009:96) and Uganda [51 (49.0%)] (Homsy et al 2006:151).

Cross tabulation found that of 156 respondents in this study who accompanied the partner to the ANC visit and were expected to receive HCT, only 85 (54.5%) received HCT, while 71 (45.5%) did not.

4.3.7.2 *Level of male participation in prevention of mother-to-child transmission: Intentions*

As shown in Table 4.21 (below), the majority of respondents stated an intention of participating if one or both partner/s was/were HIV-positive. An equal proportion of respondents, i.e. 208 (96.3%), affirmed acceptance of provision of ARVs for partner and newborn, and agreed supporting the medical follow up of the newborn. Again, the majority, 186 (86.1%), agreed to confide their HIV-positive status to the partner, while 159 (73.6%) were confident of using a condom consistently in case of discordant HIV status. Similarly, willingness to disclose HIV-positive status to the male partner was expressed by the majority of women respondents in Cameroon and the Dominican republic (Orne-Gliemann et al 2010), and by many males in Kenya (Katz et al 2009) and in rural western Uganda [81.8% (n=780)] (Bwambale et al 2008). However, Bwambale et al (2008) also reported that the majority of males in focused group discussion disapproved of disclosing HIV-status to the female partner, which contradicted the quantitative finding in the same study. A high degree of actual disclosure of HIV-positive status to the sexual partner was also reported in Ethiopia (Deribe, Woldemichael, Wondafrash, Haile & Amberbir 2008; Gari et al 2010; Kassaye et al 2005:128) and Uganda (Homsy et al 2006:151). Regarding condom use, Gari et al (2010:10) reported, contrary to the finding in this study, a lower proportion [30.6% (n=302)] of HIV-positive women who always used condoms with their regular sexual partners. Byamugisha et al (2010a) in the Mbale district of eastern Uganda found that 261% (n=387) of males had never asked the partner for condom use during intercourse, suggesting a possibility of low condom use in marital relationships. However, Katz et al (2009) found that 204 (65.2%) respondents would change plans for

the number of children if the males tested positive, but it would be difficult to suggest if all this would confirm consistent condom use for both contraception and prevention of transmission of infection. Some 55% (n=216) of the respondents in this study rejected the idea of discontinuing a conjugal relationship in case of discordance with the other partner HIV status being positive.

4.3.7.3 *Acceptance of intra-partum testing for human immunodeficiency virus*

Information on acceptance of HIV-testing was collected from HIV-testing referral forms. Table 4.21 (below) shows that of the 208 respondents with no known HIV-positive status, 180 (86.5%) accepted referral for HCT, and all except one were tested and counselled for HIV. HIV-testing was not carried out for one male partner because the test kit was not available. Eight respondents (four with known HIV positive and another four with documented HIV-testing conducted within a three-month period from the survey) were not eligible for HIV-testing and were not thus tested. The HCT acceptance in this study is higher than that reported by Wondale et al (2009:86), who found that 34% of male partners of 1,316 women who presented with undocumented HIV test status, to the labour ward of Nekemete Hospital in Ethiopia, were counselled and tested. However, the finding in this study is supported by that of Homsy et al (2006:149), who found an HCT acceptance of 98% (n=180) by male partners who presented to the labour ward of a 200-bed rural Ugandan hospital in a 10-month period. Similarly, Theuring et al (2009:96) found that of 56 males in the Mbeya region of Tanzania who had no prior HCT, 52 (82%) stated a general willingness to accept HCT.

Table 4.21: Respondents' participation in PMTCT (n=216)

S. NO.	Items	Yes		No		Uncertain		Not applicable		Missing
		N	%	N	%	N	%	N	%	
1	Have you ever self initiated the discussion on importance of PMTCT service with your partner during this pregnancy?	80	37.0	127	58.8	9	4.2	-	-	
2	Have you ever requested your wife to be tested for HIV during this pregnancy?	61	28.2	150	69.4	2	.9	3	1.4	
3	If your partner had ANC follow up, have you ever asked her what information/service she got at ANC clinic?	205	94.9	10	4.6	0	0.0	1	.5	
4	Have you ever reminded your partner of her ANC follow up (schedule)?	166	76.9	48	22.2	1	.5	1	.5	
5	Did you cover medical expenses of your partner in the ANC follow up of this pregnancy?	212	98.1	3	1.4	0	0.0	1	.5	
6	Did you accompany her to ANC clinic at least once during this pregnancy?	158	73.1	56	25.9	1	.5	1	.5	
7	If yes to q.6 did you get in to ANC room together with your partner?	20	9.3	138	63.9	0	0.0	58	26.9	
8	Were you counseled and tested for HIV during your partner's pregnancy?	95	44.0	119	55.1	0	0.0	2	.9	
9	If Yes to Q. 8, were you counseled and tested together with your partner?	77	35.6	18	8.3	0	0.0	121	56.0	
10	Assuming you are willing for HIV test now, will you confide in your female partner if you test positive for HIV?	186	86.1	7	3.2	23	10.6	-	-	
11	Assuming your female partner consented for HIV test and tested positive, would you accept that she and the newborn take ARVs for PMTCT	208	96.3	1	.5	7	3.2	-	-	
12	Assuming your female partner consented for HIV test and tested positive, would you be confident to help in the newborn's medical follow up?	208	96.3	2	.9	6	2.8	-	-	

13	Assuming your female partner and you both consented for HIV test and your female partner's test result is positive while yours is negative, would you decide to discontinue your conjugal or love relationship?	37	17.1	118	54.6	61	28.2	-	-	
14	Assuming you and your partner are HIV tested, If you are positive while she is negative, would you be confident to use condom consistently to prevent transmission to her and thus to the child?	159	73.6	17	7.9	40	18.5	-	-	
15	Did the respondent accept and undergo HIV-testing?	180	83.3	28	13.0	0	0.0	8	3.7	

4.3.7.4 Composite score of level of male participation in PMTCT

Respondents' total score was calculated by adding up the score of the 15 items assessing male participation. All items had an equal weight of score 1. For all Items except item-13 , a score of 1 was given for "yes" responses and 0 (zero) for "no" or "uncertain" responses while for Item 13 a score of 1 was assigned for "no" responses and 0 (zero) for "yes" or "uncertain" responses. A scoring guide of non-applicable items is indicated in Table 4.22 (below).

Table 4.22: Scoring assumption of non-applicable items

Scenario	Items not applicable	Scoring guide
3 respondents knew their partner HIV positive status pre-pregnancy	2	No score given to these items; total scores of applicable items were calculated and then converted to a score out of fifteen using the formula below: $S_T = \frac{S_{sa}}{N_a} \times 15$ S _T =Total score out of 15 S _{sa} = sum of assigned scores N _a =number of items with assigned score Assigned scores: scores given to applicable item and 0(zero) score given to non-applicable item 9
2 respondents knew their HIV-positive status pre-pregnancy	8, 9 and 16	
2 respondents knew their HIV-positive status during current partner's pregnancy	16	
4 had recent documented HIV-testing	16	
1 respondent had a partner with no ANC follow up	3,4,5,6, and 7	
119 respondents were not counselled or tested during partner's pregnancy	9	

Respondents' composite score of participation in PMTCT ranges from 2 to 15 with a median of 10.0, a mean of 10.0 (rounded off) and standard deviation of 2.1. Figure 4.8 (below) portrays the distribution of the composite scores as nearly symmetrical:

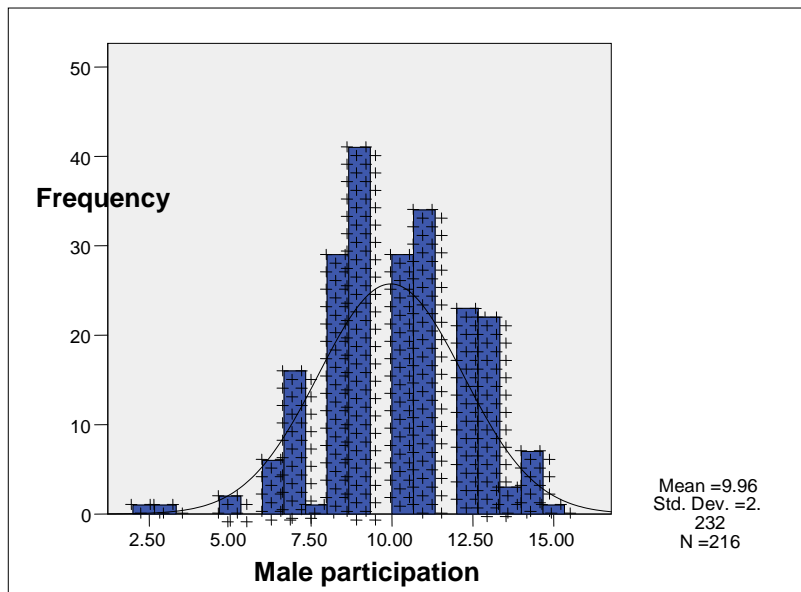


Figure 4.8: Distribution of composite score of male participation in PMTCT

For simplicity of analysis and comparison, the composite scores on male participation were grouped into three categories, as shown in Table 4.23 (below). The table shows that male participation was reasonably satisfactory, with 88% (n=216) of the respondents scoring more than half of the total score possible (15), and significantly, 41.7% (n=216) scored more than the mean score. Tshibumbu (2006:54) found in Zambia that 88 (67.7%) of the 127 respondents scored more than or equal to half the total score (10), however Byamugisha et al (2010a) in eastern Uganda found out that only 99 (26%) of the respondents had a high level of participation, with score ranges equivalent to that of the high level category in this study.

Table 4.23: Categories of composite score of male participation (n=216)

Category	Score range	Number	Percent
No participation	0.0	0	0.0
Low level participation	1.0-7.4	26	12.0
Moderate level participation	7.5 to 9.9	71	32.9
High level participation	10.0 to 15.0	119	55.1
	Total	216	100.0

4.3.8 Findings on percentage of women accompanied by their male partners

Data collectors marked with pencil “1” when women were accompanied by the male partner, and “0” when not accompanied against identifiers in the L&D admission logbook. The marks were then tallied and erased every day so that there would not be likelihood of linking the interviewed respondents with the identifiers of their partner in the future. Table 4.24 (below) presents the number of admissions and accompanying partners per facility from November 20 to December 8 2010. Table 4.24 (below) shows that 7 in 10 women who were admitted to labour wards of the three public hospital in Addis Ababa were accompanied by the male partner. Consistent with the finding of this study, Mullic, Kunene and Wanjiru (2005:128) also found that many males in KwaZulu-

Natal (South Africa) were willing to be with the partner during labour [69% (n=584)] and delivery [53% (n=584)]. However, Singh and Ram (2009:94) found that in rural India only 52% (n=1091) males were present at the time of delivery of their latest child. Similarly, Homsy et al (2006:149) found that in a rural Ugandan hospital, only 25% of 72 women who presented to the labour ward with undocumented HIV status were accompanied by their male partner. Homsy et al (2006:151), however, reported more males spontaneously visited the labour ward than the ANC.

Table 4.24: Percentage of women accompanied by male partner to labour wards at three public hospitals in Addis Ababa from November 20 - December 8, 2010.

Hospital	Number of women admitted to labour ward	Number of women accompanied by partners	Percentage
GMH	304	216	71.1
Y12H	207	154	74.4
ZMH	166	114	68.7
Total	677	484	71.5

4.3.9 Findings on acceptance of HIV-testing by males accompanying their partners in labour

The acceptance of male partners for HIV-testing in this study is found to be 86.9% (n=208) and 99.4 % (n=180) received the actual HCT (See Section 4.3.7.3 for detail).

4.3.10 Findings on bivariate correlations

Pearson's product-moment correlations were computed in order to assess the bivariate relationship between male participation in PMTCT and appropriate variables of the domains proposed to relate to male participation. Table 4.25 (below) presents these correlation results. Scatter plots were also presented to demonstrate these relationships. Here under the bivariate relationship between male participation in PMTCT, the outcome variable, and the independent variables are described making reference to Pearson correlation coefficients in table 4.25 and scatter plots.

Table 4.25: Coefficients of Pearson correlation of selected variables with the outcome variable (male participation)

Variable	Male participation	
	R	p (2-tailed)
Age	0.04	0.560
Duration in conjugal relationship	-0.001	0.891
Number of children	-0.082	0.230
Education level	0.193**	0.004
Income	0.167*	0.015
Knowledge-awareness	0.172*	0.011
Socio-cultural belief	-0.164*	0.016
Programmatic factor	0.092	0.176
Reported risk	-0.23***	0.001
* P ≤ 0.05 **P≤ 0.01 ***P≤ 0.001		

4.3.10.1 Influence of socio-demographic factors

A number of socio-demographic factors are significant as can be noticed from the discussion below.

4.3.10.1.1 Relationship with age

This study found a non-significant ($p=0.56$) very weak positive correlation between male participation and age, with a Pearson correlation coefficient (r) of 0.04 (Figure 4.9, below). However, Tshibumbu (2006:57) found a significant and weak correlation between male participation and age, although age was treated as a categorical variable with numerical values assigned to each category. Consistent findings were also reported in Kenya, Cameroon and Uganda. Katz et al (2009) found that males who participated in CHCT at an antenatal clinic in Nairobi were younger than males who received HCT alone in same clinic ($p<0.05$). Similarly, Nkuoh et al (2010:365) in Cameroon found that the proportion of males accompanying their partner increased with age. Bwambale et al (2008) in rural western Uganda also found males older than 35 years of age were 2.89 times more likely to receive VCT than those of 35 years or younger.

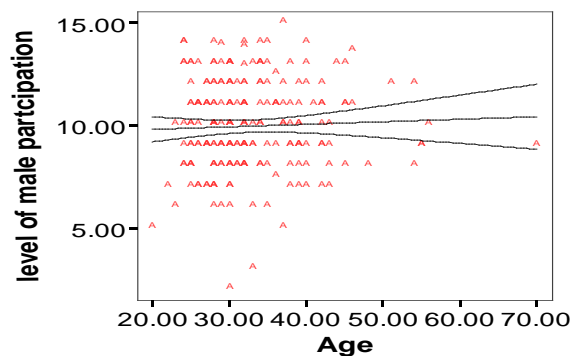


Figure 4.9: Correlation between age and level of male participation in PMTCT

4.3.10.1.2 Relationship with educational level

The study shows significant although weak positive correlations between male

participation in PMTCT and educational level ($P < 0.01$) with an $r=0.193$ (Figure 4.10, below). Tshibumbu (2006:58) found a positive weak correlation in Zambia between male participation in PMTCT and educational level, but not significant at 0.05 level with $r=0.160$. Similarly, Singh and Ram (2009:87,89) in Ahmadnagar (rural India) reported considerable increment in male participation during pregnancy and childbirth, with increase in male education, as males who were educated above high school were 2.4 times more likely to accompany their partner than males who were schooled up to primary level. Bwambale et al (2008) in rural western Uganda again found out that males with more than 7 years of education were 2.9 times more likely to receive complete VCT than those with less or equal to 7 years of education. However, Tweheyo et al (2010) in a peri-urban district of Uganda found that male partner's educational level was not associated with male ANC attendance in adjusted analysis.

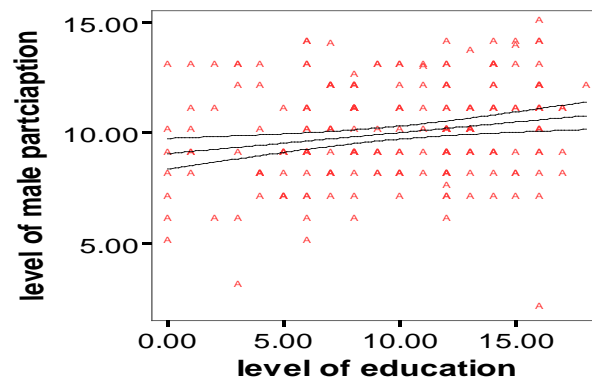


Figure 4.10: Correlation between level of education and level of male participation

4.3.10.1.3 Relation with duration of conjugal relationship

This study shows substantially weak negative correlation (Figure 4.11, below) with Pearson correlation coefficient of -0.001 between male participation and duration of conjugal relationship which is not significant ($p=0.891$). Consistent with the findings of

this study, Tshibumbu (2006:58) also found a non-significant ($p=0.989$) and very weak negative correlation ($r=-0.01$) between male participation and duration of male's conjugal relationship with the female partner. However, Kasaye et al .(2005:129) in Metu and Gore towns of Ethiopia found a non-significant association that women who had a longer relationship with male partner or boyfriend were more likely to disclose their HIV status to and receive support from the male partner.

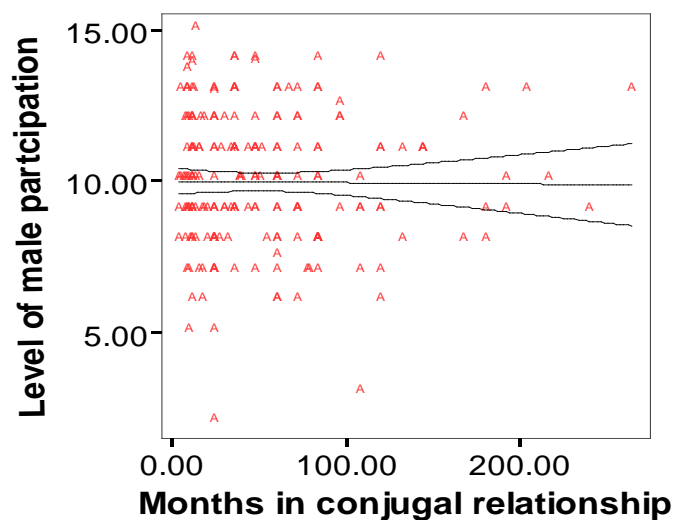


Figure 4.11: Correlation between duration of conjugal relationship and level of male participation in PMTCT

4.3.10.1.4 Relationship with number of couple's live children common to them

The number of live biological children of couples has a weak negative correlation ($r=-0.082$) with male participation, though it is not significant ($p=0.230$) (Figure 4.12, below). Studies in India and Kenya showed consistent findings. Singh and Ram (2009:87) in rural India reported that males who had fewer than two children were more likely to assist their partner in pregnancy and childbirth than males who had more than two children. Similarly, Katz et al (2009) found that males who participated in CHCT at an antenatal clinic in Nairobi had fewer children than those who received HCT alone in the same clinic.

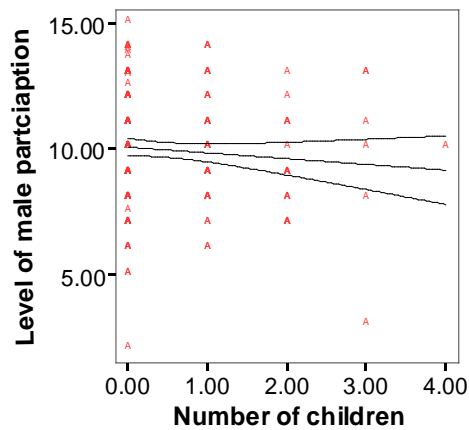


Figure 4.12: Correlation between number of live biological children and level of male participation in PMTCT.

4.3.10.1.5 Relationship with income

There is statistically significant ($p=0.015$) weak positive correlation, with $r=0.167$, between male partner's income and his participation in PMTCT. The scatter plot (Figure 4.13, below) depicts this relationship. Consistent with this finding, Singh and Ram (2009:87) reported that in rural India male participation in antenatal and childbirth care increased with standard of living. Again, Bwambale et al (2008) reported that males who earn more than 50,000 Ugandan Shillings monthly were 1.8 times more likely to receive HCT than those earning less.

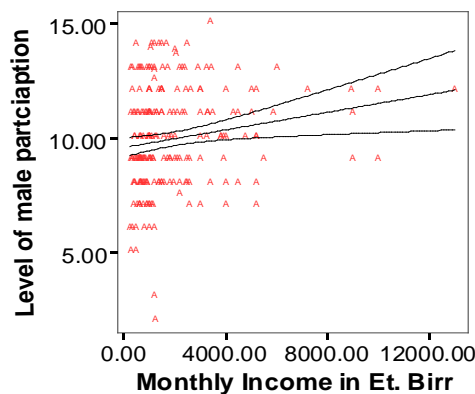


Figure 4.13: Correlation between monthly income in Ethiopian Birr and level of male participation in PMTCT

4.3.10.2 Influence of knowledge and awareness

Many males are knowledgeable about PMTCT/HIV, yet a knowledge gap is identified in some of the respondents which calls for further strengthening of the education of the public through various channels (Nkuoh et al 2010:67-8). There is a statistically significant ($p=0.011$) positive weak correlation ($r=0.172$) between total score of knowledge-awareness of HIV/PMTCT and male participation in PMTCT (Figure 4.14, below). Consistent with the finding of this study, Tshibumbu (2006:59) also found a statistically significant ($p=0.00$) positive correlation ($r=0.483$) between the composite scores of knowledge and male participation in PMTCT. Similarly, Byamugisha et al (2010a), in the Mbale district of eastern Uganda found that males who had heard about the PMTCT programme were twice more likely to participate in PMTCT activities than those who had not. However, Bwambale et al (2008) reported that familiarity with VCT and its procedures did not translate into high VCT use by males.

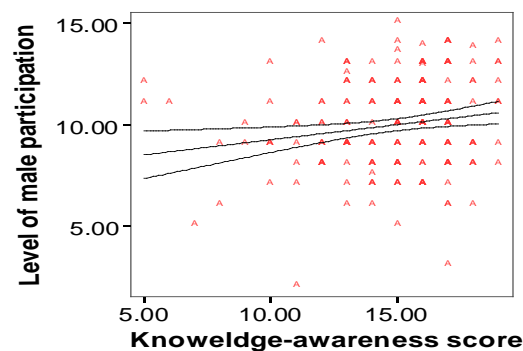


Figure 4.14: Correlation between level of male participation and PMTCT knowledge-awareness score.

4.3.10.3 Influence of Socio-cultural factors

A statistically significant ($p=0.01$) weak negative correlation was found between composite score of socio-cultural belief of males and their participation in PMTCT (Figure 4.15, below). In agreement with this study, Tshibumbu (2006:60) found a negative weak correlation ($r=-0.154$), though not significant ($p=0.084$), between socio-cultural belief and male participation in PMTCT. Similarly, Singh and Ram (2009:87,89) found in rural India that gender roles were associated with the existence of male participation during antenatal checkups and childbirth (males with egalitarian attitude were 2.5 times more likely to assist than males having traditional gender role attitudes). Theuring et al (2009:95) in the Mbeya region of Tanzania also found that males expressed “general cultural or traditional habits” [37(30%)] and thought of ANC/PMTCT service as a female domain [36 (29%)] and “fear of results of HIV test” [25(20%)] to be a potential barrier to male attendance of ANC/PMTCT services.

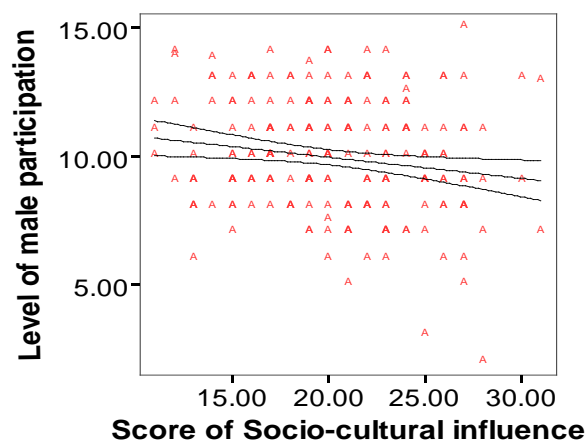


Figure 4.15: Correlation between score of socio-cultural influence and level of male participation

4.3.10.4 Influence of male friendliness of facilities (programmatic factors)

A weak positive correlation ($r= 0.092$) but not significant ($p=0.176$) correlation is found between programmatic score and level of male participation (figure 4.16, below). Tshibumbu (2006:61) found a very weak negative correlation ($r=-0.014$) between programmatic and PMTCT participation scores which was not significant ($p=0.881$).

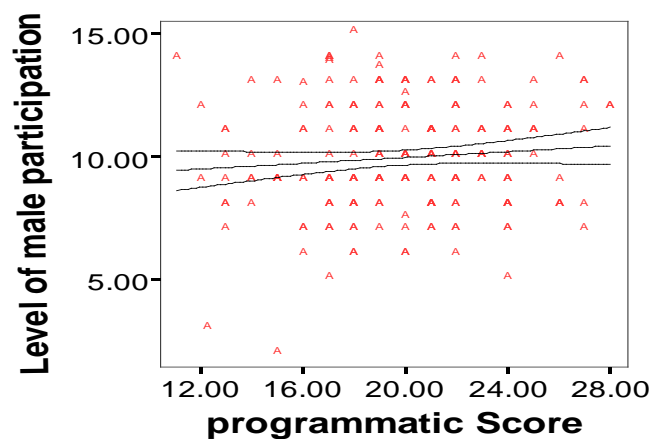


Figure 4.16: Correlation between programmatic score and level of male participation in PMTCT

4.3.10.5 Influence of perceived and actual risk reported by respondents

Highly significant ($p=0.001$) but weak negative correlation ($r=-0.23$) was found between male participation and perceived and actual risk reported by respondents (figure 4.17). Similarly, a very low rate of HCT was found in Cambodia among groups known to have higher risk (Sopheab et al 2000:25).

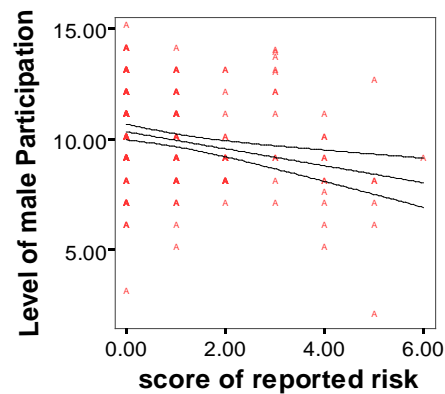


Figure 4.17: Correlation between score of reported risk and level of male participation in PMTCT

4.3.11 Findings on hierarchical multiple regression

In order to determine the relative contribution of selected independent variables to the variation in the outcome variable, hierarchical multiple regression analysis was performed. In hierarchical multiple regression variables are entered into the regression model in order determined by past research and expectations (Field 2008:2).

The variable reported risk was entered as first block into the regression model as it had highly significant correlation with male participation in this study, and health behaviour model indicates perceived risk as a predictor of decision for preventive action, male participation in this case (Rimer & Glanz 2005:13). The next block included non-categorical variables age, income, duration of relationship, number of children, educational level, knowledge-awareness, socio-cultural belief, and programmatic factor. Table 4.26 (below) presents the results of the hierarchical multiple regression analysis, and shows three models that the regression analysis yielded. Model 1 refers to the first stage when reported risk is used as predictor; model 2 refers to reported risk and educational level included, while model 3 includes knowledge awareness in addition to the two variables. The F-ratio for the first model is 11.31($p < 0.01$), for the second 9.345 ($p < 0.001$) and for the third 7.900 ($p < 0.001$). Reported risk, educational level, and

knowledge-awareness together account for 10.3% of the variation in male participation ($F=7.900$, $P<0.001$). As can be depicted from Table 4.26, the R-square (R^2) and R-square change (δR^2) values suggest that reported risk alone accounts for 5.2% of the variance in male participation and from the second block variables educational level and knowledge-awareness account for 3.1% and 2.0% of the variation respectively. The remaining variables included in the second block do not contribute significantly to the model.

The regression analysis also shows positive beta value (coefficient of regression equation) of educational level and knowledge-awareness but negative beta value of reported risk. This, in keeping with the inferences from correlation analysis results, indicates a positive relationship between male participation and the first two predictors, while a negative relationship between male participation and reported risk. For each of the beta values a standard error, indicating the extent to which the values would vary across different samples, was calculated. These standard errors are used to determine whether or not the b-values differ significantly from zero using a t-statistics (Field 2008:8) For the final model reported risk [$t(n=211)=-3.135$, $p<0.01$], educational level [$t(n=211)=2.194$, $p<0.05$] and knowledge – awareness [$t(211)=2.163$, $P<0.05$] are significant predictors of male participation. The standardized beta values, which indicate the number of standard deviation the outcome variable will change as a result of one standard deviation change of the respective predictor (Field 2008:8), are -0.208, 0.149 and 0.145 for reported risk, educational level and knowledge-awareness respectively. The magnitudes of the R^2 values, the t-statistics and standardized beta values (β) collectively indicate that reported risk has slightly more impact than educational level, while knowledge-awareness has relatively the least impact. The regression equation for the final model is $MPIP=7.694 - .341RR + .073EL + .127KA$, where MPIP= male participation in PMTCT; RR=reported risk; EL=Educational level and KA=Knowledge-awareness

Table 4.26: Multiple regression results

Models	Variables	B	SE b	B
Step 1	Constant	10.316	.186	
	Reported Risk	-.372	.110	-.227**
Step 2	Constant	9.438	.379	
	Reported risk	-.333	.110	-.203**
	Educational level	.088	.033	.177**
Step 3	Constant	7.694	.889	
	Reported risk	-.341	.109	-.208**
	Educational level	.073	.033	.149*
	Knowledge-awareness	.127	.059	.145*

Note R² =.052 for step 1: δR^2 =.031 for step 2: δR^2 =.020 for step 3 (ps<.05). *p<.05, **p<.01.

4.4 OVERVIEW OF RESEARCH FINDINGS

This study was conducted on 216 male respondents out of the 238 expected, making the response rate 90.8%. The major findings in this study were: only 54.5% (n=156) males reported receiving HCT during their partner's ANC visit. 71.5% (n=677) of women were accompanied to labour wards by male partners; 86.5% (n=208) of males accepted intra-partum HIV-testing; 55.1% (n=216) scored more than the mean score (10) while 190 (88.0%) half the total score on a 15-point scale for male participation in PMTCT. Male participation in PMTCT was found to have a statistically significant but weak correlation with educational level, income, knowledge and awareness, socio-cultural belief and reported risk. Reported risk (5.2%), educational level (3.1%) and knowledge awareness (2.0%) together accounted for 10.1% of variance in level of male participation in PMTCT.

4.5 CONCLUSION

This chapter discussed procedures employed in the data analysis, the research findings

and their interpretation. The analysis was performed with the help of *SPSS version 15.0* statistical software package. Data analyzed and presented in this chapter included demographic characteristics, knowledge and awareness on PMTCT, socio-cultural influence, programmatic influence, reported risk and level of male participation in ANC/PMTCT. Findings on bivariate correlation and hierarchical multiple regression were also discussed. Graphs, charts, scatter plots and frequency tables were used along with text description to present and analyse the findings

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CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter deliberates on the summary and interpretation of the study findings with reference to the research objectives and questions. It also presents the limitations of the study and validity of the findings in light of such limitations. The conclusions generated, and recommendations for application of the research findings are also presented in this chapter.

5.2 RESEARCH OBJECTIVES AND QUESTIONS

The study was conducted with the following five objectives. The discussion in the subsequent section is made with reference to these objectives:

- Proportion of women in labour who are accompanied by their male partner at three public hospitals in Addis Ababa
- Acceptance of HIV-testing by males accompanying their partners to a labour ward in three public hospitals in Addis Ababa
- The proportion of males with optimal participation in ANC/PMTCT, optimal participation being defined as achieving a score greater than the mean score on the male participation scale.
- Relationship between male participation in PMTCT and socio-demographic characteristics, knowledge and awareness, socio-cultural factors, programmatic factors, and reported risk of HIV
- Contribution to variation of male participation in PMTCT by independent variables

5.3 SUMMARY AND INTERPRETATION OF RESEARCH FINDINGS

The following sections present a summary of the research findings and the interpretations.

5.3.1 Proportion of women in labour who are accompanied by their male partner at three public hospitals in Addis Ababa

The majority of the women [71.5% (n=677)] admitted to labour wards of the three public hospitals in Addis Ababa were accompanied by the male partner. High level of male intention to attend partner's L&D was also reported in South Africa (Mullic et al., 2005:128), however Homsy et al (2006:149) and Singh and Ram (2009:94) reported a lower male attendance of L&D in rural Uganda (25%, n=72) and rural India (52%, n=1091) respectively. A quarter of the respondents who presented to a labour ward failed to attend a partner's antenatal visit and of 156 males who accompanied the partner to an ANC visit and were expected to receive HCT, 71 (45.5%) did not. All these figures imply that while putting effort into encouraging males to visit to an ANC clinic and strengthen CHCT at ANC, labour wards may remain critical gateways to access and offering HCT to males who fail to show up and/or are missed during antenatal visits. Besides CHCT, labour wards could also serve as potential entry point for other RH interventions targeting male partners.

5.3.2 Acceptance of HIV-testing by males accompanying their partners to labour ward in three public hospitals in Addis Ababa

Though only 44% (95) of the 214 respondents reported having been tested during

current pregnancy, a larger proportion [86.5% (n=208)] accepted HCT offered in an L&D setting. Consistent with the finding of this study, a higher proportion (98%) of males also accepted intra-partum HIV-testing in Uganda (Homsy et al 2006:149). Similarly, the majority of men who escorted their partner to ANC received HIV-testing in Nairobi [95%(n=312)] (Katz et al 2009) and Uganda [100% (n=389)] (Byamugisha 2010b).

Expression of willingness for HIV-testing by the majority was observed among male respondents in Tanzania (Theuring et al 2009:96) and key informants drawn from India, Cameroon, Dominican Republic and India (Orne-Gliemann et al 2010). However, Wondale et al (2009:86) reported only 34% HIV test acceptance by males at labour ward of Nekemte hospital in Ethiopia. Byamugisha (2010b). and Wondale et al (2009:86) reviewed facility records that could potentially distort the real picture and thus explain the discrepancy between this study and the other two. In the former, preferential recording of only those males who opted for HIV-testing is likely thus magnifying the test acceptance to 100%, while in the latter, use of the number of women who presented to labour ward as denominator instead of accompanying male partners (non-existent in L&D registers) would lead to underestimation. In general, the findings from different countries suggest high acceptance of HIV-testing by males in different socio-cultural settings. The findings of this study also suggest the place of routine HCT in improving male engagement in PMTCT, not only in a prenatal setting but also at L&D setting.

5.3.3 Relationship between male participation and socio-demographic characteristics, knowledge and awareness, socio-cultural factors, programmatic factors, and reported risk of HIV

The finding of this study suggests that significant although weak correlations were found between male participation and educational level ($P < 0.01$), knowledge-awareness ($P < 0.05$), income ($P < 0.05$), reported risk ($P < 0.01$) and socio-cultural belief

($P < 0.05$). The correlation of male participation to the first three variables is positive, while negative with the latter two. Tshibumbu (2006:57) found that male participation had moderate positive association ($r=0.483$), significant at 0.05 level, with PMTCT knowledge-awareness while non-significant ($p > 0.05$) weak association with level of education ($r=0.160$) and socio-cultural belief ($r=-0.154$). The findings in this study imply that as a male's educational level and income improves and males become aware of HIV/PMTCT and preventive services, their participation could also improve. As males receive more education, the chance may be higher that they could understand their role in RH. The positive correlation between income level and level of male participation could be explained by the fact that those with higher income level may also have higher level of education. Higher income also imply availability of resource that may promote better participation in PMTCT. On the other hand as males become more influenced by the socio-cultural norm regarding PMTCT and as they perceive themselves at risk or have experience that increases risk of acquisition of HIV they become more discouraged to join hands with partner in a PMTCT endeavour.

5.3.4 Contribution of socio-demographic characteristics, knowledge and awareness, socio-cultural factors, programmatic factors, and reported risk of human immunodeficiency virus to male participation

In this study, reported risk, educational level, and knowledge-awareness together accounted for 10.3% of the variation in male participation in PMTCT ($F=7.900$, $P < 0.001$). In terms of individual contribution to variance in male participation, reported risk takes the lead accounting for 5.2%, followed by educational level and knowledge-awareness which accounted for 3.1% and 2.0% of the variation respectively. These variables accounted little to variation in male participation in PMTCT suggesting there may be other variables that can better explain the variation. However use of an instrument which has not been well validated could also greatly explain why such variables contributed very little to the variation.

5.3.5 Level of Male participation in PMTCT

This study found a reasonably high male participation in PMTCT, with 88% (190) of the 216 respondents scoring more than half of the total score possible (15), and, significantly, 55.1% (n=216) scoring more than the mean score. Tshibumbu (2006:54) found that in Zambia 88 (67.7%) of the 127 respondents scored more than or equal to half the total score (10). However, Byamugisha et al (2010a) in eastern Uganda found out that only 99 (26%) of the respondents had high level of participation, with score ranges equivalent to those of the high level category in this study. The differences could be explained, inter alia, by the different questions used and the timing of the study. The finding in this study implies that there is already an encouraging platform for male participation in the study area, and this could serve as a springboard to achieve full-scale male participation in PMTCT in the Addis Ababa city and similar urban areas.

5.4 CONCLUSION

In general, this study found that a higher proportion of males accompanied their partner to a labour ward and had a reasonably good level of male participation in PMTCT, with significant acceptance of HCT. Male participation was also found to have a statistically significant but weak correlation with educational level, knowledge awareness, income, reported risk and socio-cultural belief. Reported risk, educational level and knowledge-awareness accounted for 5.2%, 3.1% and 2.0% of the variation in male participation respectively. However, the findings of this study reflect the situation in public health facilities at urban setting and may not be generalisable to other settings.

5.5 RECOMMENDATIONS

On the basis of the findings of this study, the investigators suggest the following recommendations:

5.5.1 Programmatic recommendations

Interventions aimed at improving male participation in PMTCT should consider the factors related to it. Priority should be given to addressing the external factors for relatively rapid outcome. Besides rapidity of outcome, addressing external barriers ultimately contributes to positively shape the intrinsic factors, i.e., socio-cultural belief and fear of participation because of perceived risk (Theuring et al 2009:98). As the community witness advancement of male participation (as a result of tackling of external barriers) , the community's perceived level of normality of male participation in PMTCT gradually matures and this leads to the intrinsic motivation towards better participation.

Therefore providing the public with accurate, simple, consistent and current information regarding PMTCT and HIV through available channels coupled with a male friendly PMTCT service warrants a priority attention. Print and electronic media, billboards and posters, and opinion/religious leaders are some of the vehicles through which simplistically framed information on PMTCT/HIV can reach the community. Community based volunteers and health care cadres at community level (for instance health extension workers in Ethiopia) could also bring the agenda closer to the community. Promotion messages focusing not only on males' role of HIV/PMTCT but also the benefits of participation to themselves and the family should also get into the community. A flexible ANC consultation extending beyond the traditional clinic hour can be considered to address the needs of those males with strict work schedules. This has actually been shown to increase number of males accompanying their partners to

ANC clinics (Katz et al 2009; Orne-Gliemann et al 2010). Arrangements should also be made to allow males access ANC consultation rooms with their partners and also to labour wards if possible. This promotes interaction with the males, partners and the provider and provide an opportunity to engage males in MCH in general and PMTCT in particular.

While efforts should continue to bring males into picture antenatally or earlier, L&D settings should also be maximally utilized for CHCT and other reproductive health interventions targeting males as this is a setting most male partners visit and stay longer for maximum interactions with providers. However arrangements should be in place to cater for this additional activity beyond the traditional responsibility in L&D setting, as research has shown staff shortage and work overload could impede activities in labour ward (Homsy et al 2006:150). Assigning trained providers, on rotation basis, to deal with CHCT & PMTCT services in labour ward while relieving them from other responsibilities can help provide quality PMTCT service to couples. This, however, should take client load and staff availability into consideration.

Last but not least it is worth mentioning that policy makers, program managers, providers and whoever party involved in PMTCT program should keep in mind that any effort to improve engagement of males in PMTCT should at the same time ensure that the reproductive right of women are protected in full.

5.5.2 Recommendation for further studies

The following recommendations are made for further studies:

- to identify reasons males fail to accompany their partners to ANC and L&D.
- to conduct comprehensive study on male participation in settings that include urban-rural, public-private and hospital-health centre mix ..
- to study couple's opinions on CHCT at labour wards

- to assess ways to engage males , with high reported risk for HIV, in PMTCT.

5.6 CONTRIBUTIONS OF THE STUDY

This study sheds some light on understanding of the degree of optimal male participation in PMTCT; percentage of males accompanying their partner to the labour ward; acceptance of HIV-testing among these males; and the relationship between male participation, intrinsic factors and extrinsic factors. The findings of the study have provided evidence for hospital managers that labour wards are crucial gateways for increasing male participation. They may respond to this by assigning providers to take care of HCT and other related care to couples presenting to labour wards.

5.7 LIMITATIONS AND STRENGTHS OF THE STUDY

Limitations of the study are:

- The cross-sectional time dimension and correlational design limits the possibility of making causal inferences
- The introduction of selection bias is possible since participants were recruited from labour wards in a hospital setting. Partners of women who presented to the labour ward for facility delivery may be different from partners of those who preferred home delivery or opted to go to other health facility types. Males not accompanying their partner to labour ward may also have different view points. Public antenatal clinics in the Addis Ababa urban area may not represent antenatal clinics serving rural communities of Ethiopia. Thus, the findings of this study reflect the situation of public hospitals in Addis Ababa and may not necessarily be generalised to male partners in the country and abroad. However, the study findings could be a basis for interventions to improve male participation

in PMTCT in similar populations.

- Social desirability responses, especially to questions assessing risk of HIV acquisition, could be a potential pitfall in this study.

Perceived strengths of the study are:

- Most socio-demographic data of respondents compared well with that of the 2007 census of Addis Ababa, as reported by PCC ([Sa]). Health centres were also represented as most women had ANC follow up at a health centre and again visited a health centre for delivery prior to referral to these hospitals.
- Use of random sampling approach (systematic sampling) to those males whose partner were admitted to the labour wards.
- The study used firsthand information about male perspective from males themselves. This reflects males' view better than information obtained from their partners.
- This study is one of the few studies regarding male participation in PMTCT in Africa (Katz et al 2009).
- A small non-response level (9.2%; n=22 out of 238) implies less likelihood of biasing the estimates in the study.

5.8 CONCLUDING REMARKS

This chapter has discussed the research findings in light of the five objectives of the study. In general, it was found that a higher proportion of males accompanied their partner to labour ward and most had a reasonably good level of male participation in PMTCT, with majority accepting HCT. Male participation was also found to have a statistically significant but weak correlation with educational level, knowledge

awareness, income, reported risk and socio-cultural belief. The chapter also drew conclusions, made recommendations, and presented possible contribution of the research, with its limitations and strengths stated.

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**** refers to abstracts and electronic sources with pages not used for referencing purpose.**

Annexure 1: Consent form

Factors related to male participation in Prevention of mother-to-child transmission of HIV (PMTCT) at three public hospitals in Addis Ababa, Ethiopia.

Consent form to participate in interview

My name is _____, a health professional working in this hospital. We are conducting a study on factors affecting male participation in PMTCT and acceptance of HIV counseling and testing by males accompanying their spouse/partner to labour ward at three public hospitals in Addis Ababa including this one. There are some questions related to Prevention of Mother-To-Child Transmission of HIV and Maternal and Child Health that I would like you to respond to only if you wish to do so. I assure you that the interview will be conducted in a private room and your responses (the information you provide) are kept confidential. No identifier (including your name) would be written on the questionnaire to ensure your responses are not linked to these identifiers. As far as I can tell, there should be no harm caused because you are involved in this study. You have full right to decline to the interview partly or totally without any effect on the care provided to your partner and baby. In case you consent for the interview, I urge(beg) you to provide me your honest answer to the questions you want to respond as this would help us to come up with genuine conclusions and recommendations that would potentially help Ministry of Health of Ethiopia and health facilities improve these services. I am happy to answer any questions you may have; do you have questions?

For further questions about this research and related issues, contact Dr. Daniel Kinde Getu, principal investigator at +251-911-608045.

I have read the above consent form/ the above consent form has been read to me; I have fully understood its contents and I consent to participate in this research project.

Name of participant _____ Signature _____ Date _____

Name of interviewer _____ Signature _____ Date _____

Name of witness _____ Signature _____ Date _____

Annexure 2: Questionnaire

I. Socio- demographic questions

Instruction: - please provide short answer to the socio-demographic questions

s. N o.	Questions	Coding categories	code	Skip
1	Age in completed years_____			
2	Ethnicity _____			
3	Religion_____			
4	Marital status (with the women in labour)_____	1. Traditional marriage 2. Registered marriage 2. Cohabiting 3. separated/divorced 3. other (specify)_____		
5	Are you currently living with your partner in the same house?	1. Yes 2. No 3. Don't know		
6	How long have you been together cohabitating or in marriage? _____			
7	Number of live children common to you and your partner? _____			
8	What is the highest level of education you completed_____			
9	Occupation? 9.1 type of work _____ 9.2. employment type (who owns the business/company you work)_____			
10	What is your income in Ethiopian birr Daily_____; monthly_____			

II. Knowledge and awareness on HIV/PMTCT

Instruction: for the statements assessing knowledge and awareness on HIV/PMTCT, please answer “yes” if you agree , “No” if you disagree or “don’t know” if uncertain.

S. No	Questions to male partner	Coding categories	Code	Skip
1	<i>HIV is transmitted through?</i>			
1.1	Unprotected Sexual intercourse	1. Yes 2. No. 3. Don't know		
1.2	Eating from same plate			
1.3	Contaminated sharps/needles	1. Yes 2. No. 3. Don't know		

1.4	Social kiss			
1.5	Blood transfusion	1. Yes 2. No. 3. Don't know		
2	<i>Mother- to-child transmission of HIV</i>			
2.1	HIV can be transmitted from mother to child	1. Yes 2. No. 3. Don't know		
2.2	HIV can be transmitted from infected mother to child during pregnancy	1. Yes 2. No. 3. Don't know		
2.3	HIV can be transmitted from infected mother to child during labor and delivery			
2.4	HIV can be transmitted from infected mother to child while sleeping with baby on same bed	1. Yes 2. No. 3. Don't know		
2.5	HIV can be transmitted from infected mother to child during breast feeding after birth	1. Yes 2. No. 3. Don't know		
3	<i>What helps reduce mother to child transmission of HIV</i>			
3.1	HIV counseling and testing for pregnant mothers	1. Yes 2. No. 3. Don't know		
3.2	HIV counseling and testing for male partners			
3.3	Antiretroviral drugs to infected mother and baby born from her	1. Yes 2. No. 3. Don't know		
3.4	Delivery by cesarean section	1. Yes 2. No. 3. Don't know		
3.5	Complete avoidance of breast feeding is one option	1. Yes 2. No. 3. Don't know		
3.6	Exclusive breast feeding for first 6 months is one option	1. Yes 2. No. 3. Don't know		
3.7	Using contraception by HIV positive couple	1. Yes 2. No. 3. Don't know		
4	<i>Have you ever heard about a program called Prevention of Mother-To-Child Transmission (PMTCT) of HIV?</i>			
5	<i>Do you know that PMTCT services are offered in all government health facilities?</i>			
6	<i>Do you know that pregnant women are counseled and tested at antenatal care clinic?</i>			

III. Socio-cultural belief about PMTCT

Instruction : for the following statements related to socio-cultural belief about PMTCT, please express your opinion by stating “strongly agree”, “agree”, “undetermined”, “disagree” or “strongly disagree”

SA: Strongly agree; A-Agree ; U-undetermined ; D: Disagree; SD: Strongly disagree

		SA	A	U	D	S D
3.1	Maternal and child health clinics should focus on only health care service of women and children excluding male partners	1	2	3	4	5
2	It suffices that a pregnant woman be accompanied to ANC	1	2	3	4	5

	clinic by less busy relative or friend.					
3	Even If couples believe they are faithful to each other, they should be tested for HIV together during ANC follow up for the sake of PMTCT	5	4	3	2	1
4	A pregnant woman can be tested for HIV even if her partner disagrees.	5	4	3	2	1
5	It is better to postpone HIV testing to post delivery as pregnancy by itself is stressful.	1	2	3	4	5
6	An HIV test result of a pregnant woman indirectly confirms HIV status of her partner.	1	2	3	4	5
7	Couples should use condoms at least until they know their HIV status is negative	5	4	3	2	1
8	It is better to live with unknown HIV status than live depressed with positive HIV status known	1	2	3	4	5
9	It is appropriate to offer HIV testing for all clients visiting a health facility.	5	4	3	2	1
10	A positive HIV test result of a female partner proves that she is unfaithful?	1	2	3	4	5
	Total Score					

IV. Male experience and opinion regarding PMTCT programmatic factors

V.

Instruction : for the following statements related to PMTCT programmatic factors, please express your opinion by stating “strongly agree”, “agree”, “undetermined”, “disagree” or “strongly disagree”

SA: Strongly agree; A-Agree ; U-undetermined ; D: Disagree; SD: Strongly disagree

S.No	Questions	SA	A	U	D	S D
1	Antenatal clinics should be opened on weekends and evening for men to attend these clinics with their partner	5	4	3	2	1
2	Distance from health facility was major obstacle for you to attend ANC/PMTCT clinic with your partner	1	2	3	4	5
3	Couple HIV counseling and testing for PMTCT should be conducted at villages	5	4	3	2	1
4	There should be separate waiting areas for men and women visiting maternal and child health clinics	1	2	3	4	5
5	There should be a different exit after HIV testing to avoid being identified by the crowd waiting for service	1	2	3	4	5
6	Have you noticed health facilities inviting/promoting male participation in PMTCT through Mass media.	Yes	No	Uncertain		
7	Have you ever seen a sign board with picture or message promoting male participation In PMTCT at gate or in premise of any health facilities?	Yes	No	Uncertain		
8	If your partner had ANC follow up, have you been invited verbally or in written for your attendance by the antenatal clinic?	Yes	No	Un c ert ain	Spouse /partne r had no ANC follow up	
9	From what you have observed or heard service providers don't request men in waiting area to enter in to ANC together with their partner.	1	2	3	4	5

10	From what you have observed or heard health facilities do give men medical certificate of ANC attendance if required by employer.	5	4	3	2	1
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VI. Level of male participation in PMTCT

Instruction: for the questions assessing level of male participation in PMTCT, please answer “yes” if you agree , “No” if you disagree or “don’t know” if uncertain

S. no	Questions		Cod e	Ski p
1	Have you ever self initiated the discussion on importance of PMTCT service with your partner during this pregnancy?	1. Yes 2. No. 3. Don't know		
2	Have you ever requested your wife to be tested for HIV during this pregnancy?	1. Yes 2. No. 3. Don't know 4. Spouse/partner is HIV+pre-pregnancy		
3	If your partner had ANC follow up, have you ever asked her what information/service she got at ANC clinic	1. Yes 2. No. 3. Don't know 4. NA (my partner had no ANC follow up)		If 4 Go to Q. 8
4	Have you ever reminded your partner of her ANC follow up (schedule)?	1. Yes 2. No. 3. Don't know 4. NA (my partner had no ANC follow up)		
5	Did you cover medical expenses of your partner in the ANC follow up of this pregnancy?	1. Yes 2. No. 3. Don't know 4.NA		
6	Did you accompany her to ANC clinic at least once during this pregnancy?	1. Yes 2. No. 3. Don't know 4.NA		If 2, go to Q.8
7	If yes to q.6 did you enter in to ANC room together with your partner?	1. Yes 2. No. 3. Don't know 4. NA		
8	Were you counseled and tested for HIV during your spouse's/partner's pregnancy?	1. Yes 2. No. 3. Don't know 4. I tested HIV+ pre-pregnancy		If 2 go to10
9	If yes to Q 8, were you counseled and tested together with your partner?	1. Yes 2. No. 3. Don't know 4. NA		
10	Assuming you are willing for HIV test now, will you confide in your female partner if you test positive for HIV?	1. Yes 2. No. 3. Don't know 4.NA(he already positive)		
11	Assuming your female partner gives consent for HIV test and tests positive, will you accept that she and the newborn take ARVs for PMTCT	1. Yes 2. No. 3. Don't know 4.NA (she is already positive)		
12	Assuming your female partner tests HIV positive , would you be confident to help in the newborn's medical follow up until the HIV status is known?	1. Yes 2. No. 3. Don't know 4.NA(she already positive)		
13	Assuming your female partner and you both gives consent for HIV test and your female partner tests positive while your test negative, would you decide to discontinue your conjugal or love relationship	1. Yes 2. No. 3. Don't know 4. NA(she is already positive)		
14	Assuming you and your partner are HIV tested, If you are positive while she is negative, would	1. Yes 2. No. 3. Don't know		

	you be confident to use condom consistently to prevent transmission to her and thus to the child?			
15	HIV test acceptance (review HIV test acceptance form)	1. Yes 2. No.		

VII. Actual and perceived risks(susceptibility) for HIV

Instruction: For the following questions assessing your perception or actual risks for HIV infection, please answer “yes” if you agree , “no” if you disagree or “uncertain ” if not sure.

S. No.	Questions	Coding categories	Cod e	Ski p
1	Do you think you can get the HIV virus?	1.Yes 2.No 3.Uncertain 4. NA (known HIV positive)		
2	Did you have injection or cuts with unsterile needle or sharps in the last 12 months?	1.Yes 2.No 3.Uncertain		
3	Did you have sexual contact with woman other than your current partner (who is in labour ward) in the last 12 months?	1.Yes 2.No 3.Uncertain		If 2 go to Q.5
4	If “yes” to Q.3, did you use condom in all sexual intercourses?	1.Yes 2.No 3. Uncertain		
5	Did you have sexual intercourse with a woman who is diagnosed to have HIV in the last 12 months?	1.Yes 2.No 3. Uncertain		
5	Do you think your wife has a partner other than you?	1.Yes 2.No 3.Uncertain		
6	Do you think your wife has a partner other than you?			
7	Do you suspect that your wife may have HIV?	1.Yes 2.No 3.Uncertain 4. known HIV positive		
8	Did you have symptoms of sexually transmitted diseases (urethral discharge, pain during urination, genital ulcer, swelling in the groin or scrotum) in the last 12 months?	1.Yes 2.No 3.Uncertain		
9	Did your partner have symptoms of sexually transmitted diseases (vaginal discharge, ulcer) in the last 12 months?	1.Yes 2.No 3.Uncertain		

Thank you for your participation!

Annexure 3: Referral form for HIV counselling and testing

The hospital provides free HIV counseling and testing service for males accompanying their partner to labour ward. Are you willing if I refer you for this service? (If willing, Please complete and link the partner to HCT service)

Referral form for HIV counselling and testing

Name of health facility _____

Partner's code _____ Age _____ years

Referred by: name _____ Signature _____ Date _____

Feed back

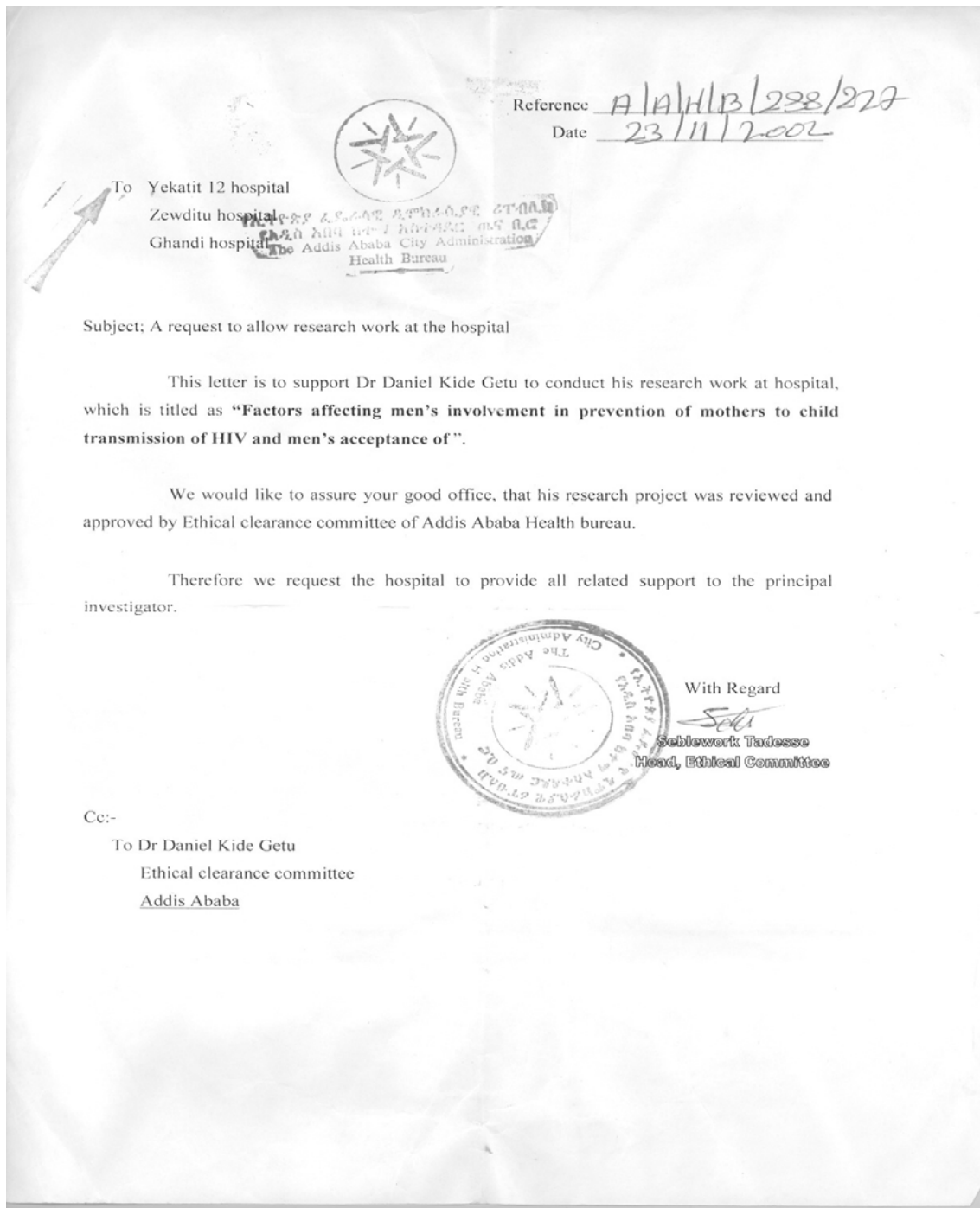
HIV Test conducted (check box)

Yes Refused Not conducted

If not conducted reason _____

Reported by _____ Signature _____

Annexure 4: Letter of authority to conduct research issued by AACAHB



Please note that date stated in this letter of authority for conducting research is in Ethiopian calendar and is equivalent to 30/07/2010 in GC.

Annexure 5: The Clearance certificate issued by Health Studies Research and Ethics Committee (HSREC) of UNISA

**UNIVERSITY OF SOUTH AFRICA
Health Studies Research & Ethics Committee
(HSREC)
Faculty of Human Sciences
CLEARANCE CERTIFICATE**

Date of meeting: 9 November 2010

Project No: 4206-330-2

Project Title: Factors affecting male participation in Prevention of Mother-to-Child Transmission and male acceptance of Intra-partum Human Immunodeficiency virus testing at three public hospitals in Addis Ababa

Researcher: Daniel Kinde Getu

Supervisor/Promoter: Dr BL Dolamo

Joint Supervisor/Joint Promoter: N/A

Department: Health Studies

Degree: Masters in Public Health

DECISION OF COMMITTEE

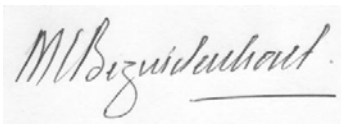
Approved



Conditionally Approved



**Prof TR Mavundla
RESEARCH COORDINATOR**



**Prof MC Bezuidenhout
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES**

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES