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# Male involvement in prevention of mother to child transmission of HIV and associated factors among males in Addis Ababa, Ethiopia

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**Abstract:** *Background:* The importance of male involvement in the prevention of mother-to-child transmission programs is incremental to maintain family health and adherence to human immunodeficiency virus treatment and prevention regimens. Globally, male involvement has been recognized as a priority focus area to be strengthened in prevention of mother-to-child transmission but, it remains a challenge in most low- and middle-income countries including Ethiopia. *Objective:* To assess male involvement in prevention of mother-to-child transmission of HIV and associated factors among male partners in Addis Ababa. *Methods:* A Community based cross-sectional study supplemented with qualitative method was conducted from October 1-November 30, 2013 at sixteen districts in Addis Ababa. A total of 431 male participants were involved in the study. Data was analyzed using SPSS version 16.0 statistical package. Multiple logistic regressions analysis was used to identify the predictors of male involvement. Qualitative data were analyzed manually using thematic approach. *Result:* One hundred ninety six (45.5%) of respondents were in the age group of 35-44 years. Three hundred thirty two (77%) of the participants were knowledgeable about mother-to-child transmission of HIV. From the total respondents, only 121(28.1%) of males had high involvement in PMTCT. Knowledge, income, cultural beliefs, and occupation of the participants were significantly predictor of males' involvement in the Prevention of mother to child transmission of HIV. *Conclusion:* Knowledge, occupational status, income and cultural barriers to males' involvement in the Prevention of mother to child transmission of HIV in Addis Ababa were deterrent and interrelated. Therefore, a potential need to be invested on the components attributable to those independent factors of male involvement there by aware, support empower them towards effective involvement in Prevention of mother to child transmission interventions.

**Keywords:** Men's Involvement, Prevention of Mother-to-Child Transmission of HIV

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## 1. Introduction

There are an estimated 34 million people around the world who are living with HIV, including millions who have developed AIDS. In 2010, around 390,000 children under the age of 15 became infected with HIV, mainly through mother-to-child transmission. About 90% of children living with HIV reside in sub-Saharan Africa where, in the context of a high child mortality rate, AIDS accounts for 8 % of all under-five deaths in the region (UNAIDS, 2010).

According to WHO reported there are about 430 000

estimated numbers of children newly infected with HIV globally, over 90% of them through mother-to-child transmission (MTCT). Without treatment, about half of these infected children will die before their second birthday. MTCT is the primary cause of all HIV infections in children under fifteen years of age. Without intervention, the risk of MTCT ranges from 20% to 45%. With specific interventions in breastfeeding populations the risk of MTCT is 5% or less, in non-breastfeeding populations the risk of MTCT can be

reduced to less than 2% (World Health Organization 2007 and 2010).

Globally, male involvement has been recognized as a priority focus area to be strengthened in PMTCT but testing male partners for HIV in the context of preventing mother-to-child transmission remains a challenge in most low- and middle-income countries. In 2008, 57 countries documented the number of male partners of pregnant women attending antenatal care who received an HIV test. The proportion of pregnant women attending antenatal care whose male partners were tested for HIV was 5% in 2008 versus 2% in 2007 (WHO & UNICEF, 2007).

Couple Voluntary counseling Testing was shown to have greater benefits than accompanying the female partner for individual VCT. Unfortunately, few men accompany their partners to antenatal clinics and even fewer participate in couple counseling when it is available (Farquhar et al, 2004).

In Addis Ababa, there is no clear evidence that could be attributable to male involvement in the uptake of PMTCT service. It is also believed that improved ANC service utilization for whatever reason doesn't guarantee the full prevention, treatment, care and support for the mother, newborn and the father by itself unless male partners are involved in wide ranges of PMTCT activities at each level of care. Moreover; recent report from Addis Ababa health bureau indicated that the prevalence of male involvement in PMTCT service is less than eight percent which is by far lower from WHO expectation which is 50%. This in turn could impose a potential obstacle and challenge for planners and decision makers not to invest their potential to the maximum in allocating the available resources for the best implementation of PMTCT program in the study area (WHO, 2007).

Therefore, this study contributes its part in providing important information to the utilization of PMTCT services. Studying male involvement and its determinants among pregnant mothers attending Antenatal care in Addis Ababa helps to pinpoint factors which facilitate or inhibit the uptake of recommended PMTCT services. The findings from this study identified some of the determinants potentially related to behavior of male partners towards ANC/PMTCT with specific behavioral causes.

It may also bring facts to all stakeholders that could establishing and demonstrating transparency and shared responsibility for which they should be accountable and to invest their potential and actual available resource in affordable and acceptable approach in line with accepted standards. So, intervention could be made which enhance ownership and commitment among all the concerned bodies under the level of influences that the findings of this study could impose.

Furthermore the study could possibly generate information in the area of the topic for large scale researchers to investigate further empirical evidences to control those factors attributable to low male involvement in PMTCT service in the study area.

## 2. Methods and Materials

### 2.1. Study Area and Period

This study was conducted in Addis Ababa, the capital city of Ethiopia which covers an area of 520.14 km<sup>2</sup>. It has ten sub cities which encompasses 116 districts. According to the National population and Housing Census of Ethiopia projection figures in 2011, the total population of Addis Ababa is 2,980,001 with a male to female ratio of 47.64 % & 52.36 % (CSA, 2007). The expected number of pregnancy is 63964 (from 2013 projection). The health institutions in the city comprise a total of 43 hospitals, 32 health centers, 109 special clinics, 169 higher clinics and 146 medium clinics. Among these currently PMTCT service is provided in 41 public health facilities. The study was conducted in 16 randomly selected districts from October 01 – November, 30 /2013 in the city.

### 2.2. Study Design

A community based cross-sectional study triangulated with qualitative method was employed.

### 2.3. Study Population

Sampled male partners whose female partners were attending ANC /PMTCT services in the selected districts six months prior to the study. For qualitative study purposively selected male partners whose female partners were attending ANC /PMTCT services in the selected districts.

### 2.4. Sample Size

The sample size was determined by using a single population proportion formula considering the following assumptions: proportion of male involvement in PMTCT 16% ( $p=0.16$ ) (Addisu, 2012), level of significance to be 5% ( $\alpha = 0.05$ ),  $Z_{\alpha/2} = 1.96$  margin of error to be 5% ( $d = 0.05$ ) and design effect = 2. By adding 10% non-response rate, the final sample size was 454.

### 2.5. Sampling Techniques

Multi-stage sampling was employed. In Addis Ababa, there are ten sub cities and these sub cities encompass 116 districts. Of those sub cities with WHO recommendation 30-40% of the study area and with scarcity of resources four were selected and from each sub city four districts were identified again by simple random sampling. Then the study units were allocated proportionally from each districts health centers. Finally, simple random sampling technique was used select the study participants. For Qualitative, Ten male partners who were participating with female partners attended ANC/ PMTCT services in mother support group program at some health centers of the study districts and those fulfill the criterion to give enough information about the study.

## 2.6. Instruments and Measurements

Pretested and structured questionnaire was used. Translation of instrument is made from English language to local Amharic language and back to English language by different experts who are familiar on the field of area and blind to the original version of the questionnaire (English version) in order to facilitate reliable responses to underline questions and keep the original meaning of the instrument.

Questionnaires for each item are adapted from previously done similar studies (Tshimbubu D, 2006; Daniel G, 2011). The instrument contains six parts: socio demographic status of the respondents (08 items), knowledge of PMTCT (10 items), perceived risk of HIV (05 items) and level of male involvement (06 items) with a combination of responses 'yes', 'No' and 'don't know' assuming score of 'yes'=1, either of 'don't know' or 'No' = 0, Perceived risk 05 items assuming a score of either of "yes" or "uncertain"=1, no =0 and for every correct item there was a reversed incorrect item. Socio cultural factors 10 items, perceive programmatic factors with 08 items all of which eliciting responses on a five-point Likert's scale format ranging from 'strongly agree' to 'strongly disagree' was included. Cronbach's Alfa Values about 68% for programmatic factors and  $\geq 65\%$  for cultural factors were checked to ensure reliability of the scale and this was taken as acceptable above 65%.

## 2.7. Data Collection Procedure

The data were collected for sixty days in each study districts. It was collected through face to face interview of male partners at their houses or on working places by using Amharic version instrument based on the information taken from log book of ANC/PMTCT in those selected districts' health centers, their female partners and by using health extension professionals for further information about the sampled males full address of the households and place of work.

Sixteen trained health extension supervisors were involved in data collection and was supervised by two master students. For both data collectors and supervisors one day training was given on data collection instrument, interview technique and importance of taking informed consent before data collection starts. Each day data was checked for completeness and consistency. For qualitative study in-depth interview was conducted with purposively selected respondents those fulfill the criterion to give enough information about the study from each districts and before interview informed consent was obtained.

## 2.8. Data Processing and Analysis

The questionnaire checked for completeness and consistency and entered into SPSS statistical package version 16. Frequencies, proportion, and summary statistics was used to describe variables. Bivariate logistic regression analysis was used primarily to check which variables have association with the dependent variable then variables found to have p-value of less than 0.05 was entered in to Multiple Logistic

regression for controlling the possible effect of confounders. Finally the variables which have significant association (P-value  $< 0.05$ ) were identified on the basis of OR with 95% CI. Qualitative data was analyzed by thematic approach manually. The different responses obtained through note taking from interviews was transcribed and translated from Amharic to English language with their own perspective views. Finally the data of quantitative and qualitative was triangulated.

## 2.9. Operational Definitions

Male involvement in PMTCT: The level of male involvement in PMTCT as determined by using male involvement index. This index is constructed using six items with equal weight. A total positive response of 4-6 items was considered as a 'high' male involvement and 0-3 items as 'low' male involvement relative to this particular population. Those who were responded four and above male involvement items was recorded as "yes=1" and those who were responded less than four items was recorded as "no=0" (Byamugisha R, Etal, 2010)

Knowledge of PMTCT: Knowledge items with equal weight with a scoring system designed to assess the level of knowledge, those who answered 60% and above of knowledge items was taken as have high knowledge to the topic of interest and  $<60\%$  was taken as have low knowledge (Abdul G, Etal, 2012)

Socio-cultural factors towards male involvement: socio cultural items on 5 -point Likert's scale approaching to the maximum sum scores considering as had high socio-cultural influences and to minimum sum scores as had low socio-cultural influences.

Perceived programmatic factors towards male involvement in PMTCT: measured by summed score scale approaching to the maximum sum scores considering as had high programmatic influences and to minimum sum scores as had low programmatic influences.

## 2.10. Data Quality Control

To ensure the quality of data, first the questionnaire was pretested. The pretest was conducted in 5% of the participants at randomly selected districts away from the study districts. Training was given for the data collectors and supervisors before the actual data collection. Every day after data collection, questionnaires were reviewed and checked for completeness, accuracy and clarity by the supervisors and principal investigator.

## 2.11. Ethical Considerations

The study was approved by the Ethical Review Boards of Jimma University, College of Public Health and Medical Sciences. Verbal consent was obtained from each study Participants. The ethical committee approved the consent procedure since the study had no any harm to the study participants.

### 3. Results

#### 3.1. Socio-Demographic Characteristics

A total of 431 respondents participated in this study making the response rate of 94.9%. The mean age of the respondents was 36.4 years with SD + 7. Regarding education 115 (26.7%) of respondents were attend secondary school (grade 11-12). Regarding to duration of relationship majority of the respondents 219 (50.8%) were living for Less than 5 years. One hundred fifty seven (36.4%) of the respondents were private-employed and 110(25.5%) of the households had monthly income of between 1600-2999 ETB (Ethiopia birr) based on quartile classifications. (See table 1. below).

**Table 1.** Frequency Distribution on Socio-Demographic Characteristics of Male participants in Addis Ababa, 2013.

Characteristics	Frequency (N =431)	Percent (%)
Age		
25-34	177	41.1
35-44	196	45.5
≥45	58	13.5
Marital status		
Married	399	92.6
Unmarried but in stable union	32	7.4
Duration of living relationship		
Less than 5 years	219	50.8
5-10 years	136	31.6
More than 10 years	76	17.6
Educational status		
Unable to read and write	10	2.3
Grade 1-4	20	4.6
Grade 5-8	98	22.7
Grade 9-10	89	20.6
Grade 11-12	115	26.7
College or university	99	23
Ethnicity		
Oromo	112	26
Amhara	157	36.4
Tigre	46	10.7
Guragie	86	20
Somali	8.0	1.9
Others	22	5.1
Religion		
Orthodox	243	56.4
Muslim	118	27.4
Catholic	15	3.5
Protestant	39	9.0
Others	16	3.7
Occupation		
Daily labourer	31	7.2
Merchant	116	26.9
Government employee	94	21.8
Private employee	157	36.4
Others	33	7.7
Monthly Income ETB		
350-1000	109	25.3
1001-1599	105	24.4
1600-2999	110	25.5
3000+	107	24.8

#### 3.2. Knowledge, Cultural, Programmatic and Perceived Risk Variables

Regarding the knowledge response of participants;

332(77%) of them had high knowledge about PMTCT service. About three-fourth of the respondents knew about the transmission and prevention of mother to child transmission of HIV. The mean sum scores of socio-cultural beliefs ranges from 17 to 34 with median of 27.0 and mean of 27.17 with standard deviation of 2.6. The mean sum scores of programmatic factors ranges from 11 to 40, with median of 26.0, mean of 25.87 and standard deviation of 5.27. Majority of the respondents who had low risk of HIV 119 (98.3%) had high involvement in PMTCT service but those who had high risk had low involvement (See table.2).

**Table 2.** Distribution of knowledge, perceived risk, cultural and programmatic factors among Male study participants in Addis Ababa, 2013.

Characteristics	Frequency (N=431)	Percent (%)
Knowledge		
Low knowledge	99	23
High Knowledge	332	77
Cultural factors	27.17± 2.6#	
Perceived programmatic factors	25.87± 5.27#	
Perceived risk		
Low Risk	419	97.2
High Risk	12	2.8

# = Mean with SD

#### 3.3. Level of Male Involvement in PMTCT Program

One hundred sixty eight (39%) of male partners had attended ANC with their partners, but most of them 377 (87.5%) provided financial support to their spouses to attend ANC. From the respondents 324 (75.2%) had confident to use condom consistently during sexual intercourse with their female partners to prevent transmission of HIV to the mother thus to the child. Of the respondents Only 121 (28.1%) had high male involvement which is about 1 in 4 males were Involved.

#### 3.4. Independent Factors of Male Involvement

In simple analysis variables which have p-value < 0.05 with male involvement in PMTCT were entered together in multiple logistic regressions in order to look the independent predictor variables. In simple logistic regression, knowledge, income, cultural factors, and occupational status, marital status, educational status and religion were significantly associated with male involvement in PMTCT. But, when we control the confounding variables, knowledge, income, cultural factors, and occupation of the participants were significantly associated in multiple logistic regression models.

Those study participants who had high knowledge were 14% more likely to have high involvement in PMTCT services when compared to those who had low knowledge [AOR=0.14, 95%CI (0.06, 0.35)]. Those respondents who had earned 250-1000 ETB monthly income and 1001-1599 ETB monthly income were 3.9 and 2.5 times more likely to have high involvement in PMTCT services than those who earned 1600-2999 monthly income respectively [AOR=3.9, 95% CI (1.84, 8.17)] and [AOR=2.5, 95%CI (1.18, 5.31)].

The provision of the services in the health center is free fee most of those who had the lower income classification could prefer the services in the health centers than private health facilities

Those respondents who were employed in governmental organization were 2.0 more likely to get involved in PMTCT service [AOR=2.0, 95%CI (1.02, 3.75)] than private employed. Those respondents who were self-employed and drivers were 3.1 times more likely to get involved in PMTCT service than private employed [AOR=3.1, 95%CI (1.21, 7.92)]

For a unit increased in the total score of cultural factors, the odds of male involvement in PMTCT decreased by 0.9[AOR=0.9, 95%CI (0.82, 0.99)] (see table-3).

**Table 3.** Determinants of male involvement in PMTCT of HIV in Addis Ababa, 2013.

Variables	COR (95%CI)	AOR (95% CI)
Occupation		
Daily labourer	0.48(0.16, 1.46)	0.45(0.13, 1.60)
Merchant	0.98(0.56, 1.73)	1.60 (0.77, 3.33)
Government employee	2.40(1.39,4.17)**	1.95 (1.02, 3.75)*
Private employee	1	1
Others (self, drivers, NGO)	2.11(0.96-4.64)	3.10(1.21, 7.92)*
Income		
350-1000	2.14 (1.16, 3.94)*	3.873(1.835, 8.174)**
1001-1599	1.83 (0.98, 3.44)	2.507(1.183, 5.310)*
1600-2999	1	1
3000+	1.42(0.75, 2.68)	1.49(0.72, 3.02)
Knowledge		
Low knowledge	0.12 (0.05, 0.29) **	0.139(0.06, 0.35) **
High Knowledge	1	1
Cultural beliefs	0.92(0.85, 0.99)*	0.90(0.82, 0.99)*

\* = 0.01 ≤ P ≤ 0.05; \*\* P < 0.01

#### 4. Discussion

Thirty three percent of, 30.6% and 22.3 % of government employed, private employed and merchants had high involvement in PMTCT respectively. But this study finding differs from the study conducted in Tanzania. Self-employed, civil servants and not employed accounted the highest (RRJ Akarro, 2011).The possible difference might be socio economical and accessibility and availability of health care.

This study revealed that 31.4% of males those who had high involvement were with 350-1000 and 27.3% were with 1001-1599 monthly income classification. But, study done in South Africa showed that 20.2% of respondents was with high income and almost 44% of the respondents were with medium (Kevin Koo, Etal, 2013).This could be as the government health centers provide free services for MCH activities those who had lower income classification used the services in health centers or those who had better income could take the services in private health facilities or the time of the service might not convenient for those whom got better income classification.

Socio-demographic variables had a statistically significance association with the outcome variable with the exception of age, duration of relationship and ethnicity. The findings of this

study were supported by a study of systematic review done in sub Saharan region as marital status; education and profession were found to have statistically significant association with male involvement. Even though age did not show statistically significant association with male involvement in this study, it was found that it had an association in the same study done in sub Saharan region (John D, Etal, 2012). The difference might be diverse nature in the geographical, demographical and socio cultural factor.

Seventy seven percent of the study participants had good knowledge about PMTCT services. This finding is supported qualitative. A 34 years old man said “Unless men may be busy we can go to the health centers with our partners, I think most of the males are well aware and know what is taking place in the health institution regarding HIV/PMTCT services.” Similar to this study, the study conducted in Cameroon showed that every participant was able to identify one or more ANC/PMTCT service. More than two-thirds of the men (67.9%) responded that it was good to go to ANC visits with their wife (Godlove N, etal, 2010).

Knowledge of respondents had statistically significant association with male involvement in PMTCT. The finding of this study was comparable with the findings of a study done in Uganda and Tanzania (Abdul G, Etal, 2012 & RRJ Akarro, 2011).

Cultural beliefs had statistical significance association with male involvement. The same study conducted in Uganda showed that cultural influence had an association with male involvement in PMTCT (Abdul G, Etal, 2012). Studies conducted in many sub-Saharan countries showed that there is low male partner involvement in PMTCT services related with culture stigma and lack of confidentiality (RRJ Akarro, 2011& John D, Etal, 2012). This study is consistent with the systematic review conducted in sub-Saharan Africa which revealed that support and care are seen as women’s work traditionally. In Tanzania a social and religious norm prohibited males from attending female health services and the wide spread attitude that female reproductive health is not male responsibility and found to inhibit male involvement in PMTCT. In Burkina Faso and Cameroon, ANC activities were perceived by many fathers as outside their responsibility (RRJ Akarro, 2011).

Only 28.1% male partners had high involvement in PMTCT program. This level of involvement is low but higher than what is reported from other studies conducted from East Africa. Findings done in Eastern Uganda showed that 26% of male participants were involved, another study at East Gojjam zone, Ethiopia, 16% of male partners were accompanied by pregnant women for ANC/ HIV testing (Addisu, 2012). The study conducted in Tanzania and Cameroon showed that 61.6%, 57.3% have never participated in PMTCT programs at ANC Clinics and 43.3% said that they had accompanied their wife at least one time (Godlove N, etal, 2010& Yohana, 2009). The difference might be attributed of different methods. In sub-Saharan Africa, male participation levels in hospital settings vary between 12.5% and 18.7%. In Tanzania, male involvement in reproductive and child health services is low,

estimated at 5% and lower in urban areas. Several factors have been indicated for low male involvement due to cultural, health system, socio-economic factors, and lack of information, stigma, and lack of confidentiality (RRJ Akarro, 2011& John D, Etal, 2012).

## 5. Conclusion

Seventy seven percent of the study participants had high knowledge about PMTCT. Cultural barriers hindered male involvement in the program. Seventy two percent of the study participants had low involvement in PMTCT services. Low male involvement affects successful implementation of the PMTCT program, low uptake of interventions by HIV positive pregnant women and increase in maternal to child transmission of HIV.

Knowledge, occupation, income, cultural beliefs were found to be independent factors for male involvement in PMTCT services. The role of male partners is crucial in scaling up PMTCT program to stop new HIV infections among children and it improves full PMTCT service utilization and is considered as a guarantee to bring the Zero new HIV infections of a child in to practice. Therefore, the city administration health bureau and sub city health offices should focus on Planning, implementation and evaluation of Client centered individualized, culturally appropriate and sustainable IEC/BCC service towards PMTCT.

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## Disclosure

The authors declare that they have no conflicts of interest in this work.

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