

# Male Partner Involvement on Prevention of Mother to Child Transmission of HIV and Associated Factors among Pregnant Mothers Attending Antenatal at Fantale District, Ethiopia

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#Both the authors contributed equally to this work.

## Abstract

**Background:** Only screening pregnant mother is not adequate to prevent mother to child transmission of HIV. Thus, male partners' involvement has been considered as a first priority to focus intervention to be intensified in prevention of mother to child transmission of HIV. But it remained one of the biggest challenges in Ethiopia.

**Objective:** Assess the extent of male partner's involvement in prevention of mother to child transmission of HIV and identify associated factors in Fentale district, Eastern Ethiopia.

**Methods:** Institution based cross-sectional study design was employed. Data was collected from random sample of 272 pregnant mothers at antenatal care clinic of Health facilities in Fentale district from 1<sup>st</sup> to 31<sup>st</sup> March, 2016. Data was analyzed using SPSS version 21.0. Multivariate logistic regressions were carried out, association between independent and dependent variables was measured using adjusted odds ratios and 95% confidence interval and P-value below 0.05 was considered statistically significant.

**Result:** Male partner involvement on Antenatal care/Prevention of Mother to Child transmission (PMTCT) of HIV was 14.0%. Pregnant mothers living in urban were 3.8 times more likely to be accompanied by their partner on Antenatal care/Prevention of Mother to Child transmission of HIV compared to those from rural (AOR=3.8, 95% CI: 1.24, 7.86). On the other-hand mothers not having negative cultural belief about accompanying their partner at Antenatal care were 2.3 times more likely to involve their partner compared to those having negative beliefs (AOR=2.3, 95% CI: 1.94, 9.66).

**Conclusion:** Male partner involvement on Antenatal care/Prevention of Mother to Child transmission of HIV was 14.0% which is very low. Residence and cultural beliefs about accompanying pregnant mother at Antenatal care were found to be the independent predictors of male partner involvement. Hence, comprehensive strategy should be put in place to improve male partner involvement giving special focuses for pastoralists.

**Keywords:** Male partner involvement; Pregnant mothers; Public health; Treatment

**Abbreviations:** ANC: Antenatal Care; ART: Anti-retroviral Treatment; ARV: Anti-retroviral; AIDS: Acquired Immune Deficiency Syndrome; CSA: Central Statistical Agency; HC: Health Center; HCT: HIV Counseling and Testing; HIV: Human Immune Virus; MCH: Maternal and Child Health; MTCT: Mother-to-Child Transmission of HIV; MPH: Master in Public Health; PMTCT: Prevention of Mother-to-Child Transmission of HIV; VCT: Voluntary Counseling and Testing; WHO: World Health Organization

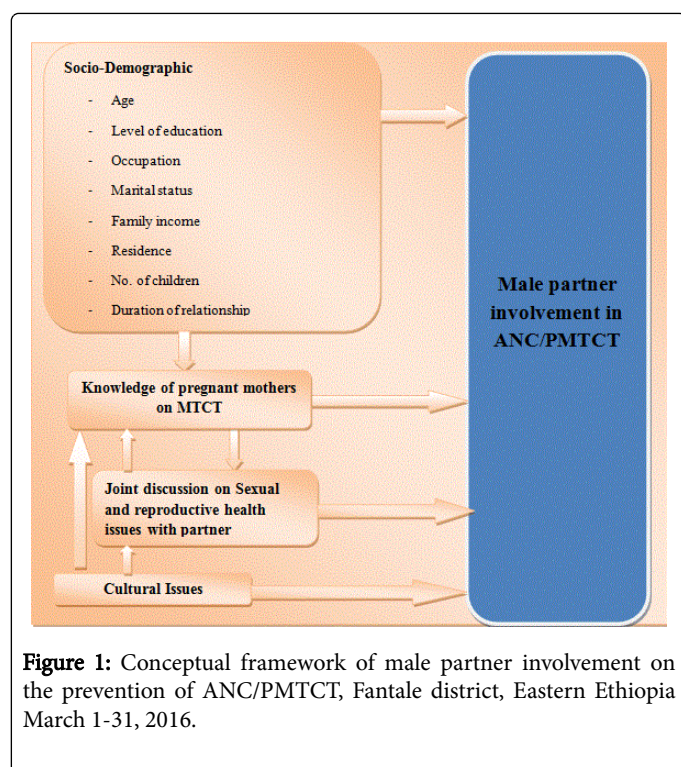
## Introduction

Globally about 370,000 children became infected with HIV yearly and more than 1000 every day. Nearly all of these children acquired HIV through mother-to-child transmission (MTCT). Worldwide an estimated 2 million HIV-positive women become pregnant every year.

Among those women, 20% to 30% of them are in absence of prevention of mother to child transmission (PMTCT) program and infect their children with HIV [1]. PMTCT can be more successful in reducing HIV infections among infants when it is required early in pregnancy and continues through delivery and infant care [2]. It is estimated that about 25 million HIV-infected people are living in sub-Saharan Africa. Among those, 2 million of them are children below the age of 15 years and account for about 90% of all HIV-infected children worldwide. In excess of 95% of them acquire HIV through mother-to-child transmission [2,3]. Countries with high HIV prevalence contribute for a high incidence of HIV infection in women during pregnancy or in the postpartum period. Certainly, in this period, women particularly are vulnerable to become HIV infected. At the time of HIV positive mother being pregnant and eligible for Antiretroviral Treatment (ART), she should begin treatment and antiretroviral (ARV) prophylaxis needs to be initiated as early as 14 weeks of gestational age [4].

HIV is the leading cause of death for women of reproductive age, and in countries with a high burden of the disease, such as South Africa and Zimbabwe, HIV is now the leading cause of maternal mortality. It is estimated that in 2009 between 42,000 and 60,000 pregnant women died because of HIV. In 2009, an estimated 26% of pregnant women in low and middle-income countries were tested for HIV, and 53% of the estimated HIV-positive pregnant women received at least some type of ART prophylaxis [5].

Male partner involvement is expected to lead to better adoption of HIV prevention practices by a well-informed couple [6]. Berhumbiize, revealed that, lack of male partner support, socio-economic characteristic, cultural fear of domestic violence, desertion and stigmatization remain the main problem that made male partner not to involve on ANC/PMTCT uptake [7-9]. For this reason, ANC/PMTCT is the only opportunity to capture pregnant mothers and their male partners on the process of prevent transmission of HIV during pregnancy, labor and breast feeding (Figure 1) [10,11].



**Figure 1:** Conceptual framework of male partner involvement on the prevention of ANC/PMTCT, Fantale district, Eastern Ethiopia March 1-31, 2016.

It needs engagement of male partner in their wives ANC/PMTCT service. To do so, awareness creation at community level, enhancing potential service provider's commitment, enhancing intervention to increase male partner involvement and looking for systematic approach to mitigate obstacles for the engagement of male is very important to protect children being affected by HIV.

Yet, it is achieved insufficiently [11-13]. Studies in Ethiopia and other parts of the world indicate that HIV testing acceptance is encouraging to improve the PMTCT uptake. Stigma and discrimination, husbands' negative reactions and fear of positive test result were reasons that impede higher acceptance of the test. Majority of the pregnant women do not decide independently for acceptance of HIV testing. Decision-making authority is commonly referred to their male partners [13,14].

In Sub Saharan Africa, AIDS has now become the leading cause of deaths for fewer than five thousand children per year. In the absence of any intervention, incidence of HIV via MTCT is estimated to be from 25-40% in developing countries. Male partner involvement plays a fundamental part in decision-making within the home.

In Ethiopia, 13,008 children are infected with HIV annually and evidence shows that most common transmission is via MTCT. So, male partner contribution is a critical element to enhance PMTCT service [15]. The significant problem encountered in this issue is that, screening pregnant mother isn't enough to prevent mother to child transmission of HIV. Male partner involvement is neglected in many health facilities and continued to be one of the potential program gaps adversely affecting PMTCT services uptake [16,17].

To our knowledge, there is a limited scientific data with regards to male partner involvement on prevention of mother to child transmission of HIV and associated factors in such a purely pastoralist areas of Ethiopia. Therefore, the aim of this study was to assess male partner involvement on prevention of mother to child transmission of HIV and associated factors among mothers attending Antenatal/prevention of mother to child transmission [18-20].

## Materials and Methods

### Study area and period

This study was conducted in Fentale district, Eastern Ethiopia from March 1<sup>st</sup>-31<sup>st</sup>, 2016. The district is the resident for purely pastoralists of kereyu, the well-known tribe of Oromo Ethnic group. Metehara town, the capital of the district, is located at 196 km East of Addis Ababa. Fentale District is divided into two administrations: Fentale rural district administration having 18 rural kebeles and Metehara town administration which have 2 town kebeles.

According to CSA 2007, Fentale District has a total population of 114,562 of whom 71,662 are men and 42,900 are women. Fentale District has 6 health centers and 1 hospital which are providing HCT for the population in the District.

### Study design

Facility based cross-sectional study design was employed.

### Source population

Source population of the study were all pregnant mothers who were registered for ANC/PMTCT follow up in health facilities providing HCT and PMTCT services in the district during data collection period.

### Study population

Study Population of the study were all randomly selected pregnant mothers attending ANC/PMTCT in Fentale district health facilities which are providing HCT and PMTCT services during data collection period.

### Sample size determination

The sample size was determined using a single population proportion formula.

By taking 20.1% of pregnant mothers who have been accompanied by their male partner to the ANC/PMTCT service [10], 5% precision, 95% confidence interval and non-response of 10%, the calculated sample size was 272 pregnant mothers.

$$\begin{aligned}
 n &= z \alpha/2^2 \times p (1-p) / d^2 \\
 &= (1.96)^2 \times 0.201 (1-0.201) / (0.05)^2 \\
 &= 0.7721616 \times 0.799 = 0.6169 / 0.0025 \\
 &= 246.8 \sim 247 \times 0.1 \\
 &= 24.7 + 247 \\
 &= 271.7 \sim 272
 \end{aligned}$$

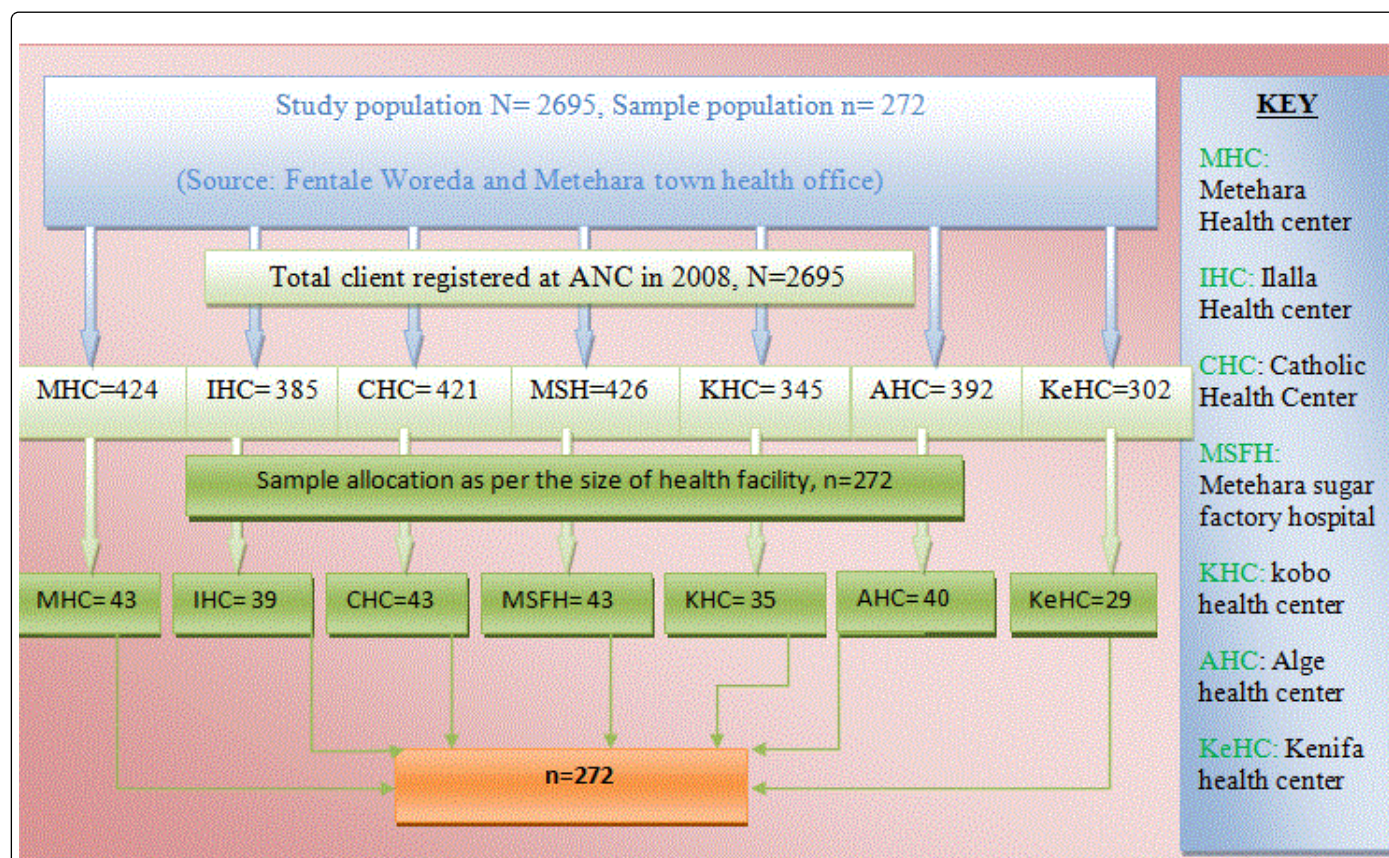
Where,  $z \alpha/2$  = Standard normal value at 0.05 level of significance (1.96);  $d$  = Margin of error;  $p$  = Estimated population proportion

The sample size was 272 pregnant mothers who attend ANC/PMTCT in a given period of time.

### Sampling procedure

All the 6 public health centers and 1 district hospital providing ANC/ PMTCT in Fantale district are included. The number of study units to be sampled from each health facility was determined using proportional allocation to size based on the number of client flow in the current year of total average case load of the selected health facilities. Systematic random sampling was employed to select and approach each study subjects. The sampling fraction of the  $K^{\text{th}}$  interval was calculated ( $N/n=2695/272=9.9\sim 10$ ).

Based on the patients' card number a starting woman was determined by using lottery method from the first 10 from the record and every tenth pregnant woman was included as a study unit until the allocated number of study subjects for each facility reached (Figure 2).



**Figure 2:** Thematic presentation of sampling procedure for the selection of study units in selected health facilities, Fantale district, Eastern Ethiopia March 1-31, 2016.

### Data collection instrument

Interviewer administered structured questionnaires in English language was adapted from different similar studies and modification was made according to local context by the investigators. All data collection instruments were translated into local languages (Amharic and Afaan Oromo) by legal translators who are native speakers and then back translated to English by two other competent translators to check for consistency.

The questionnaires were pretested on 5% of the total sample size in similar settings (health centers in Boset District) which is outside the study area. Amendments were made after pre-testing. The questionnaires were designed to obtain information like characteristics of pregnant women and their male partners and determinants of male involvement in ANC/PMTCT.

## Data collection

Face to face interview was conducted to collect data from ANC attending pregnant women after the interviewers explained the purpose of the study and obtained the participant's verbal consent to participate in the study.

## Data quality control

Seven interviewers and 3 supervisors were recruited for the survey and were trained on the data collection and interview techniques. All the data collectors are diploma nurses and the supervisor is degree holder nurse who are providing ANC services and are competent in Amharic and Afaan Oromo languages. The completeness and consistency of data was assured through direct and daily supervision by the supervisors and principal investigators. They returned to interviewers if the data were incomplete and inconsistent. Interviewers re-administered the questionnaire to the respondent under supervision by the supervisor. To avoid double counting each card of interviewed mothers was marked using green marker on the top of the card.

## Study Variables

### Dependent variable

Male partner involvement.

### Independent variable

Independent variables for this study were age of mothers and their male partner, Educational status of mothers and their male partner, family income, residence of mother and their male partner, religion, occupation, marital status, previous experience of information sharing about sexual and reproductive issues, previous knowledge of Male partner about their wife HIV sero status, partner informed about the availability of VCT in the ANC, Couples HIV sero status, cultural issues with regards to accompanying pregnant mother at ANC and Fear of being identified to undergo HCT at ANC clinic with partner.

## Data processing and analysis

Data was entered into Epi-Info software version 3.5.2 then checked for completeness, inconsistency and outliers by looking at their distribution. Incomplete and inconsistent data were excluded from the analysis. Data were properly filed and stored in electronic copies with back up. Data were then, edited, cleaned and analyzed using SPSS for Windows version 16.0. Male involvement is determined by the proportion of male partners accompanying their pregnant wives during ANC/PMTCT service. Descriptive statistics such as frequencies and proportion was used to describe the study population in relation to relevant variables.

Bivariate logistic regression was carried out to see the association of each independent variable on the dependent variables and those which have p-values below 0.25 remained in to the final models i.e., multivariate logistic regressions. Odds Ratios (OR) was generated for each variable and the independence of any association was controlled by entering all variables into the model using backward stepwise method for adjustment of confounding effect between independent variables. The magnitude of the association between the independent variables in relation to male partner involvement was measured using, Adjusted Odds Ratios (AOR) and 95% Confidence Interval (CI) and P-values below 0.05 was considered statistically significant.

## Operational definition

### Knowledge

The result for this section was categorized as inadequate knowledge if the respondents answer below and equal to 5 correct answer for the questions asked under this section (number of ANC visit, type of ANC visit and mode of MTCT of HIV) and adequate knowledge if the respondents answer correctly for the similar question asked.

### Male partner involvement

The result was put as high level of male involvement if there are more than 4 correct answers for the questions asked for this section and categorized as low level of male involvement, if there are less than 4 correct answer for the questions asked for this section. All questions have an equal weight of score. For all items, a score of 1 is given for "Yes" responses for positive answer and 0 (zero) for "No" or "Uncertain" responses for negative.

### Male partner support on ANC/PMTCT

The result for this section was put as adequate support if the mother got two or more support from her male partner listed in the questionnaire and inadequate support if she got less than two or no support from her male partner through-out her pregnancy period.

## Result

### Socio-demographic characteristics of study participants

A total of 272 pregnant mothers attending ANC/PMTCT in selected health facilities of Fantale district were interviewed and responded to the questionnaire, making the response rate 100%. The majority 182 (66.9%) of the respondents were mothers from rural area. One hundred nine (40.1%) of mothers were in the age range of 25-29 years old with mean age of 26 years. A higher proportion of mothers 166 (61.0%) were Muslim and 97% of them were married and living with their current male partner. A higher proportion 137 (50.4%) of mothers were unable to read and write and 116 (42.6%) of their male partner were also unable to read and write (Table 1).

Variables	Mother accompanied by her partner in Num (%)		Frequency (%)
	Yes	No	
Residence			
Rural	18 (9.9)	164 (90.1)	182 (66.9)
Age			
15-19 years	7 (15.2)	39 (84.8)	46 (16.9)
20-24 years	9 (14.1)	55 (85.9)	64 (23.5)
25-29 years	19 (17.4)	90 (82.6)	109 (40.1)
30-34 years	5 (11.9)	37 (88.1)	42 (15.4)
35-44 years	2 (18.1)	9 (81.9)	11 (4.0)
Marital Status			
Married	36 (13.5)	230 (86.5)	266 (97.8)
Level of Education			

Can't read and write	11 (8.0)	126 (92.0)	137 (50.4)
Read and write only	8 (18.6)	35 (81.4)	43 (15.8)
Primary	4 (13.8)	25 (86.2)	29 (10.7)
Secondary	11 (28.2)	28 (71.8)	39 (14.3)
Post-secondary	4 (16.7)	20 (83.3)	24 (8.8)
Male Partner Educational Status			
Can't read and write	9 (7.8)	107 (92.2)	116 (42.6)
Read and write only	8 (20.0)	32 (80.0)	40 (14.7)
Primary	3 (9.7)	28 (90.3)	31 (11.4)
Secondary	11 (26.8)	30 (73.2)	41 (15.1)
Post-secondary	7 (15.9)	37 (84.1)	44 (16.20)
Religion			
Muslim	118 (71.1)	48 (28.9)	166 (61.0)
Orthodox	13 (7.8)	53 (92.2)	66 (24.3)
Protestant	5 (3.0)	26 (97.0)	31 (11.4)
Catholic	2 (1.2)	2 (98.8)	4 (1.5)
Other*	0 (0.0)	5 (100.0)	5 (1.8)
Occupation			
House wife	9 (9.5)	86 (90.5)	95 (34.9)
Farmer	7 (9.5)	67 (90.5)	74 (27.2)
Self employed	11 (22.4)	38 (77.6)	49 (18.0)
Daily laborer	5 (18.5)	22 (81.5)	27 (9.9)
Government employed	1 (5.0)	19 (95.0)	20 (7.4)
Other**	5 (71.4)	2 (28.6)	7 (2.6)
Family Income			
100-500 birr	21 (15.4)	116 (84.6)	137 (50.4)
501-1000 birr	12 (12.6)	83 (87.4)	95 (34.9)
≥ 1000 birr	7 (17.5)	33 (82.5)	40 (14.7)
Live Together with Partner			
Yes	34 (12.9)	230 (87.1)	264 (97.1)
Number of Children			
01-03	29 (15.6)	157 (84.4)	186 (68.4)
04-07	7 (10.6)	59 (89.4)	66 (24.3)
>8	2 (10.0)	18 (90.0)	20 (7.3)

**Table 1:** Socio-demographic characteristics of pregnant mothers attending ANC/PMTCT, Fantale district, Eastern Ethiopia March 1-31, 2016 (Others\* include Wakefeta and local beliefs; Others\*\* include different kinds pity trades).

### Knowledge of pregnant mothers about ANC/PMTCT

Only 72 (26.5%) of the study participants responded that pregnant mothers should visit ANC at least four times up to delivery time and only 148 (54.4%) of them could list four different types of services provided for pregnant mothers in ANC clinic. On the other hand 209 (76.8%) of the study participants responded that their male partner should accompany them and go through HCT at ANC/PMTCT.

Majority 247 (90.8%) of the interviewed mothers responded that HIV can transmit from mother to child but only 91 (36.8%) of these mothers could list that HIV can transmit from mother to child during pregnancy, labor and delivery and breastfeeding and only 94 (38.1%) of them responded that transmission during the mentioned period can be prevented (Table 2).

Variables	Frequency (%)
Recommended Frequency (number) of ANC visit	
Twice	44 (16.2)
Three times	151 (55.5)
Four times	72 (26.5)
I don't know	5 (1.8)
Types of ANC services	
Listed at least four different types of services provided for pregnant mothers in ANC clinic	148 (54.4)
About who should go for HCT ANC/PMTCT	
Pregnant mother only	63 (23.2)
Pregnant mother and her male partner	209 (76.8)
I don't know	27 (9.9)
HIV transmit from mother to child	
Yes	247 (90.8)
No	14 (5.1)
I don't know	11 (4.0)
Duration of mother to child transmission of HIV	
Could list the three duration of mother to child transmission (during pregnancy, labour and delivery and breastfeeding)	91 (36.8)
Couldn't list the three duration of mother to child HIV transmission	156 (65.4)
Transmission of HIV from mother to child can be prevented	
Yes	94 (38.1)
Means of PMTCT (list at list three)	
Could list at list three means of PMTCT	120 (44.1)

**Table 2:** knowledge of pregnant mothers about ANC/PMTCT, Fantale district, Eastern Ethiopia, March 1-31, 2016.

### Perception of pregnant mothers about their male partner involvement in ANC/PMTCT

About Fifty eight (21.3%) of the study participants thought that their male partner was wasting time that they could have use for their normal job when they accompanied them during ANC/PMTCT follow-up.

On the other hand 171 (62.9%) of the respondents thought they must obtain permission from their male partner to undergo HIV-test during ANC/PMTCT follow-up (Table 3).

Variables	Frequency (%)
Accompanying their wives during ANC/PMTCT is considered as wasting time that he could have use for his normal work	
Strongly agree	8 (2.9)
Agree	58 (21.3)
Undecided	8 (2.9)
Disagree	121 (44.5)
Strongly disagree	77 (28.3)
Pregnant women can undergo HCT in ANC/PMTCT without permission of her male partner	
Strongly agree	70 (25.7)
Agree	171 (62.9)
Undecided	8 (2.9)
Disagree	20 (7.4)
Strongly disagree	3 (1.1)
Both pregnant mother and her male partner should undergo HCT in ANC/PMTCT together	
Strongly agree	133 (48.9)
Agree	127 (46.7)
Undecided	3 (1.1)
Disagree	6 (2.2)
Strongly disagree	3 (1.1)
Male partners should accompany their wives during ANC/PMTCT	
Strongly Agree	122 (44.9)
Agree	134 (49.3)
Undecided	4 (1.5)
Disagree	11 (4.0)
Strongly disagree	1 (0.4)

**Table 3:** Perception of pregnant mothers about their male partner involvement in ANC/PMTCT, Fantale district, Eastern Ethiopia, March 1-31, 2016.

### Male partner involvement in ANC/PMTCT

Only 83 (30.5%) of the study participants were accompanied by their male partner at the ANC/PMTCT.

Among male partners who accompanied their pregnant wives, 51 (18.8%) had counseled and tested for HIV at ANC/PMTCT in the current pregnancy or showed their test results done elsewhere (Table 4).

Variables	Frequency (%)
Had an experience of sharing information about sexual and reproductive health like mother to child HIV transmission	
Yes	112 (41.2)
Couple have Joint plan to visit ANC/PMTCT	
Yes	99 (36.4)
Male partner accompanied their wife at ANC/PMTCT	
Yes	83 (30.5)
Male partners counseled and tested for HIV in ANC/MPTCT	
Yes	51 (18.8)
Male partner knew his wife sero status	
Yes	88 (32.4)
Got support from her male partner (at least two different kind of supports)	
Yes	86 (31.6)
Reasons of male partner for not accompanying their wife at ANC/MPTCT	
Lack of interest	73 (33.0)
Being busy with his regular duty	119 (53.8)
Not important	29 (13.2)

**Table 4:** Male partner involvement in ANC/PMTCT, Fantale district, Eastern Ethiopia, March 1<sup>st</sup> -31<sup>st</sup>, 2016.

### Independent predictors of male partner involvement at ANC/PMTCT

In this study residence of respondents showed statistically significant association with male partner involvement.

Which explains that pregnant mothers living in urban were 3.8 times more likely to be accompanied by their partner on ANC/PMTCT compared to those from rural (AOR=3.8, 95% CI: 1.24, 7.86) (Table 5).

Similarly, cultural issues with regards to accompanying pregnant mother at ANC was found to be significantly associated with male partner involvement.

Which means mothers not having negative cultural belief about accompanying their partner at ANC were 2.3 times more likely to involve their partner on ANC/PMTCT compared to those having negative beliefs (AOR=2.3, 95% CI: 1.94, 9.66) (Table 5).

Variables	Male partner involvement on ANC/PMTCT		COR (95% C.I)	AOR (95% C.I)
	Yes Num (%)	No Num (%)		
Residence of the respondent				
Urban	20 (22.2)	70 (77.8)	2.68 (1.04,5.64)	3.80 (1.24,7.86)*
Rural	18 (9.9)	164 (90.1)	1	
Education of respondent				
No formal education	11 (8.0)	126 (92.0)	1	
Read and write	8 (18.6)	35 (81.4)	2.61 (0.97, 7.00)	3.34 (0.39,8.16)
Primary	4 (13.8)	25 (86.2)	3.82 (0.54,6.22)	1.42 (0.07,12.62)
Secondary	11 (28.2)	28 (71.8)	4.55 (1.77, 11.41)	4.98 (0.18,7.54)
Post-secondary	4 (16.7)	20 (83.3)	2.26 (1.66, 7.89)	8.10 (0.16,10.89)
Husband Education				
No formal education	9 (7.8)	107 (92.2)	1	
Read and write	8 (20.0)	32 (80.0)	2.90 (0.06, 8.33)	3.14 (0.19,9.79)
Primary	3 (9.7)	28 (90.3)	3.26 (0.32, 5.01)	2.50 (0.04,5.04)
Secondary	11 (26.8)	30 (73.2)	4.31 (0.65, 11.49)	2.19 (0.17,6.56)
Post-secondary	7 (15.9)	37 (84.1)	3.25 (2.78, 6.46)	5.415 (0.02,8.57)
Religion				
Orthodox	18 (27.3)	48 (72.7)	1	
Muslim	13 (7.8)	153 (92.2)	1.21 (1.10,7.49)	1.25 (0.84,1.64)
protestant	5 (16.1)	26 (83.9)	2.54 (1.17, 10.59)	2.43 (0.95,4.14)
Catholic	2 (50.0)	2 (50.0)	3.62 (1.34, 20.34)	4.37 (0.80,9.83)
Other	0 (0.0)	5 (100.0)	3.03 (2.01, 11.32 )	3.06 (0.88, 14.99 )
Occupation of respondent				
Daily labourer	5 (18.5)	22 (81.5)	1	
Government employee	1 (5.0)	19 (95.0)	2.20 (1.02, 7.16)	4.32 (0.04,25.27)
Self-employee	11 (26.4)	38 (77.6)	1.23 (0.39, 4.14)	2.73 (0.68,6.97)
Farmer	7 (9.5)	67 (90.5)	0.46 (0.13, 1.59)	3.28 (0.81,5.63)
House wife	9 (9.5)	86 (90.5)	0.49 (0.14, 1.51)	1.56 (0.08,3.88)
Other	5 (71.4)	2 (28.6)	11.0 (0.64, 73.97)	1.12 (0.26,8.15)
Live together with partner				
Yes	34 (12.9)	230 (87.1)	6.70 (1.61, 28.32)	6.98 (0.87,12.97)
No	4 (50.0)	4 (50.0)	1	
Family income				
100-500 birr	21 (15.4)	116 (84.6)	1	
501-1000 birr	12 (12.6)	83 (87.4)	1.82 (.038, 4.67)	0.97 (0.28,3.337)

≥ 1000 birr	7 (17.5)	33 (82.5)	2.51 (1.98, 6.87 )	4.11 (0.98, 12.03 )
Cultural issues with regards to accompanying pregnant mother at ANC				
Shameful	36 (15.6)	195 (84.4)	1	1
No	2 (4.9)	39 (95.1)	3.6 (2.83, 15.57)	2.3 (1.94, 9.66)*

**Table 5:** Association between male partner involvement in ANC/PMTCT and each independent variable (Crude, adjusted OR and its 95% CI), Fentale district, Eastern Ethiopia, March 1<sup>st</sup>-31<sup>st</sup>, 2016 (\*statistically significant at P-value).

## Discussion

In this study, the level of male partner involvement in ANC/PMTCT is 14.0%. The finding is consistent with a cross-sectional study done in Kibaale District, Uganda [7], a cross-sectional study done in eastern Uganda [9] and Kenya [21,22] which showed level of male involvement in the ANC/PMTCT was 16%, 15% and 15% respectively. But it is not supported by the study conducted in Northern Ethiopia, Mekele which revealed the level of male partner involvement in ANC/PMTCT services was 20% [6]. The later mentioned study was conducted in big town (Mekele) but our study participants were from pastoralist rural area which could be explanation of the inconsistency.

In our study, pregnant mothers living in urban were 3.8 times more likely to be accompanied by their partner on ANC/PMTCT compared to those from rural (AOR=3.8, 95% CI: 1.24, 7.86). This finding is in agreement with studies conducted in Rural Baluchistan Province, Pakistan [3]. Accompanying female partner in Antenatal care services is more likely to be higher among urban dwellers and those with higher socioeconomic status than by rural residents and groups with a lower socioeconomic status in developing countries [23]. But our finding is inconsistent with the study conducted in a cross-sectional study, Mekelle, Northern Ethiopia [6]. Possible reasons for the inconsistency may be the mentioned study was done in ANC clinics in urban areas which may not be applicable in rural pastoralist settings.

On the other hand finding of this study also showed that cultural issues with regards to accompanying pregnant mother at ANC was found to be significantly associated with male partner involvement i.e. mothers not having negative cultural belief about accompanying their partner at ANC were 2.3 times more likely to involve their partner on ANC/PMTCT compared to those having negative beliefs (AOR=2.3, 95% CI: 1.94, 9.66). This finding is consistent with the study conducted in Kibaale District, Uganda [7]. The referred study revealed that African men have been found to hold onto certain traditional cultural beliefs which inhibit their active involvement in reproductive health programmes [24-27].

Traditionally, men have the pride of always being consulted in matters of family health, yet are very hesitant in seeking medical care. A majority of women declined routine HIV testing mainly because they required partner's consent. A similarly, social and cultural barriers such as fear of their partners and parents deter pregnant women from accessing PMTCT services. Furthermore, a study the mentioned study reported that source of information and who relays it seemed to affect utilization since men still regard themselves as 'bringers' of health information to the family and usually trusted information more from health workers than their female partners [7,28-30].

The result of our study is also in line with the result of reviews from different studies conducted in Sub-Saharan African countries [4]. It revealed that cultural standards were identified as barriers for male

involvement. It reported negative perceptions towards men attending ANC services. Men who accompanied their wives to ANC services were perceived as being dominated by their wives. Frequently men perceive that ANCs services are designed and reserved for women, thus are embarrassed to find themselves in such "female" places. Certain women too, do not like to be seen with their male partner attending the ANC service [4].

## Strength and Limitation of the Study

### Strength of the study

The study was conducted and tried to assess factors affecting male partner involvement in rural pastoralist area which could be mentioned as strength of the study.

### Study limitations

This study assessed level of male partner involvement at ANC/PMTCT in the view of pregnant mothers which may affect the trustworthiness of the information about male character like, age, reasons why not to involve on ANC, educational status and VCT test and result. In addition, presence of male partner in the ANC was used to measure male involvement in ANC/PMTCT which may underestimate male involvement. Other point which could be mentioned as a limitation of this paper is the psychometric property aspects of our questionnaire was not validated as to the standard, even though its internal validity was carefully considered.

## Conclusion

In this study the level of male partner involvement in ANC/PMTCT was low at 14%. Residence of respondents and cultural issues with regards to accompanying pregnant mother at ANC were found to be independent predictors of male partner involvement at NC/PMTCT. Pregnant mothers living in urban were 3.8 times more likely to be accompanied by their partner on ANC/PMTCT compared to those from rural and mothers not having negative cultural belief about accompanying their partner at ANC were 2.3 times more likely to involve their partner on ANC/PMTCT compared to those having negative beliefs.

Other variables like age of mothers and their male partner, educational status of mothers and their male partner, Family income, religion, occupation, marital status, Previous experience of information sharing about sexual and reproductive issues, previous knowledge of Male partner about their wife HIV sero status and partner informed about the availability of VCT in the ANC didn't show statistically significant association with male partner involvement.



## Recommendation

Based on the findings of the study the following recommendations are forwarded to responsible organizations like federal MOH, Oromia regional health bureau, East shoa zone health department, Fentale District, Metahara town health office and health institutions in the district.

Efforts should be given for intensive and continued information dissemination to both pregnant mother and their partners about MTCT of HIV, the role of HIV counseling and testing (HCT) on the prevention of mother-to-child transmission of the virus, and about the existence of intervention that reduce the possibility of prenatal transmission of the HIV virus giving special emphasis for pastoralists. Moreover, efforts must be made to achieve full attendance of ANC by all pregnant mothers. For this to be realized effective health promotion programs need to be emphasized.

Health centers should use couple counseling as a strategy to improve male involvement. Couple counseling facilitated through couple-friendly ANC services could be taken as a strategy to boost male involvement. We also recommend encouraging counseled pregnant women to invite their partners in the next visit if they were not accompanied with their partners. We again recommend strengthening male friendly counseling at PMTCT institutions.

We also recommend future studies preferably community-based that examine male partner involvement at ANC/PMTCT using of both partners as a study subject during pregnancy period.

## Ethical Consideration

Ethical clearance was obtained from Arsi University College of Health Sciences research ethical and review committee. Then permission paper was obtained from deferent concerned authorities after discussion of the purpose of the study. Permission to conduct the study was obtained from all the sampled seven health facilities as well. Verbal consent was obtained from each study participant. All interviewers are oriented on how to obey the rules of strict confidentiality practices for all clients both during and after data collection.

## Availability of Data and Materials

Data supporting the findings is available upon request. Please contact the Principal Investigator of the study (Gebi Husein).

## Competing Interest

The authors declare that they have no competing interests

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## Authors' Contribution

EL involved in proposal writing, designing, recruitment and training of supervisors and data collectors, analysis and write-up of the paper. GH contributed in the designing of the project proposal and methodology, led the study, design of questionnaires, supervised and involved in the analysis stage of the project, final approval of the paper and preparation of the manuscript. Both authors read and approved the final manuscript.

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