

# Acceptability of Provider-Initiated HIV Testing and Counseling as an Intervention for Prevention of Mother to Child Transmission of HIV and Associated Factors Among Pregnant Women Attending at Public Health Facilities in Harar Town Eastern Ethiopia 2018

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## Abstract

**Background:** Accepting one's HIV sero-status is a critical first step in preventing mother to child transmission of HIV. HIV counseling and testing provides an entry point to PMTCT services for pregnant women.

**Objective:** Acceptance of Provider-Initiated HIV Testing and Counseling and Associated Factors among Pregnant Women Attending at Public Health Facilities in Harari Town Eastern Ethiopia

**Methods:** Institutional based cross-sectional study design was conducted in to two health centers and two hospitals which offer ANC; PITC and PMTCT service was included in the study. Random sampling technique was used to select the study units in each health institution. Based on the number of clients who visited each health institution during the previous Six months (monthly report of each health institution), After data collection, questionnaire checked for completeness and entered Epi -Data version 3.1 software then it was exported to statistical package for social sciences (SPSS) version 22 software for analysis. All variables were taken into the multivariable model by considering a p-value of  $\leq 0.25$  to see the correlation between independent variables. Finally, the results of bivariate and multivariable logistic regression analysis were presented in a COR and AOR with 95% confidence intervals and P – value  $\leq 0.05$  was considered statistically significant

**Result:** Majority 229 (82.4%) were accepters and 49(17.6%) non-acceptors Participants who had Age 25-34 year 7.1 times more likely acceptance rate with (AOR 7.16 95%CI 2.7,18.95) urban Residence 3.74 times more Acceptance of PICT with (AOR 3.74 95% CI 1.72,7.203) and those pregnant two or more times ANC follow up 2.4 times more likely Accept PICT than those visit first with (AOR 2.38 95% CI 1.004,5.644) those household expenditure >1001 4 times more likely accept PICT with (AOR 4.1 95% CI 1.35,11.944) and who feel PICT Service is Necessary 7.7 times more accepted PICT with (AOR 7.78 95% CI 3.023,20.037)

**Conclusion:** Our study findings have demonstrated that antenatal routine HIV counseling and testing seems to be largely acceptable to the pregnant women in Harari town and Residence, Age Household expenditure, two or more ANC visit and attitude towards PITC, were independent factors for the acceptability of PITC among pregnant women in this study

**Keywords:** Provider-Initiated HIV Testing and Counseling

## Background

According to UNASID report in 2018 Women continue to account for a disproportionate percentage of new HIV infections among adults (aged 15 and older) in sub-Saharan Africa: they represented 59% of the 980 000 million [820 000–1 100 000] new adult HIV infections in 2017 with available data [1], Eastern and Southern Africa, home to 50 per cent of new HIV infections in children (aged 0–14 years years), had the highest proportion of pregnant women receiving effective antiretroviral for PMTCT – 88 per cent; whereas PMTCT coverage in West and Central Africa is just 49 per cent, accounting for 38 per cent of new infections in children and 25 per cent of all children living with HIV [2].

HIV can be transmitted from an HIV-positive woman to her child during pregnancy, childbirth and breastfeeding. Mother-to-child transmission (MTCT), which is also referred to as 'vertical transmission', accounts for the vast majority of new infections in children. Prevention of mother-to-child transmission (PMTCT) programs provides antiretroviral treatment (ART) to HIV-positive pregnant women to stop their infants from acquiring the virus. Without treatment, the likelihood of HIV passing from mother-to-child is 15% to 45%. However, ART and other effective PMTCT interventions can reduce this risk to below 5% [3].

According to the Federal HIV/AIDS Prevention and Control Office 741,478 people are living with HIV, with 16,865 AIDS related deaths in Ethiopia in the year 2015 [4]. The pediatric HIV population in Ethiopia are mostly those vertically infected in earlier years when MTCT rates were high but the coverage and effectiveness of PMTCT in the country was low [5]. Low acceptance of HIV testing is a major challenge for the expansion of PMTCT service. According to an international survey, in developing countries the acceptance rates of HIV testing by pregnant women vary between 33% and 95% [6]. While some countries have recorded high acceptance rates, others have recorded the opposite. In Ethiopia limited evidence exists regarding the acceptance HCT during pregnancy. Despite the efforts of the government, the national coverage PMTCT in country remained persistently low there were limited study conducted about acceptance rate of PITC as an intervention of PMTCT among ANC attendants [7]. Particularly in the study area. Therefore, this study was done to assess acceptability of PITC and associated factors among Pregnant Women Attending Public Health facilities in Harari Town Eastern Ethiopia [8,9].

## Method and Materials

### Study Area and Period

The study was conducted in two Health center and Two Public hospitals of Harari Town, Harar is one of The nine member states of the Ethiopian It is about 5205 km from the capital, Addis Ababa; with a total population of 232,000 [10]. There is two hospital and three health centers which offer ANC, PITC and PMTCT services in the town. The total number of eligible population in the region for ANC, delivery and PNC is around 7604, with target ANC coverage (100%), PNC coverage (100%) and institutional delivery coverage (94%).The study was conducted from February 1st to March, 2018.

### Study Design and Population

Institution based cross-sectional study design was conducted among the source population all pregnant women attending antenatal care in public health facilities and the study populations was all pregnant women attending antenatal care clinic during the data collection period

### Inclusion Criteria

All pregnant women attending antenatal care clinic during data collection period

### Exclusion Criteria

Pregnant women who are unable to communicate (having hearing problem and unable to communicate) and pregnant women not willing to participate was excluded

### Sample Size and Sampling Procedure

The required sample size was determined by using a formula for single population proportion by taking prevalence of 312 (80.8%) from institutional based cross-sectional study conducted in 8 antenatal care clinics in in Assosa town, Northwest Ethiopia [11]. By using the formula

$$n = \frac{\left(Z_{\alpha/2}\right)^2 p(1-p)}{d^2}$$

$$n = \frac{(1.96)^2 \times 0.808 (1-0.808)}{(0.05)^2} = 239$$

Where; n = Minimum sample size for a statistically significant survey

z= is the significance level (at 5% significance level its value is 1.96)

p= is proportion of pregnant women accept PIHCT (80.8%)

d= is the margin of error (It has been taken as 5%).

So, the calculated sample size for this study will be 239

The total sample size was allocated proportionally to each hospital and health centres based on the number of clients who visited each health institution during the previous three months. During selection, the first pregnant woman was selected randomly by lottery method and then every other ANC follower was included in the study after obtaining their consent.

## Data Collection Instruments

A structured questionnaire was developed by reviewing different literature to gather the needed information which included age, marital status, education, gravidity and other relevant socio-demographic variables. Questionnaire was developed in English and translated into local language. Amharic and Affan Oromo Then retranslated back into English, The acceptance of PITC was measured Antenatal care attendants who accepted/tested to provider-initiated HIV counselling and testing

## Data Quality Assurance

To keep the quality of the data 5% of the questionnaire was pre-tested outside of the study area in Harmaya Hospital and amended as needed. During data collection all the questionnaires were revised for errors and completeness to ensure that all needed data was captured. The principal investigator was follow and supervises data collection procedure throughout the data collection period. During data collection process each questionnaire was check daily by principal investigator for its completeness.

## Data Processing and Analysis

The collected data was checked manually for completion and any incomplete or misfiled questions then cleaned and stored for consistency and entered in to Epi -Data version 3.1 software then it was exported to statistical package for social sciences (SPSS) version 22 software for analysis. All variables were taken into the multivariable model by considering a p-value of  $\leq 0.25$  to see the correlation between independent variables. Finally, the results of bivariate and multivariable logistic regression analysis were presented in a COR and AOR with 95% confidence intervals. And P – value  $\leq 0.05$  was considered statistically significant.

## Ethical Clearance

Ethical clearance and permission was obtained from Ethical and Review comate of the Harar Health Sciences College, and Harari Regional Health Bureau and official letter were written for each Health facility before the actual data collection started. The actual data collection was commenced after obtaining signed consent from each study participant. The collected data was used only for intended purpose and the confidentiality of the information's is kept. Data collectors were informed about the issue of the confidentiality and privacy by principal investigator and appropriate measures were taken to assure confidentiality of the information both during and after data collection period.

## Result

### Socio-Demographic Characteristics

Variables	Frequency	Percentage (%)
<b>Age</b>		
15-24	107	38.5
25-34	129	46.4
35-49	42	15.1
<b>Ethnicity</b>		
Oromo	116	41.7
Amhara	101	36.3
Harari	45	16.2
Other	16	5.8
<b>Residence</b>		
Rural	87	31.3
Urban	191	68.7
<b>Marital</b>		
Single	22	7.9
Ever married	256	92.1
<b>Level of education</b>		
No formal education	38	13.7
Primary	73	26.3
Secondary and Above	167	60.1
<b>Occupation</b>		
House wife	106	38.1
Private	103	37.1
Government	45	16.2
Other	24	8.6
<b>Average monthly income</b>		
<450	53	52.2
451-1000	80	28.8
>1001	145	19.1

**Table 1:** Socio-demographic characteristics PITC acceptors and refusal among pregnant women attending ANC in Harar town public Health facility, Easter Ethiopia, 2018 (n= 278)

In this study, a total of 278 study participants were involved, making a response rate of 100%. 129 (46.4%) of the respondents were 25-34 years of Age and 191(68.7%) urban residents while the rest 87 (31.3%) were rural regarding marital status 191(68.7%) were married and One hundred six (38.1%) were house wife (Table 1).

### Obstetric Characteristics of Participants

One hundred sixty four (59%) were gravida Two and 94(33.8%) of women were multipara regarding ANC follow up 166(59.7%) of client were second visit the reaming 112(40.3%) for the first time (Table 2).

Variables	Frequency	Percentage (%)
<b>Gravida</b>		
ONE	94	33.8
Two	164	59.0
>3	20	7.2
<b>ANC Visit</b>		
Second and Above	166	59.7
First	112	40.3

**Table 2:** Obstetrics Characteristics of PITC acceptors and Refusal among pregnant women attending ANC in Harar town public Health facility, Easter Ethiopia, 2018 (n= 278)

### Knowledge and Attitude of Participants towards PITC

Majority of the respondents in this study 250 (90%) were knowledge of PMTC and 262(94.2) heard about PICT among this 223(80.2%) source information were from Health worker (Table 3).

Variables	Frequency	Percentage (%)
<b>Have Knowledge on PMTCT</b>		
Yes	250	90
No	28	10
<b>Ever Heard PICT</b>		
Yes	262	94.2
No	16	5.8
<b>Source Of Information</b>		
Health Worker	223	80.2
Mass Media	13	4.7
Family Member/Friends	25	9
<b>Feel PICT Service is Necessary</b>		
Yes	247	88.8
No	31	11.2

**Table 3:** Knowledge and attitude of respondents towards PITC among pregnant women attending ANC in Harar town public Health facility, Easter Ethiopia, 2018 (n= 278)

### Reasons for Acceptance and Refusal of PITC

About 229( 82.4%) were Accepters of PICT the reaming 49(17.6%) were non-accepters The most frequent reasons given for accepting provider initiated HIV testing and counseling were concern for their own health and to protect their children 159 (57.2%) and 56(20.1%) respectively). The major barriers for acceptance of provider-initiated HIV testing and counseling were 15(31%) fear of knowing HIV positive test result and 6(12.2%) were, fear of partner’s reaction for HIV positive result (Table 4).

Variable	Frequency	Percent (%)
<b>Reasons for Acceptance of PITC</b>		
To protect my child from HIV	56	20.1
To protect my partner from HIV	10	3.6
To know my HIV status	159	57.2
Multiple answers	4	1.4
<b>Reasons for Refusal of PITC</b>		
Fear of stigma and discrimination	2	4
Fear of partner’s reaction for HIV positive result	6	12..2
Fear of knowing HIV positive test result	15	31
Not being sure of HIV test confidentiality	12	24
Need for partner’s consent	14	29
Multiple answers		

**Table 4:** Reasons for acceptance and refusal of PITC among pregnant women attending ANC in Harar town public Health facility, Easter Ethiopia, 2018 (n= 278)

## Factor Association between Acceptance of Provider-Initiated HIV Testing and Counseling

Participants who had Age 25-34 year 7.1 times more likely acceptance rate of PICT with (AOR 7.16 95%CI 2.7,18.95) urban Residence 3.74 times more Acceptance of PICT with (AOR 3.74 95% CI 1.72,7203) and those participants two or more times ANC follow up 2.4 times more likely Accept PICT than those visit first with (AOR 2.38 95% CI 1.004,5.644) those household expenditure >1001 4 times more likely accept PICT with (AOR 4.1 95% CI 1.35,11.944) and who feel PICT Service is Necessary 7.7 times more accepted PICT with (AOR 7.78 95% CI 3.023,20.037) (Table 5).

Explanatory Variable	Acceptance of PITC		COR (95% CI)	AOR(95% CI)	P-Value
	Yes	No			
<b>Age</b>					
15-24	97	10	1.39 (0.50,3.85)	5.89(2.459,14.1)**	0.000
25-34	110	19	9.287,(2.77,31601)*	7.16(2.7,18.95)**	
35-49	22	20	1	1	
<b>Residence</b>					
Urban	167	13	2.813(1.335,5.923)*	3.74(1.72,7203)**	0.026
Rural	62	36	1	1	
<b>Education</b>					
Secondly and Above Primary	147	13	2.75 (1.04,7.22)*	2.49(0.735,8.479)	0.971
No formal education	51	17	2.280(0.706,7.365)	0.978(0.299,3.197)	
	31	19	1	1	
<b>No of ANC visits</b>					
>2	156	15	2.654(1.175,5.996)*	2.380(1.004,5.644)**	0.049
First	73	34	1	1	
<b>House hold income</b>					
>1001	134	21	4.43(1.624,12.094)*	4.016(1.35,11.944)**	0.012
451-999	65	15	1.89 (0.707,5.082)	1.735(.576,5.232)	
<450	30	23	1	1	
<b>Feel PICT Service is Necessary</b>					
Yes	204	19	6.012(2.572,14.051)*	7.78(3.023,20.037)**	0.000
No	25	30	1	1	

\*P-Value <0.25, \*\*P-Value <0.05

**Table 5:** Factor Association between acceptance of provider-initiated HIV testing and counseling among pregnant women attending ANC in Harar town, Public Health facility Eastern Ethiopia, 2018 (n= 278)

## Discussion

The overall acceptance of PITC in this study was 229 (82.4%) this finding was consistent with the acceptance rates of PITC reported by the study conducted in Gondar and Assosa town, Northwest Ethiopia [8,11]. However the finding was higher than the study in Sudan, Ghana and Mozambique this higher acceptance rate in the present study could be due to pregnant women consider that PITC as a standard care for the prevention of mother to child HIV transmission or it may be due to the government gives highest emphasis about the availability of comprehensive HIV/AIDS [6,12,13].

Participants who had Age 25-34 year more likely acceptors of PICT this finding was in line with the study conducted in Gondar Northwest Ethiopia [8]. The positive association between age and acceptance of HIV testing could be due to the reason that older women may have highly perceived risk of HIV and they may consider testing relevant to them

This study has shown urban residence more likely acceptors of PICT than rural residence this finding was consistency with the study conducted in Sudan and Gondar Northwest Ethiopia [8,12]. However in contrary with a study conducted in Assosa town, Northwest Ethiopia shows women who lived in the rural areas were more likely acceptors PITC than urban residents [11]. The difference in this study could be many reasons in our context, majority of the study participant were urban residence this may give an opportunity to more educated and get information from different sources about the benefit of HIV counseling and testing.

The finding of the study indicates monthly expenditure those women who had higher monthly expenditure ( $\geq 1001$  birr per month) were more likely to acceptors of PITC than those who had lower monthly expenditure ( $\leq 450$  birr per month) this finding was similar with the study conducted in Sudan and Gondar Northwest Ethiopia [8,14]. The consistency in results may reflect women with higher income are more able to make decisions on their own due to empowered economically

In this study, frequency of ANC follow up was a positive predictor of acceptance of testing. Women who had two or more antenatal visits had times increased odds of accepting HIV testing. this finding was in line with the study conducted in Sudan and Assosa North west Ethiopia [11,12]. The positive association between the number of ANC visits and acceptance of PITC could be Women with more frequent ANC visits are likely to have better information on MTCT, PMTCT, and the benefit of HIV testing, which may translate into higher acceptance for the test.

## Conclusion

Our study findings have demonstrated that antenatal routine HIV counseling and testing seems to be largely acceptable to the pregnant women in Harari town and there is willingness to attend ANC even with the knowledge that HIV testing would be routinely offered. Women's willingness was relatively high. Age, residence, household expenditure and Two or more ANC visit and attitude towards PITC, were independent factors for in favor of the acceptability of PITC among pregnant women

## Competing Interests

The authors declare that they have no competing interests.

## Authors' Contributions

Zelalem B wrote the proposal, participated in data collection, analyzed the data and drafted the paper. Abdu. O and Dereje. F have approved the proposal with some revisions participated in data analysis and revised subsequent drafts of the paper.

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