

Intention to HIV Testing Among Pregnant Women, Areka Town, Wolaita Zone, Southern Ethiopia: A Community Based Cross-Sectional Study

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Abstract

Background: Despite an increase in the number of health facilities providing prevention of mother-to-child transmission (PMTCT) services in Ethiopia, the proportion of HIV-positive pregnant women who receive antiretroviral drugs (ARVs) for PMTCT remains low. This study aims at determining intention to HIV testing among pregnant women, in Southern Ethiopia. **Methods:** A community based cross-sectional study design was conducted in Areka town in Jan 2013. The study recruits a sample of 380 study pregnant mothers. Theory of planned behavior was used to assess intention , attitude subjective norms and perceived behavioral control towards HIV testing. The data was entered and analyzed using SPSS version 16.0 statistical package. Bivariate analysis was carried to examine the association between intention and TPB constructs and multiple linear regressions was carried out to identify independent predictors of intention of HIV testing among pregnant women. **Result:** TPB measures explained 42% of the total variability in the intention to HIV testing among pregnant women. Among the constructs of TPB, perceived behavioral control ($\beta=.51(p<0.01)$), Attitude ($\beta=.20(p<0.01)$) and subjective norm ($\beta=.16(p<0.01)$) were found as significant predictors with their respective strength of association. Most Socio-demographic variables did not predict the intention to HIV test. However, Perceived susceptibility ($\beta = -0.12$) and age ($\beta = -0.09$) were also found as significant predictors of intention to HIV testing among distal variables. **Conclusion:** Perceived behavioral control was found to be best predictor of behavioral intention followed by attitude to HIV test and subjective norm. Control beliefs relatively higher in explaining intention compared to behavioral beliefs and normative beliefs. Based on the findings, due attention should be given for designing persuasive message aimed at increasing power of control that enable women to evaluate their control belief positively and increase positive attitude towards outcome of HIV testing.

Keywords: intention, HIV test, pregnancy

Background Information

Globally an estimated 370, 000 [230 000–510 000] children were infected with HIV through mother-to-child transmission in 2009. This is a drop of 24% from the year 2004. Besides the dominant heterosexual transmission, vertical virus transmission from mother to child accounts for more than 90% of pediatric Acquired immune deficiency syndrome (AIDS) [1]

Recently however many advances have been made in developing effective and affordable intervention that reduce the likelihood that a woman will pass HIV on her baby. Important interventions for the reduction of mother to child transmission namely Anti retro viral drugs for HIV positive women who become pregnant, prevention of unintended pregnancies , maintain reproductive health, vitamin A supplementation, mothers self care as exclusive breast feeding ,provision of care and treatment for HIV infected mothers, their infants and family[2].

The risk of HIV transmission from an infected mother to her child can be reduced by 50% by giving antiretroviral drug during pregnancy and labor and by avoiding breast feeding. In the absence of preventive measures the risk of a baby acquiring the virus from an infected mother ranges from 25% to 35% in developing countries. This strategy promotes adequate treatment for HIV positive women and has a positive impact on mother-to-child (MTCT) HIV transmission rate [3].

For effectiveness and utilization of these HIV services to be in place the important and the foremost step is provision of HIV testing services via different opportunities such as provider initiated testing during ANC visits, home to home testing by urban and rural health extension workers. HIV testing and counseling is a critical element in the HIV response, as it facilitates HIV treatment and care and other prevention. In addition, testing increases the awareness of people living with HIV of their own status and encourages them to take protective measures. HIV testing increases social awareness of HIV and can reduce stigma and discrimination towards people living with HIV [3,4]

The revised recommendation for HIV testing of pregnant women, puts health providers to test women for HIV as early as possible during each pregnancy so that they can start treatment early and make important decisions. Women who decline the test early in prenatal care are encouraged to be tested at a subsequent visit[3].

Women who test negative remain at risk of acquiring HIV during pregnancy or lactating; thus engagement of their sexual partner in preventive services is an important target. Transmission of HIV to infant is very high when a woman acquires a new HIV infection during this period. Thus, women who test negative who are in high HIV prevalence or high risk settings need ongoing prevention interventions repeat testing during pregnancy in the third trimester is recommended for women who are known to be at high risk of acquiring HIV. The other testing time is during labor; women should be screened with HIV test unless she declines (opt-out screening) [4].

Ethiopia is making tremendous efforts towards containing the epidemic. As part of this endeavor, the government put in place a national HIV/AIDS policy in 1998 to create an enabling environment to fight the pandemic. As HIV testing expands, systems are strengthened to monitor the health status of people living with HIV, and access to treatment is provided at the appropriate time, AIDS-related mortality is likely to further reduce [2,4].

In spite of these arrangements, the experience to-date in many countries shows great variations in Willingness to make use of the service that are available. For many women, especially in resource-poor areas, pregnancy will be the only time in their young adult lives when they access healthcare services on a regular basis. It therefore presents an excellent opportunity not only to screen for HIV, but also to educate and advise about the dangers of the virus and possible strategies to prevent future infection and transmission of the virus to their infants in case they are infected.

Being part of the HIV/AIDS prevention strategy, the prevention of mother- to-child HIV transmission (MTCT) program aims to curb vertical transmission of HIV from mothers to their infants. Arrays of interventions that are recommended for PMTCT include HIV counseling and testing, antiretroviral (ARV) prophylaxis, safe obstetric practices and safe infant feeding counseling. The HIV counseling and testing intends to screen HIV positive pregnant women for subsequent PMTCT interventions [2].

Despite many intervention efforts are existing to prevent mother to child transmissions such as Antiretroviral drugs, vitamin A supplementation, safe obstetric practices are there that may benefit from early and repeated HIV testing though voluntary counseling and testing and provider initiated HIV testing and counseling service utilization are unacceptably low. According the progress report of 2010 in Ethiopia; it was founded that the rates of HIV-testing of pregnant women within the context of PMTCT was only 16% in 2009 [2,3].

Pregnant women are still missing of HIV testing opportunities; which is a rallying point for enhanced care for women and children as an opportunity to strengthen existing health systems; to ensure greater access to high-quality antenatal, labor, delivery and postpartum care, including counseling ,support for infant feeding. women who are missing HIV testing is a unique from others of missing services as they are responsible for some extra-person their infants; in addition it will be the entry point for prevention of mother to child transmission services as well as other prevention and care services, prevention of future unwanted pregnancies via use of family planning, encouraging their partner to HIV testing [3].

In spite of the fact that knowing ones HIV status is important to take advantage of measures that reduce mother to child transmission of HIV, many women in different parts of the world are not willing to take HIV testing. Many women across the united states do not get tested for HIV testing during pregnancy,2005 CDC report shows that among infected infants born in the 33 United states of America of which report HIV-exposed infants ,31% of mothers of HIV infected infants had not been tested for HIV until after delivery. Similarly, study in southern part of Ethiopia indicated that women are not willing to be tested due to perception of their husband's reaction [5].

Pregnant women living with HIV are at high risk of transmitting HIV to their infants during pregnancy,during birth or breast feeding.In absence of any interventions,between 20% and 45% infants may be infected .with an estimated risk of 5-10% during pregnancy,10-20% during labour and delivery,and 5-20% through breast feeding.The over all risk can be reduced to less than 2% by a package of evidence based interventions [6].

Rates of HIV-testing of pregnant women in Ethiopia within the context of PMTCT reached 16% in 2009. Though 86% of ANC sites offer PMTCT services, Between 13% and 40% of HIV-positive pregnant women and 15% of HIV-exposed infants received ARVs to avert new infections in children in 2009 .From an estimated 84,189 HIV positive pregnant women in 2009, only 6,466 (8%) received antiretroviral prophylaxis Some progress is evident, over the past years where it was 5% in 2007. Though robust efforts will be needed if Ethiopia is to meet its national targets for PMTCT by 2014 [2,4].

In addition without effective use of PMTCT services; there will be an ever increasing number of people who will require HIV treatment which in turn needs the expansion of access to treatment services as ART and continued economic and social burden of HIV [7].

In order to meet the purpose of efforts with the integrated services that enhance HIV testing and treatment, it is necessary to know more about what factors are motivating women to get tested, so those factors may be a focus of interventions designed to motivate all women to seek HIV testing during pregnancy. Previous

studies conducted in the country emphasize on accessibility related factors. Little is known about the intention of pregnant women in Ethiopia to test for HIV especially in the study area. Therefore this study seeks to determine intention to HIV testing among pregnant women in Areka town.

Methods

Study Area and setting

Community based cross-sectional study was employed. The study was conducted in Areka town, southern nation, nationality and peoples region of Ethiopia in January 2013. The town administratively organized by eight Kebele. According to census (2007) projection for 2011 the total population of the town was 36,086. Based on the data obtained from the town health office, there is one nongovernmental hospital, one health centre and 6 private clinics each of which provide PMTCT services and 16 urban health extension professionals. The study population were sampled women who were registered as being pregnant in all Kebele of Areka.

Sample Size Determination:

Sample size of 417 was calculated using a formula for estimating a single population proportion assuming an expected prevalence of readiness to voluntary counseling and testing among pregnant women 44.5% in north west part of Amhara region (10), considering the following assumptions; 95% confidence level, 5% of margin of error, non-response rate =10%, using the formula for single population proportion. The calculated sample size is founded to be 417. To identify study participants, the town was stratified by Kebele. Then, the list of pregnant women from each Kebele was obtained from health extension registration book. Once the sampling frame prepared for each Kebele, proportional allocation of women to the total number of pregnant women in each Kebele was done. Identification number was given for women with their respective Kebele. Then Simple random sampling was used to select study participants from the sampling frame.

Data collection

Data was collected by using interviewer administered structured questionnaire using the address obtained from health extension workers. Elicitation study was carried out to include local salient beliefs in the questionnaire. The questionnaire was translated into the Amharic and wolaitigna languages and back translated to English language by another person to keep original meaning of the instrument. Ajzen (20) suggested that the behavior of interest must be defined in terms of its target, action, context, and time (TACT). For this questionnaire, the initial TACT elements is the intention to be tested for HIV (the action) for HIV testing (the target), during gestational age (the time). Any situations (place where the testing provided), is the context of the study.

Data quality management and entry

Training was given for data collectors by the principal investigator prior to the data collection and close supervision was done on daily basis. Data collection Instrument was pre-tested on 5% the sample of the study eligible individuals in Bodity town which is the nearby town to the study area. The result of pretest was not included in the main study. To keep quality of the instrument; translation of instrument into local language was assured. Field guides was prepared and given to data collectors to ensure consistency among the data collectors. The data was cleaned by visualizing, before undertaking analysis. Missing values were discarded during analysis. The data was entered, cleaned and assumption checking was assured before any kind of analysis. The data was analyzed using SPSS version 16.0.statistical package; results were presented and described in text, tables and charts. Pearson correlation coefficient was used to see the association between direct and indirect measures. The degree of association between dependent and independent variables was measured using the regression coefficients; multiple linear regression was used to see the effect of predictor variables on the intention to HIV test among the respondents

Elicitation study

HIV testing beliefs

To obtain the salient beliefs related with outcome of HIV testing, respondents had listed advantages and disadvantages of outcome of HIV testing in response to the question “What do they think about the outcome of HIV testing during pregnancy?” the majority of respondents reported the importance of knowing their own status as an advantage. The first most salient belief regarding testing outcome was ‘HIV testing is required in prevention of mother to child transmission of HIV’ following this was the belief ‘Testing for HIV during pregnancy makes you get early treatment services for you and child’ the another belief observed as advantage of HIV testing was ‘HIV testing as a means to reduce severity of AIDS.’ HIV testing improves trust between me and my partner. While others also mentioned as conspicuous belief as the advantage of testing was ‘Testing during pregnancy help you plan for the future.’ concerning the perceived disadvantage outcome of HIV testing during pregnancy, the most frequently responded belief was as “there is no disadvantage.”

In response to the question asking respondents to list referents who would approve of them HIV testing, most respondents, chose husband as the most influential referent others. Familial influence was also found to be significant next to the spouse. As the respondents rated neighbors especially who pregnant women were the one repeatedly mentioned as being referents for HIV testing during pregnancy.

Pertaining to the response to the question “What factors would facilitate or make easy for you to get tested and hinder you during pregnancy? Most respondents expressed that they would find it difficult to test because they perceive that they would be stigmatized if they were known to be suspected to be HIV positive. Another belief found was “Consulting my partner for HIV testing my cause quarrel between us even divorce” rarely listed by the respondents. Other very few respondents indicated that “It is not convenient for them get tested for HIV in the presence of others around whom they know.”

The Theory of Planned Behavior- The Theory of planned behavior was developed in 1988. The theory assumes the best predictor of a behavior is behavioral intention, which in turn is determined by attitude toward the behavior and social normative perceptions regarding it. The purpose of the theory is to predict and understand motivational influences on behavior that is not under the individual's volitional control. It is concerned with individual motivational factors as determinants of the likelihood of performing a specific behavior(18).

Measurement

Behavioral Intention towards HIV testing: behavioral intention is measured by four items with a bipolar 5-point scale with end points “strongly disagree, strongly agree” scale response format. A sum score was constructed by adding the four items. The higher the score in the intention refers the strong the intention formation.

Attitude(A) towards HIV testing: Direct measurement of attitude: measured using semantic differential scale using bipolar adjectives which are judgemental, items that are negatively worded points were recoded,so that higher numbers reflect a positive attitude to HIV testing.

For indirect measurement of attitude,five behavioral belief items with 5-point likert scales score were multiplied with its corresponding outcome evaluation score and then summed to calculate composite score of indirect attitude scale,in which higher scores indicate more positive attitude towards HIV test.

Subjective Norms (SN) towards HIV testing:For direct measurement of subjective norm Likert scale format ranging from ‘strongly disagree’ to ‘strongly agree’ was used. For indirect measure, normative beliefs was measured using bipolar likert scales ‘agree-disagree’ for motivation to comply with each referents unipolar scale is used and each normative belief items were multiplied with motivation to comply to compose the indirect subjective norm scale,in which higher scores indicating greater perceptions that referent other endorse to test for HIV’.

Perceived behavioral control(PBC) towards HIV testing: Semantic differential scale bipolars was used to measure perceived behavioral control directly.For indirect measure, control belief items were measured using Likert scale ,perceived power is measured using bipolar ‘difficult-easy’ ,‘not under my control to under my control’ scale response format. the control belief items were multiplied by those of perceived power to control the beliefs and summing these product scores across all control factors to compose the perceived behavioral control,in which higher scores indicate a greater of perceived behavioral control concerning consequences of HIV testing services.Negatively stated items were reversed before running reliability analysis. Factor analysis was applied to ensure validity and reliability of instrument.

Cronbach's alpha was used to determine internal consistency of items ,intention($\alpha=0.72$),attitude ($\alpha=0.73$),subjectivenorm($\alpha=0.70$),PBC($\alpha=0.87$),behavioral belief ($\alpha=0.74$) normative belief ($\alpha=0.68$),control belief($\alpha=0.86$),outcome evaluation($\alpha=0.71$),motivation to comply($\alpha=0.67$), power of control($\alpha=0.70$). Factor loading score and rotation with varimax method was employed to observe whether items are associated with a given factor or not; items with factor loading >0.4 were retained and those with factor loading < 0.3 were suppressed. The instrument consists socio-demographic variables, past behaviors of antenatal care visit and previous HIV testing experience and psychographic variables, constructs of theory of planned behavior.

Distal variables

Perceived susceptibility to HIV/AIDS was assessed using six items, measured by summed score of related belief items on 5-point Likert scale format after consideration of reversed score for negatively worded items.

Past behavior :To assess past behavior to ANC visit and Previous HIV testing seven items were used by using ‘Yes’ or ‘No’ response format.

Knowledge about HIV/AIDS , mother to child transmission and prevention methods was assessed using seven items with Yes or No response format. Correct answer were coded as ‘1’ and incorrect answers were coded as ‘0’ and score Negatively worded items were reversed and then score was computed. The higher the score indicates higher level of knowledge.

Data collectors

Seven diploma nurses were recruited for quantitative data collection. Training on the purpose of the study, data collection instrument, data collection procedures was given for data collectors and supervisors two days prior to data collection. Supervisors were assigned to manage and ensure quality of the whole data collection process.

Ethical consideration of the study

The ethical approval of the study was obtained from Jimma University ethical review board. The participants were informed about the purpose of the study and oral consent was obtained.

Results

A total of 380 pregnant women were included in this study producing 91% response rate. The age of the respondents ranged between 15 and 45 years with mean age of 27.64 ± 5.43 years. The majority, 280 (73.7%) of the respondents were Wolaita while the remaining 100 (26 %) belonged to other ethnic groups. Nearly half 196 (51.6%) were protestant followed by orthodox accounting for 129 (29.5 %). About 171 (45%) have completed primary school while 141 (37.1%) were illiterates. Ninety (23.7%) of respondents were unemployed, the rest were others. Majority of the respondents 357 (94%) were married. More than three fourth 296 (77.8%) had at least one time HIV testing experience in the past (Table 1).

Knowledge and HIV testing practice

All of the respondents 380 (100%) have heard about HIV/ AIDS and its transmission. All mothers knew unprotected sex transmits HIV and nearly three fifth acknowledged the potential of its transmission through multiple sexual partners. Specifically, with regard to MTCT, 363 (95%) of mothers knew HIV can transmit from infected mothers to baby. particularly more than three fifth of the respondents reported MTCT of HIV/AIDS in at least either during pregnancy, delivery or breast feeding. Three fourth (285) of mothers knew at least one method of prevention of HIV transmission (Table 2).

Relationship of the direct and indirect measures of TPB

For both direct and indirect measures of TPB, the relationship between the constructs was seen using Pearson correlation coefficients. As the correlation coefficient suggest, all the direct measures of TPB were correlated with indirect to each other. (Table 3)

Direct measures of TPB and respondents' Intention to HIV test

Regarding the relationship of each of the direct measures of TPB and intention to test for HIV, showed statistically significant positive association with intention; i.e. with attitude ($r=0.3(p<0.01)$), subjective norm, ($r=0.21(p<0.01)$) and PBC ($r=0.2(p<0.01)$). The effect of direct measures of TPB constructs on intention to HIV test were separately seen and adjusted for each other using Stepwise regression. The stepwise regression analysis showed statistically significant average increase intention to HIV test for each of non-composite attitude ($\beta=.17$), SN ($\beta=0.07$) and PBC ($\beta=0.08$) (Table 4).

Indirect measurement of TPB construct and intention to test

The indirect measures of TPB constructs also significantly associated with behavioral intention to HIV, Indirect attitude ($r=.35, p<.01$), indirect PBC ($r=.6, p<.01$), indirect subjective norm ($r=.34, p<.01$) similarly there was significant association across the indirect measures of TPB constructs.

The effects of indirect (composite) measures of attitude, SN and PBC on intention to HIV test were seen using stepwise linear regression in addition to the direct measures of these variables. The regression showed statistically significant average increase on pregnant mothers score of intention to HIV test for each of composite attitude ($\beta=.04$), SN ($\beta=.03$) and PBC ($\beta=.03$) (Table 5).

Apart from composite variables put above the contributions of behavioral, normative and control beliefs were also seen for effect on intention without composing with their respective evaluations of outcomes, motivation to comply and power of controls on pregnant mothers. The stepwise regression showed statistically significant average increase on pregnant mothers score of intention to HIV test for each of the behavioral ($\beta=.01, p<0.01$), normative ($\beta=.07, p<0.01$) and control ($\beta=.17, p<0.01$) beliefs (Table 5).

Effect of distal variables other than socio-demographic variables

Knowledge of pregnant women on mode of transmission and prevention and perceived susceptibility to HIV were separately seen in regression. Perceived susceptibility was significantly associated with intention to HIV $\beta=0.17(0.034-0.14)$ while knowledge and past testing experience had no significant effect on intention to test for HIV (Table 6).

Predictors of HIV testing Intention

Variables which were significant in the bivariate analysis were entered in the multiple linear regression using forward regression to predict intention to HIV test. PBC was entered in the first step accounting 36% of variability in intention to HIV testing. Perceived behavioral control and subjective norm were entered in the second step and accounted 39% of variance in intention, perceived behavioral control, subjective norm, attitude were entered in the third step and account 42% of variance in the intention, age and perceived susceptibility were entered in the fourth and last step account 43% and 44% of the variability in the intention to HIV test respectively. PBC was found to be best predictor ($\beta=0.51(p<0.01)$), next to PBC, attitude ($\beta=0.2(p<0.01)$), subjective norm ($\beta=0.16(p<0.01)$), age ($\beta=-0.12$), perceived susceptibility ($\beta=-0.09(p<0.05)$). All TPB measures were significantly and positively associated with intention to HIV test. In this study TPB variables explained 42% of variability in the intention to test for HIV (table 7).

DISCUSSION

This study explains intention to test for HIV among pregnant women during their pregnancy period. Regarding the prediction of TPB constructs in this study, intention to HIV test in pregnant women was primarily influenced by perceived behavioral control followed by attitude and subjective norm to HIV test. However other studies conducted in Harare region put subjective norm as best predictor followed by perceived behavioral control while attitude had less weight in predicting intention to HIV test. This could be attributed to the difference in the context; place of preference for testing [18].

Regarding the direct and composite measures, this study depicted that both direct and composite measures were associated to each other and contributed the larger portion to the intention. The result of the direct measurement was consistent with the composite measures and there was significant positive relationship between both measures in this study. This is consistent with the concept of theory of planned behavior as the proponents of this theory suggested when different methods are tapping the same construct; scores are expected to be positively correlated [20].

In the current study, both the direct and indirect measures were seen for prediction of intention to HIV testing. Indirect measure is strongly associated with intention than direct measure and it was used in the final prediction of intention to HIV testing.

This study revealed that perceived behavioral control is significantly positively associated and very important in explaining 36% of variability in intention to HIV test ($\beta=.51(0.023-0.32)$) in contrast to this perceived barriers negatively associated with intention and were less important in explaining intention to test in the same study in Harare (9). This finding is also inconsistent with study conducted in south Africa perceived behavioral control ($\beta = -.043$), on its own, did not have a significant effect on intentions to seek HIV testing [15]. This may be due to high control beliefs influence on intention in the study area as the theory suggests the potential differences in beliefs across culture.

In this study Subjective norm was significantly and positively associated with intention to HIV test $\beta=0.16(0.02-0.04)$, in line with this, study conducted in Addis Ababa Women intended to test for HIV if they perceived social support and anticipated positive consequences following test performance [4,18]. In contrast to this Subjective norms ($\beta = .044$) did not have a significant effect on intentions to seek HIV testing in South Africa [15]. This gap could be attributed to the difference in the context where the study undertaken.

In the current study among the salient beliefs held by the pregnant women, the most important and are most likely to have greatest impact on intention to HIV test was control belief significantly contributed to variance in intention ($\beta=0.17(0.14,0.20)$), followed by behavioral beliefs ($\beta=0.1(0.04-0.14)$) that had significant effect in intention to HIV test in this study. Even though the effect of control beliefs of the respondents higher than other salient beliefs, yet the power of control still remains low. This study corroborates with findings of South Africa where HIV testing control and behavioral beliefs were the only contributors to the prediction of intention. Normative belief contributed relatively smaller amount as compared to other salient beliefs. However this was not the case in the previous study done in South Africa [13]. This could be attributed to the difference in the study setting.

This study demonstrated that the TPB constructs explained 42% variance in intention to HIV test among pregnant women. This is higher than the average variance explained by the TPB constructs in the health behavior literatures other parts of Ethiopia [7]. TPB components explained 31.5% of variance in intention to HIV test in Harare region among high school teachers. This difference could be due to the difference in the context as the founder of the theory suggests, intention is expected to vary across behavior and situation (action, time, target, and context) (20).

In this study knowledge on HIV, mother to child transmission and prevention had significant contribution on intention to test. This finding is consistent with findings found in Addis Ababa [6].

This study showed that Self risk perception to get HIV had statistically significant negative effect on intention to test. This finding is not consonant with review of the health belief model studies indicated that

perceived susceptibility was strong predictor of preventive health behavior. Studies in Cameroon and southern Ethiopia suggest that self-perception of being at risk for HIV infection influenced the willingness to be tested [13,19].

With respect to Past behavior of HIV testing in this study 62.6% of respondents reported that they had been tested previously for HIV. This is higher compared to Mpumalanga where 44.4% tested previously [13]. Yet, this finding showed Past behavior of HIV testing had no significant contribution on intention to test. This is inconsistent with the study conducted in Cameroon where previous HIV testing was associated with current HIV testing women who were tested in the past are more likely to take the test [11]. However a study from Barbados revealed women who had a prior HIV test were less likely to refuse HIV testing during the current pregnancy when compared to women who had no prior HIV testing [17] This may be due to gap when and with what frequency they should be tested.

Conclusion

This study highlighted the relationship of theory planned measures with behavioral intention to HIV testing among pregnant women in Areka town, Wolaita zone, The study showed that TPB measures explained 42% of the variability in the intention to HIV testing among pregnant women of Areka town. Perceived behavioral control to HIV testing was found to be best predictor of behavioral intention followed by attitude to HIV test and subjective norm. Control beliefs to HIV test relatively higher in explaining intention. Behavioral beliefs and normative beliefs were also found to be predictors of intention to HIV test. Most Socio-demographic variables and past experience of HIV testing did not predict the intention to HIV test.

Furthermore, the finding of the study shows that for pregnant women to be engaged in or to perform HIV testing, salient beliefs related to the performance of the behavior were found to be vital. Having positive behavioral belief on the outcome of testing, with regard to influence of referents 'husband' and 'neighbors' were found to be the which most influence them, and control beliefs on convenience of HIV testing in the presence of people around, stigma by the family and community, doubt on confidentiality of test results had effect on intention of HIV testing among the study participants.

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Competing interest

The authors declare that they have no competing interests

Author's contribution

BB : Conceived the study, ZB YK MM : Participated in the design of the study and performed the statistical analysis, ZB YK MM: Interpreted the data: BB : Obtained ethical clearance and permission for study: BB: Supervised data collectors: ZB YK MM: Drafting the article or revisiting it critically for important intellectual content: All authors read and approved the final manuscript.

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Table 1 .socio-demographic characteristics of respondents Wolaita zone, Areka town,(n=380)2013

Variables	frequency	Percent
Age		
15-19	10	2.6
20-29	222	58.4
30-34	109	28.7
35-39	39	10.3
Ethnicity		
Wolaita	280	73.7
Gurage	46	12.1
Amahara	28	7.4
Others*	26	6.8
Educational status of women	141	37.1
Illiterate	171	45.0
Primary school	68	17.9
Secondary school and above		
Husband's education		
Illiterate	72	19.0
Primary school	178	46.8
Secondary school and above	130	34.2
Religion		
Protestant	196	51.6
orthodox	112	29.5
Muslim	22	5.8
catholic	41	10.8
others**	9	2.3
Occupational status		
Unemployed	90	23.7
Daily laborer	88	23.1
Merchants	107	28.2
Government employed	95	25.0
Monthly income		
<500	204	53.7
500-999	130	34.2
1000 and above	46	12.1
Marital status		
Un married	16	4.2
Married	357	94.0
Others***	7	1.8
Number of pregnancy		
1-2	201	53.0
3-4	152	40.0
5-6	27	7.0%

ttown,(n=380)2013

Table.2 Knowledge and HIV testing practice of respondents Wolaita zone, Areka town,(n=380)2013

Variables	Frequency	Percentage
Unprotected sexual inter course		
Yes	380	100
No	0	0
Sharing sharp materials		
Yes	371	97.6
No	9	2.4
Blood transfusion without testing		
Yes	218	57.4
No	162	42.6
Having multiple sexual partner		
Yes	222	58.4
No	158	41.6
Can HIV transmit from mother to her baby?		
Yes	363	95
No	17	5
During pregnancy	252	66.3
Yes	128	33.7
No		
During delivery		
Yes	250	65.8
No	130	34.2
During breast feeding	263	69.2
Yes	117	30.8
No		
Is there way to prevent transmission to the baby?		
Yes	285	75
No	95	25
Use of antiretroviral drugs		
Yes	251	66.1
No	129	33.9
Safe delivery		
Yes	240	63.2
No	140	36.8
Not breast feeding the baby after six month	252	66.3
Yes	128	33.7
No		
Past behavior of HIV testing		
Yes	238	62.6
NO	142	37.4

Table 3. Correlation of direct and indirect measures of TPB constructs, Areka town, wolaita zone,(n=380) ,2013

Constructs	Direct		
	Attitude	PBC	SN
Indirect			
Attitude	0.26**		
PBC		0.32**	
SN			0.08**
** Significant 0.01			

Table 4. Effect of direct measures TPB on intention to HIV test in Areka town, wolaita zone (n=380) 2013

Constructs	Intention	
	Standardized β	Unstandardized β (95% CI)
Direct Attitude	0.17	.20 (.14-.26)
Direct subjective norm	0.07	.18(-.1-0.27)
Direct PBC	0.08	.12 (.06-.17)

Table 5. Effect of indirect measure of constructs of TPB on intention to test, pregnant women in wolaita zone Areka town, (n=380) 2013

Constructs	Intention	
	Standardized β	Unstandardized β (95% CI)
Attitude	0.04	.08(0.06,0.1)
PBC	0.03	.03 (.03, .04)
SN	0.03	.04(.03, .05)
Behavioral belief	0.10	.22(0.16-0.27)
Normative belief	0.07	.21(0.15-0.25)
Control belief	0.17	.20(0.18-0.24)

Table 6. Effect of distal variables on intention to HIV test of respondents Areka town, Wolaita zone (n=380) 2013 continued

variables	Frequency	Unstandardized β 95%CI β	Standardized β
Is there any way to prevent the transmission to the baby?			
Yes	285	-0.51(-0.90,-0.13)	-0.13
No	95		
What prevention Methods do you know?			
Use of antiretroviral drugs			
Yes	251	0.13(-0.22,0.48)	0.06
No	129		
Safe delivery			
Yes	240	0.00(-0.34,0.34)	-0.02
No	140		
Not breast feeding the child after six month			
Yes	252	0.20(-0.15,0.55)	0.22
No	128		

Table 7. predictors of behavioral intention to HIV testing, wolaita zone, Areka town, 2013 (N=380)

Variables	Unstandardized (95% CI)
Intention to test	
standardized β	
PBC	0.03 (.03, .04)
0.51	
Attitude	0.08(0.06, 0.10)
0.20	
SN	0.04(.03, .05)
0.16	
Age	-0.32(-0.55,-0.9)
-0.12	
PSU	0.08(0.04, 0.14)
-0.09	

PBC=perceived behavioral control ,SN=subjective norm, Att=Attitude, Ag=age of respondent, PSU=perceived susceptibility