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Willingness of antenatal care attendees towards voluntary HIV counseling and testing, Southern, Ethiopia

Abstract

Background: Voluntary counseling and testing (VCT) is an entry point for the prevention of HIV transmission from mother to child and accessing VCT benefit from PMTCT services. Even though, some pregnant women clearly know the benefits /advantages of PMTCT services, they are not willing to test and access the services. Hence, this study was aimed to assess the willingness of pregnant women attending antenatal care towards VCT/PMTCT at Adare general hospital in southern Ethiopia.

Method: An institution-based cross-sectional study was conducted at Hawassa Adare hospital, southern Ethiopia from February to April/2018. A total of 338 randomly selected pregnant women who were attending antenatal care clinic were included. Data was collected using structured and pretested questionnaire; entered and analyzed using SPSS version 20 computer software. Important descriptive and logistic models were used for data analysis assuming statistical significance at $p < 0.05$.

Result: A total of 338 mothers were interviewed with a response rate of 100%. The willingness towards voluntary HIV counseling and testing among study participants was 82.2%. Participants who attended primary and High school and above were 3.9 (AOR= 3.87, 95% CI- 1.705, 8.782) and 9.5 times (AOR 9.53 at 95% CI- 3.155, 28.76); those who had good knowledge about VCT/PMTCT were 3.47 times (AOR=3.47, 95% CI-1.721, 7.003); women who followed two to three ANC visit, were 5.1 times more likely have willingness towards VCT/PMTCT (AOR 5.11 at 95% CI -1.095, 23.81) more likely willing to be tested than their counterparts respectively.

Conclusion: Willingness towards voluntary HIV counseling was encouraging however it needs advancement. Since boosted knowledge and awareness promote willingness to VCT/PMTCT uptakes, initiation of community-based information dissemination, increased quality of ANC service, and empowering women to be educated could be effective in order to promote high VCT and PMTCT program uptakes.

Keywords: willingness, pregnant, VCT, PMTCT, HIV/AIDS, antenatal care

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Abbreviations: AGH, Adaregeneral hospital; BCC, behavioral change communication; DPCD, department for prevention and control of disease; EPHA, Ethiopian public health association; FHI, family health international; FMOH, federal ministry of health; MTCT, mother to child transmission; PMTCT, prevention of mother -to- child transmission; UNAIDS, United Nations program on HIV/AIDS; VCT, voluntary counseling and testing; WHO, World health organization

Background

Globally a total of 36.7 million people were living with HIV, of these Sub Saharan Africa accounted for 69%, while 56% of HIV infections were among adult women.[1] However, the overall new HIV infections declined by 29% (from 1.1 to 790 000, a reduction) in eastern and southern Africa from 2010-2016, the annual number of new HIV infections was higher in Ethiopia.[2] According to the EPHI projection, the number of people living with HIV/AIDS will achieve 745,719 with a new infection of 20,988 in Ethiopia, of which the SNNP Region will account for more than 10% among which 2,691are new infection cases.[3] HIV-infection attributed to roughly 24% of deaths in pregnant or post-partum women are to HIV in sub-Saharan Africa; that made pregnant or post-partum women had eight times risk for mortality than their counterparts.[4] To address HIV/AIDS epidemics, prevention of mother to child transmission (PMTCT) of HIV becomes a priority for many developing countries because it is a commonly used intervention designed to reduce the risk of mother to child transmission of HIV (MTCT). HIV testing and counseling (HTC) is a critical component and gateway for all pregnant mothers to learn whether they are infected/not, helped to understand the implications of their HIV status and make informed choices for the future to reduce morbidity, mortality and HIV transmission.[5,6] Voluntary counseling and HIV testing (VCT) is the process by which an individual undergoes counseling, to enable him /her to make an informed choice about being tested for HIV and facilitates access to Care and support the HIV infected and affected.[6–8] Hence, Ethiopia developed a guideline that emphasizes the importance of expanding the service to vulnerable and marginalized groups; to achieve this set of goals by ensuring that the majority of pregnant women get access to; antenatal care, VCT, and all other components of PMTCT.[9–11] Consequently, increased utilization of VCT services in Ethiopia has contributed to national HIV incidence leveling off and progressing to decline over the last few years. Besides, the number of VCT centers and the number of counselors has increased enormously as a result of efforts made to build the capacity of the institutions and awareness of

benefits /advantages of PMTCT services.[9,12] However, the prevalence of PMTCT was low Because of the VCT coverage not reached the peripheral parts of the country, and women are accessing the service much less than men and remain limited and demand is often low in relation to some pregnant mothers were but were not willing to test and access the services.[12–15] Willing to be tested and have ART is the main key to prevent MTCT. Therefore, it is crucial to have a detailed discussion with clients about their willingness and readiness to be tested and initiate ART.[8,10,16–18] In relation, the majority of pregnant women express their willingness based on the information they provided.[19–22]

Several barriers prevent people from accessing VCT services. Worries about confidentiality: perceived pressure to notify partners or family members;[14,19,23] inaccurate risk perception;[5,14,24] fear of stigma;[14,19,25–28] lack of information about VCT/PMTCT;[14,24,29] and inadequate post-test support care and treatment; VCT is also unavailable in many areas; and services needed to be expanded to reach more people from all risk groups.[30] Besides, miss-perception associated with HIV, which could prevent many people from being tested and determining their HIV-status. It deems too difficult for women to disclose and discuss VCT because "Women are soft negotiators" and they have fear, especially for those who depend solely on the husband's decision.[31,32] It is important to assess the level of willingness for VCT/PMTCT of pregnant women attending ANC, since, few researches are available in the study area on the status of the willingness of pregnant women towards VCT that could expand the desire for PMTCT at the grass-root level. Therefore, this study aimed to assess the willingness and factors of pregnant women attending ANC towards VCT/PMTCT utilization.

Methodology

Study area and study population

An institution cross-sectional study was conducted at the Adare general hospital which is located in Hawassa city. Hawassa city capital of the SNNPR government and located in the south of Addis Abeba at a distance of 275km. The Adare hospital was upgraded from the health center to General Hospital and started its activities in 2008 EC, serving a catchment population of 1,340,960. It was selected purposefully since it is the only general hospital in the city that provides a wide range of services in its outpatient department. The hospital has five main clinical case teams, emergency case team, outpatient case team, inpatient case team, surgical outpatient department, and MNCH case team including PMTCT.[33] All pregnant women who visited the hospital ANC clinics for antenatal care at the Adare General Hospital were included in the study unless they were inability to communicate/severely sick, or not registered as antenatal follow-up clients.

Sample size determination and sampling procedures

A total 338 of ANC attendees were included in the study, using the sample size for the study was calculated by using single population proportion formula taking the proportion of the pregnant women that has the willingness to voluntary HIV counseling and testing, which is 70% (a study was done in Tigray in 2002)34 with the expected margin of error(d) 5% with a confidence interval(CI) of 95% at 5% of non-response rate, and enrolled in the study using the systematic sampling technique with "K" value of 3. The registration logbook was used for the sampling frame.

Data collection process

Data for was collected by face to face interviewing of pregnant mothers using adapted semi-structured questionnaires, which contained socio-demographic variables:Age, sex, residence, education, and occupational status and questions about perceived Risk, HIV& MTCT related knowledge; VCT, and related knowledge and practice; pattern of result communication, expectations of pregnant women after they receive test results, stigma, care and support related questions.

Data quality assurance

The questionnaire was adopted from the BSS Questionnaire with slight amendment to attain the study objective. It was developed by the English language and translated into Amharic, then again translated back to the English language to confirm consistency of translation during the analysis time.Data collectors were trained in an identical manner on the objective of the study and the data collection procedures. The Pre-test was done among 5% of the sample size at and adjacent institution to the study area with similar socioeconomic characteristics to correct and ensure any error and ambiguity. The investigators supervised the data collection process and checked completeness, accuracy and consistency of questionnaires. Double entering of questionnaires, data checking, and processing was made to restrict follow up before final analysis was given to minimize any errors.

Data processing and analysis

Data were entered, cleaned, and analyzed by using SPSS Version 20 (IBM Corporation, Armonk, NY, USA). Descriptive statistics were used to describe the socio-demographic and other study variables. Categorical variables are described using actual numbers and percentages while continuous variables have described by means, standard deviations, medians, and ranges. Binary logistic regression analysis with odds ratio with their 95% confidence interval was used to assess the degree of association between dependent and independent variables and used to test the significance of the association p-value less than 0.25 of independent variables with the outcome variables were selected as a candidate variables for multivariable analysis to form the model. A multivariable analysis model using the adjusted odds ratio (AOR) was applied to identify the important determinant factors of postpartum family planning utilization. Level of significance below 0.05 was considered to determine the association

Ethical considerations

Ethical clearance was obtained from the Institutional review board (IRB) of Hawassa College of Health Science. Then a letter was written to Hawassa administrative city of the health department and Adare General Hospital. Informed verbal consent was obtained from each study participants after a thorough explanation of the purpose of this study, the full right not to participate, privacy and confidentiality to be kept. The questionnaire was anonymous and interviewed questionnaire was kept in a secure manner until analysis.

Result

Socio-economic characteristics

A total of 338 mothers has participated with a response rate of 100%. Age of the participant ranged from 18-42 years, mean age 27.86 (SD±6.73) while 42.3% were less than 20 years. The majority of the study participants were (97.3%) married, nearly two thirds

(63.0%) of the study participants had 4 or more family members with the mean (±SD) family size of 4.88 (±1.003), and 36.1% of study participants were housewives (Table 1).

Table 1 Socio demographic and economic characteristics study participants, Southern Ethiopia

Variable	Category	No.	Percent %
Age	< 20 Year	143	42.3
	20- 34 Year	135	39.9
	34-49 Year	60	17.8
Ethnic group	Sidama	180	55.2
	Wolaita	67	20.6
	Kambata	15	4.6
	Hadiya	27	8.3
	Amhara	27	8.3
	Others	10	3.1
Religion	Protestant	165	50.6
	Orthodox	118	36.2
	Muslim	28	8.6
	Catholic	15	4.6
level of education	Illiterate	54	16
	Read and write only	39	11.5
	Grade 1 – 4	78	23.1
	Grade 5-8	75	22.2
	Grade9-12	84	24.9
	Tertiary level	8	2.4
Occupation	Student	24	7.1
	House wife	122	36.1
	Merchant	106	31.4
	Gov't employed	39	11.5
	Privat employee	38	11.2
	Farmer	9	2.7
monthly income in birr	Below 100 eth birr	41	12.1
	100 – 300 eth birr	95	28.1
	Above 300 eth birr	202	59.8
Marital status	Single	0	0
	Married	329	97.3
	Divorced	6	1.8
	Widowed	3	0.9
Family size	< 4	125	37
	≥ 4	213	63
No. Pregnancy	≤ 2	156	46.2
	>2	182	53.8
Husband occupation	Merchant	102	30.2
	Gov't employed	70	20.7
	Privat employee	50	14.8
	Farmer	116	34.3

Willingness towards VCT/PMTCT

The status of willingness towards VCT/PMTCT among study populations was 82.2%, however, a significant number of the study population refused to be counseled and tested during their ANC follow up. The details of information were showed in Figure 1.

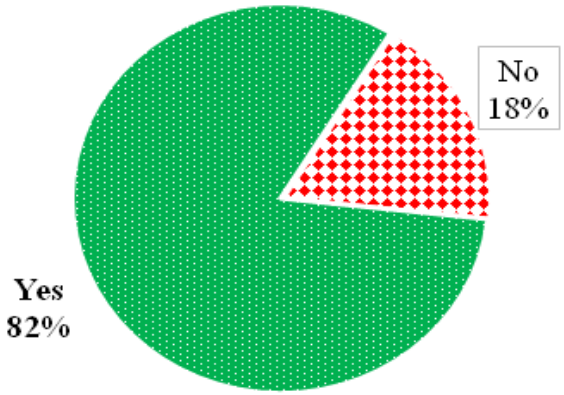

Figure 1 willingness towards voluntary HIV counseling among study participants.

Knowledge towards VCT among pregnant women

As presented in Table 2 almost all of the participants (99.1%) knew that HIV/AIDS can be transmitted from mother to child; 85.7% responded as HIV can be transmitted by transfusion; seventy-six percent of the study population had good knowledge about voluntary HIV counseling and testing. However, 95.6% of study participants responded that HIV is not a curable disease, 94.7% of them answered that blood tests cannot detect HIV. Among all participants, 98.2% had awareness about VCT/PMTCT and 82.2% knew that ART can avert mother to child transmission of HIV. Health care providers were dominant (55%) source of information.

Attitude towards VCT among pregnant women

The majority of the participants (83.1%) could buy expenditures from a known HIV+ shopkeeper and 332 (98.2%) agree on avoiding multiple sexual partners can protect from HIV infection. The vast majority of the participants were (98.2%), 275 (81.4%) and 332 (98.2%) had agreed to allow children living with HIV should to attend school, people living with HIV or thought to be living with HIV lose the respect of other peoples and can prevent HIV respectively. In general, out of participants, more than four-fifth (81.4%) correctly answered more than 75%. Thus, deemed to have a positive attitude towards VCT/PMTCT (Table 3).

Practice towards VCT among pregnant women

However, nearly two-thirds (65.4%) of the study participants were counseled for, get tested and received HIV test during this pregnancy, only 59.2% of tested participants counseled post-test, 71.6% informed their result for partners, and the similar number of participants promised to discuss the result with their partners even if it was positive (Table 4).

Table 2 Knowledge about VCT/PMTCT study participants

Variables		No.	(%)
HIV/AIDS can be transmited from mother to child	No	3	-0.9
	Yes	335	-99.1
HIV/AIDS can be transmited with blood transfusion	No	36	-14.3
	Yes	215	-85.7
HIV is curable disease	No	323	-95.6
	Yes	15	-4.4
HIV is preventable disease	Yes	332	98.2
	No	6	1.8
HIV/AIDS can be transmited from mother to child during pregnancy	No	42	-12.4
	Yes	296	-87.6
HIV/AIDS can be transmited during birth	No	93	-27.5
	Yes	245	-72.5
HIV/AIDS can be transmited during breast feeding	No	33	-9.8
	Yes	305	-90.2
There is protection HIV virus transmission from mother to child	No	60	-17.8
	Yes	278	-82.2
Taking ARV can protect the transmission of HIV from mother to child	No	60	-17.8
	Yes	278	-82.2
There is other mechanisim that can protect transmission of virus from mother to child	No	290	-85.8
	Yes	48	-14.2
Can a person know his HIV status by blood test	No	320	-94.7
	Yes	18	-5.3
Do you know about voluntary counseling and testing and PMTCT	No	6	-1.8
	Yes	332	-98.2
Get this information from	Health Workers	132	-55
	Media	48	-20
	Friends	48	-20
	Neighbours	12	-5
Do VCT have benefit for pregnant women and her fetus	No	6	-1.8
	Yes	332	-98.2

Table 3 Attitude towards willingness to voluntary HIV counseling and testing among study participants

Variables		No.	%
Can buy expenditures from a shopkeepers are HIV+	Yes	281	83.1
	No	57	16.9
Avoiding multiple sexual partener can protect from HIV infection	Yes	332	98.2
	No	6	1.8
Children living with HIV could be allowed to attend school	Yes	332	98.2
	No	6	1.8
Afraid of how other people will react if the test result is positive for HIV	Yes	275	81.4
	No	63	18.6
People living with HIV or thought to be living with HIV lose the respect of other peoples	Yes	275	81.4

Table Continued

Variables		No.	%
	No	63	18.6
Avoiding pirking/sharing sharpmaterials can protect from HIV	Yes	332	98.2
	No	6	1.8
Contact with the saliva of a person living with HIV	Yes	275	81.4
	No	63	18.6
Would you ashamed of if someone from your family gets HIV infection	Yes	275	81.4
	No	63	18.6
HIV counseling and testing is important for pregnant women	Yes	332	98.2
	No	6	1.8
HIV test service can protect your child and your partner	Yes	266	78.7
	No	72	21.3
intention to be tested if the service is made available during pregnancy	Yes	302	89.3
	No	36	10.7
prefer HIV test like any routine blood test	Yes	133	39.3
	No	205	60.7
prefer female health professional to be your counselor	Yes	259	76.6
	No	79	23.4

Table 4 Description of practice towards willingness for voluntary HIV counseling and testing among pregnant women at Adare General Hospital, 2018

Variables		No.	N %
Did you get tested for HIV test in this pregnancy	No	117	34.6
	Yes	221	65.4
Did you receive your HIV test result	No	117	34.6
	Yes	221	65.4
Did you counselled before tested HIV	No	117	34.6
	Yes	221	65.4
Was the counselling process secured (N=221)	No	65	29.3
	Yes	156	70.7
Did you counseled after test (N=221)	No	90	40.8
	Yes	131	59.2
Have you informed your partner to have HIV test (N=221)	No	63	28.4
	Yes	158	71.6
Could you tell your result to your partner in case of HIV test turn to be positive?	No	99	29.3
	Yes	239	70.7
Could you tell your result to your family in case of HIV test turn to be positive?	No	100	29.6

Factors for willingness towards VCT among pregnant women

In the bivariate analysis age of participants, family size, knowledge about VCT, educational status of participants, number of ANC visits, occupation of the participant, and husband's occupation found to be significantly associated with a willingness towards VCT/PMTCT with p-value< 0.25. Nevertheless, in multivariate analysis, maternal education, knowledge, and VCT/PMTCT and the number of ANC visits had statistical significance with a willingness towards VCT/PMTCT with corresponding p-value <0.05. Women who attended high school or more were 9.5 times more likely to willing to be tested than their counterparts, (AOR=9.5, 95%CI= 3.155, 28.76); those who attended a primary level were 3.9 times more likely to willing to had VCT/PMTCT than those who had no formal education, (AOR =3.87, 95%CI=1.705, 8.782). Whereas, participants who had good knowledge were 3.47 times more likely willing to had VCT/PMTCT

than their equivalents (AOR= 3.472, 95%CI= 1.721, 7.003), and study participants who visited ANC two to three times were 5 times more likely willing to had VCT/PMTCT than those who attended ANC once only, (AOR=5.106, 95%CL=1.095, 23.8) (Table 5).

Table 5 Bivariable and multivariable logistic regression analysis of variables with willingness for voluntary HIV counseling and testing among pregnant women at Adare General Hospita, 2018

	Willing to Test						
	Yes		No				
	N (%)		N (%)		COR (95% CI)	AOR (95% CI)	P-Value
Age							
< 20	123	-86	20	-14	1.701(1.084, 3.69)	1.343(0.559, 3.231)	0.51
20- 34	108	-80	27	-20	1.540 (1.025, 2.33)	0.987(0.286, 3.400)	0.983
35-49	47	-78.3	13	-21.7	1	1	
Family size							
< 4	110	-88	15	-12	1.964(1.044, 3.69)	2.458(0.736, 8.214)	0.144
≥ 4	168	-78.9	45	-21.1	1	1	
Knowledge							
Good Knowledge	227	-88.3	30	-11.7	4.451(2.467, 8.03)	3.472(1.721, 7.003)	0.001*
Poor Knowledge	51	-63	30	-37	1	1	
Education							
No formal education	50	-57.5	37	-42.5	1	1	
Primary education	135	-88.2	18	-11.8	5.550(2.897, 10.631)	3.870(1.705, 8.782)	0.001*
High school and above	93	-94.9	5	-5.1	13.76(5.088, 37.232)	9.527(3.155, 28.76)	<0.001*
ANC visit							
Only one	214	-81.7	48	-18.3	1.408(0.534, 3.713)	2.968(0.820, 10.75)	0.097
Two to three	45	-88.2	6	-11.8	2.368(1.677, 8.285)	5.106(1.095, 23.81)	0.038*
More than three	19	-76	6	-24	1	1	
Occupation of participant							
Non Employed	116	-74.8	39	-25.2	1	1	
Merchant	88	-83	18	-17	1.644(0.881, 3.066)	0.863(0.405, 1.84)	0.701
Employed	74	-96.1	3	-3.9	8.293(2.473, 27.810)	2.608(0.648, 10.49)	0.177
Husband occupation							
Gov't employed	67	-95.7	3	-4.3	5.826(1.685, 20.149)	3.660(0.977, 13.71)	0.054
Merchant	81	-79.4	21	-20.6	1.006(0.521, 1.942)	0.704(0.305, 1.626)	0.412
Private employee	38	-76	12	-24	0.826(0.375, 1.819)	0.601(0.221, 1.639)	0.32
Farmer	92	-79.3	24	-20.7	1	1	

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Discussion

This study was aimed to assess willingness towards voluntary HIV counseling and testing of pregnant women who attend antenatal care service at Adare General Hospital, Hawassa. The percentage of willingness towards VCT/PMTCT among study population was 82.2%. This result was in line with the study done in Assosa town, Northwest Ethiopia, Gondar and Nigeria.[14,33] This correspondence of result, could be due to efforts made to create universal awareness about the VCT/PMTCT and increased willingness to have HIV testing in the community.[19,20] The result of this study was higher in relation to other studies conducted elsewhere.[22,26,27] Whereas, this it was lower compared to the study conducted in China.[33,34] This difference of findings might be which include socio-demographic determinants, competing priorities, variation on awareness, lack of confidentiality and fear of stigma and difference in study population, sample size and time study.

In general 81.4% of our study participants were deemed to have positive attitude towards VCT/PMTCT which was much more than findings of studies in Mizam Aman (75.9%);26 and Uganda(76%);13 but less thanthat of Amobo (93.6%) and Limpopo province (95.2%).[21,35] Living status, partner involvement, and socio cultural variation might determine the attitude of women towards VCT/PMTCT. There are a lot of contradicting findings in studies of different context. One of Nigerian study identified that 59% did not know the causative agent of AIDS and only 27.6%, of the respondents had good, knowledge of HIV/AIDS.7 In contrast, almost all of the study participants knew that HIV/AIDS can be transmitted from mother to child which very higher findings of studies in Aman Mizan, Ambo, Southern Ethiopia, Northwest Cameroon, Sudan and Nigeria,[11,19,21,22,26,36,37] 85.7% responded as HIV can be transmitted by transfusion as in line with Cameroonian study;36 but it is higher than Nigerian study (64%).7 In the finding of this study, duration of MTCT varies accordingly; 87.6% during pregnancy, 72.5% during childbirth, and 90.2% during breast feeding. The proportions of women correctly stating in different studies were found to be lower in comparison to our finding.[11,21,36] Our study identified that 66% of study population had good knowledge about voluntary HIV counseling and testing, which is congruent to Ugandan13 but less than that of Cameroon.[36] Perhaps, discussion with health professionals, media exposure, standard of health care service, and study time are considered as contributing variables for variation of findings.

In Ethiopia, HIV testing for pregnant women is a mandatory point to enhance PMTCT.9 Despite the fact, on 65.4% of the study participants were counseled for, get tested and received HIV test during this pregnancy in contrast to finding of Ambo, Ghana, and Limpopo Province South Africa in which almost all the respondents have been tested for HIV,[21,29,35] but it is much more higher than the finding of conducted in Gambella and Addis Ababa;[15,27] only 59.2% of tested participants were counseled post-test, nevertheless in Ambo study all of tested women got post-counseling services21 and 71.6% informed their result for partners, and similar number of participants promised to discuss the result with their partners even if it was positive.[11,38] Access to education and health services, determine the approach that they tried to protect themselves from HIV or how to get PTMCT while they are need to get it.[5,13,18] In this study, women who attended high school or more were 9.5 and 3.9 times more likely to willing to be tested than their counterparts respectively.In other study, having primary education 2.41 time more likely to receive the service, as well information on HIV gained from health care providers was 3.24 times more likely to have VCT.[19,22,37] However, it is negatively related to the acceptance of VCT.14 Whereas, participants who had good knowledge were 3.47 times more likely willing to had VCT/PMTCT than their equivalents, were in line with findings of different studies.[19,22,37] Also, Antenatal testing for all pregnant women is often seen as an effective strategy for achieving good coverage of HIV testing in migrant populations and ethnic minorities study participants who visited ANC5,[16,17] two to three times were 5 times more likely willing to had VCT/PMTCT than their counterparts, similarly, those who attended ANC were 5.80 times exposed to knowledge of mother-to-child transmission of HIV. Likewise, the study of Gondar, 2.64 times.[14,26,37] Both increased educational status and access to ANC expose pregnant women to improved knowledge that helps women to have VCT/PMTCT.[39]

Conclusion

This study validates that willingness towards voluntary HIV counseling was encouraging however it needs improvement, and it was very dependent on their knowledge and awareness of VCT/PMTCT, their educational status, and increased ANC visit. Since enhanced knowledge and awareness encourage the willingness to VCT/PMTCT uptakes, initiation of community-based information dissemination; increased quality of ANC service, and empowering women to be educated could be effective in order to promote high VCT and PMTCT program uptakes.

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Operational definition: The following operational definitions were used during the time of this study was conducted:-

Anonymous testing: In this type of test, the client's name or any other identifying information is not sent along with the blood sample, the client is identified through a unique identification number.

Antenatal care attendees: Pregnant women who made one or more visit to the health institution for early detection and control of any health problem related to pregnancy, labor, and puerperium

Confidential: Information shared during counseling must not be shared with others.

The HIV test result must only be reported to the client unless the client States the desire to share the result with family members, partner or close friend

Informed consent: Agreement which is confirmed by verbal means after being informed by the provider

Integrated VCT service: This is a type of VCT service in a given institution incorporated into all aspects of ongoing MCH interventions.

Knowledgeable mother: those respondents who answered 12 (75%) of knowledge questions correctly was considered as knowledgeable about HIV and voluntary counseling and testing.

Privacy: The physical environment that allows private discussion between client and counselor. The service provider is obliged to keep the client's personal details private including test results.

Safe Sex: Sexual act using condom; having a monogamous relationship with HIV negative partner who has no other sexual partner or having non-penetrative sex.

Voluntary: The decision to have a test must be made by the client without coercion.

Have a willingness to have VCT: those respondents who have a positive attitude towards VCT service and utilizing the service.

Positive attitude: those respondents who answered 75% of attitude questions correctly were considered as having a positive attitude towards voluntary testing and counseling.

Conflicts of interest

The authors declare that they have no financial or personal relationships which may have inappropriately influenced them in writing this paper.

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