



**FACTORS AFFECTING ACCEPTANCE OF
VCT IN NORTH AND SOUTH GONDAR
ADMINISTRATIVE ZONES**

ETHIOPIAN PUBLIC HEALTH ASSOCIATION

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Table of Contents

Table of Contents	
List of Tables	i
List of Annexes	ii
List of Figures	ii
Abbreviations and acronyms	iii
Acknowledgments	iv
Message from the President	v
Executive Summary	vi
I. Introduction	1
II. Background and Significance	5
III. Objectives	10
IV. Methods	10
V. Results	14
VI. Discussion	26
VII. Limitations	28
VIII. Conclusion	29
IX. Recommendations	29
X. References	30
XI. Annexes	32
Annex 1: List of professional and community groups	32
Annex 2: Data transformation schedule	33
Annex 3: Questionnaire	34

List of Tables

Table 1:	Socio-demographic characteristics of respondents from North and South Gondar, November 2004	15
Table 2:	Distribution of respondents by professional or community group, North and South Gondar, November 2004.	16
Table 3:	Acceptance of VCT vs socio-demographic variables, North and South Gondar, November 2004.	18
Table 4:	Acceptance of VCT vs knowledge, attitude and practice variables in North and South Gondar, November 2004	21
Table 5:	Acceptance of VCT vs knowledge and attitude variables in North and South Gondar, November 2004.	25

List of Annexes

Annex I:	List of study groups.	32
Annex II:	Data transformation schedule.	33
Annex III:	Questionnaire.	34

List of Figures

Figure 1:	Age distribution vs. VCT acceptance in North and South Gondar, November 2004	17
Figure 2:	Distribution by whether knowing HIV status Brings stigma in North and South Gondar, November 2004	23
Figure 3:	Distribution by willingness to be tested for HIV if ART were available in North and South Gondar, November 2004	24

Abbreviations and acronyms

AIDS	Acquired Immune Deficiency Syndrome
ART	Anti Retroviral Treatment
BSS	Behavioural Surveillance Survey
CDC	Center for Disease Control
CI	Confidence Interval
DHS	Demographic and Health Survey
EPHA	Ethiopian Public Health Association
HIV	Human Immune Deficiency Virus
OR	Odds Ratio
MTCT	Mother-to-Child Transmission
NSS	National Sentinel Surveillance
PMTCT	Prevention of Mother-to-Child Transmission
RPO	Research and Publication Office
SD	Standard Deviation
STI	Sexually Transmitted Infection
UNICEF	United Nation Children’s Fund
VCT	Voluntary Counselling and Testing
WHO	World Health Organization

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Mengesha Admassu
Principal Investigator

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Message From the President

This report summarizes willingness to undergo Voluntary Counseling and Testing (VCT) for HIV in a range of professional and community groups. The study was undertaken in North and South Gondar zones, but the results may be applicable more widely in Ethiopia.

The key findings of this study reported willingness to have VCT is widespread, and is most common among younger people (aged 15 to 19 years), even though the current minimum age of consent is 18 years. Respondents indicated that parents, partners and religious leaders influenced their willingness to have VCT, and that availability of antiretroviral therapy (ART) acted as a strong positive motivator for VCT.

Community opprobrium and stigma were said to act as barriers to VCT, whereas community support positively influenced willingness to have VCT. Worryingly, members of professional groups likely to be strategic in influencing society (teachers and health workers), were less willing to accept VCT than others.

Finally, EPHA encourages all actors working to increase VCT uptake to control the HIV/AIDS epidemic in Ethiopia will find valuable information in this report, which arises through collaboration between the Ethiopian Public Health Association and CDC-US. I would therefore very much grateful to the researchers and the US-Centers for Disease Control and Prevention (CDC) for supporting the study and this publication.

Solomon Worku (MD,MPH)
EPHA-Vice President

Executive Summary

Voluntary counseling and testing (VCT) for HIV allows individuals to know their HIV status and serves as a gateway both for HIV prevention and for early access to treatment, care and support. In order to promote VCT services, it is essential to identify factors associated with VCT acceptance in a range of population groups.

The aim of this study was to assess factors that affect VCT acceptance in a range of professional and community groups in North and South Gondar administrative zones. A cross sectional descriptive study was undertaken among 460 respondents using a pre-tested structured questionnaire from October – December, 2004. A total of 440 people completed interviews giving a response rate of 96%. The mean age of the respondents was 27.8 years.

The result of the study revealed that 65% percent of the respondents were males, and 82% were willing to accept VCT. Those aged 15-19 years were more likely to accept VCT ($p<0.01$). Presence of significant others (friends, families, religious leaders, and couples) was positively associated with VCT acceptance ($p<0.001$), while absence of community support was negatively associated with VCT acceptance ($p<0.01$). Current availability of ART was found to be positively associated with acceptance of VCT ($p<0.001$).

Thus, this study concluded that involving closely related people to enhance social acceptance of voluntary counselling and increasing access to ART services would help in further expanding VCT services in Ethiopia. Therefore the work of promotion should continue not by considering VCT as an end in itself, but as part of a continuum of services and support. These services range from advocacy and community mobilization to reducing stigma, behavior change strategies, and psychological supports for those infected and affected by HIV/AIDS.

I. Introduction

The rapid expansion of HIV/AIDS in sub-Saharan countries has a profound impact on the health sector as well as the socio-economic development of the region (1). AIDS has highlighted individual, gender, social and economic inequalities and injustices and has demonstrated the value of human capital as a priority for development (2).

The fourth UNAIDS report on the global AIDS epidemic estimated the number of people living with HIV to be 37.8 million globally, with 25 million living in sub-Saharan Africa and 1.5 million in Ethiopia. Among women aged 15-49 years, the figures were 17 million globally, 13.1 million in sub-Saharan Africa and 0.77 million in Ethiopia. The same report estimated the number of deaths to be 2.9 million globally, 2.2 million in sub-Saharan Africa and 1.2 million in Ethiopia (2).

The devastating effect of HIV/AIDS in Ethiopia has become more and more visible over time,

and life expectancy is estimated to have fallen from 50 years to 42 years. Today, 42 percent of the hospital beds in the country are estimated to be occupied by AIDS patients, draining the scarce resources allocated to the health sector (3).

The HIV status of 26,355 VCT clients (14,824 males and 11,531 females) was reported in 2003 to the MOH. 2,128 (14.4%) male and 2,250 (19.5%) female VCT clients were HIV positive. The highest prevalence was among 30-34 year old women and among 35-39 years olds of both sexes (1). The HIV/AIDS situation in Ethiopia has evolved from two reported AIDS cases in 1986 to a cumulative total of 147,000 by mid 2003 but the vast majority are unreported and many have died unnoticed and unassisted. It is currently estimated that 1.5 million people are living with HIV/AIDS which is a staggering number to cope with in a resource poor country. HIV/AIDS already accounts for about a third of all young adult (15-49 years)

deaths in Ethiopia and is expected to rise tremendously in the coming years (1).

HIV prevalence was low in the 1980s, but has rapidly increased since the early 1990s. In 1989 adult prevalence was 2.7%. This increased to 7.1% in 1997 and reached 7.3% by the year 2000. A marked difference was observed between urban and rural HIV/AIDS prevalence rates (12.6% urban versus 4.4% rural) in 2003 (3). There are many cultural factors that promote the spread of the disease. Known risk factors include the presence of sexually transmitted infections (STIs), multiple sexual partners, and harmful traditional practices such as female genital mutilation, blood letting, skin cutting, and piercing practices (4).

Recognizing the seriousness of the problem, the government of Ethiopia has established a national HIV/AIDS control program under the Ministry of Health to coordinate intervention activities includ-

ing the control programs undertaken by government, NGOs and other partners. Further, two medium term prevention and control plans were designed and implemented between 1987 and 1996. However, many of these intervention programs were said to have low impact with minimal involvement of the public at the community level. With the intention of strengthening already-initiated activities, the government's commitment towards fighting the epidemic was further expressed with the formulation of an HIV/AIDS policy in August 1998, and the establishment of a national HIV/AIDS prevention council in April 2000 (3, 5, 6).

The impact of the disease goes beyond public health concerns because it primarily affects the adult population in its productive and reproductive years and, in its endemic stage, undermines the social and economic structures of developing countries. Poverty, wars and inequalities aggravate the risk of spread of HIV/AIDS

while the epidemic itself further increases poverty and instability. Sustained efforts to reduce poverty and instability are needed to have lasting benefits where AIDS and health are concerned. Understanding and taking into account the underlying social and economic problems is therefore essential (4).

Efforts to curb the spread of the HIV/AIDS epidemic must be adapted and focused on individual behaviours and must also take into account social and structural factors as the basis of risk exposure. Interventions must be adapted to the different populations targeted: women, children, youth, and people in special risk environments such as truck drivers, military personnel, clients of commercial sex workers, commercial sex workers themselves, and migrant labourers (4).

Many people with HIV in Ethiopia do not know that they are infected. Up until now, only a small percentage of those with HIV/AIDS have had access to reliable volun-

tary counselling and testing services. As there is no cure for HIV/AIDS, voluntary HIV counselling and testing remains a key strategy to control the spread of HIV and to provide care and support to those who are positive (4).

In Ethiopia, HIV counselling began in the late 1980s with services expanding through the 1990s. In the early 1990s, several national level training programs were conducted for nurses and social workers from regional hospitals and from Addis Ababa (4).

Apart from a few fragmented studies conducted in specific areas there is a lack of sound information on the factors associated with acceptance of VCT in different professional and community groups. This study was therefore undertaken to systematically investigate and provide insight into the different factors involved in acceptance of VCT in a range of professional and community groups. Behavioural intention (intention to be tested for HIV) was taken as the

dependent variable. Socio-demographic variables, source of AIDS information, AIDS related knowledge and past sexual behaviours were taken as independent variables. The study also attempted to pinpoint gaps in identifying factors affecting acceptance of VCT as an important issue of provision of health services in relation to the HIV/AIDS problem.

II. Background and Significance

Voluntary HIV counselling and testing is the process by which an individual undergoes counselling enabling him or her to make an informed choice about being tested for HIV (4). This process is also aimed at helping them to cope with stress and to make personal decisions related to HIV/AIDS. HIV testing, for the person being tested, has far reaching consequences beyond that of the diagnosis. Although there are many benefits to knowing one's HIV status, in communities where HIV is perceived as a stigmatizing condition, there may also be negative consequences of testing. Consequently no one should be coerced into being tested but should agree voluntarily (7).

The HIV/AIDS policy was formulated by the Ministry of Health and adopted by the Council of Ministries in 1998. This created an enabling environment for HIV/AIDS prevention and control. The priority interventions implemented in this country include: information, edu-

cation and communication together with behaviour change communication (IEC/BCC); condom promotion and distribution; voluntary counselling and testing (VCT); management of sexual transmitted infections (STI); blood safety; universal precautions; prevention of mother to child transmission of HIV (PMTCT); care and support to the infected and affected, legislation and human rights; surveillance; and research (2, 4, 7).

In Ethiopia, the HIV counselling service began in late 1980's and is currently considered one of the priority intervention areas and included as one of the strategies of HIV/AIDS prevention. However, the Ethiopian Demographic and Health Survey (DHS) revealed that only 2% of men had been HIV tested, indicating that many people with the virus in the country do not know their sero-status (8, 13, 15 and 16).

Many studies have found that VCT is effective as a strategy for facilitating behavior change around pre-

venting HIV and early access to care and support, and it has also been shown to reduce the practice of unprotected sex and the incidence of HIV and other STIs (8, 9 and 10).

The 5th AIDS in Ethiopia report documents that 17.4% of young people reported risky sex with a commercial or non-commercial partner in the previous 12 months. Young males were engaged more in risky sex than young females (19.4% of males vs 16.1% of females, $p < 0.05$). Less than 4% of those reporting risky sex in the last year had accessed VCT services (1). Most (93.5%) young people did not consider themselves to be at risk of HIV infection. Few rural respondents were aware that an HIV infected pregnant woman could transmit the virus to her unborn child, and only 9.9% and 2.9% of pastoralists and farmers, respectively, knew that antiretroviral medication exists to reduce the risk of transmission (9.9% and 2.9%) (1).

Of 2487 female sex workers, the majority (81.9%) said they would be willing to undergo VCT if the service were made available to them. The majority (86.5%) of CSWs who perceived their risk as nil or low, said they always used condoms and 35% said sterile needles had been used when they had received injections (1).

Among adult respondents who reported that they had engaged in unprotected sex in the previous 12 months, only 27% perceived themselves to be at moderate or high risk of HIV infections. Very few youth (4.6%) reported ever having had an HIV test (1).

Of the 15,580 blood donors from different parts of Ethiopia in 2003, 4.7% (3.8% female and 5.0% male) were positive. Among 68,273 visa applicants, 3.6% were positive for HIV. Of the 26,355 VCT clients, 16.7% male and 19.5% female were positive for the virus. Of the 16,264 suspected AIDS, 58%

males and 42% female turned out to be sero-positive (2).

Voluntary counselling and testing is one of the many different strategies stipulated in policy and strategy documents for prevention and control activities at national level (5; 6). The role VCT can play in HIV/AIDS prevention and control is multifaceted, thus VCT can be considered as an entry point to prevention, and to medical care, for preventing mother to child transmission of HIV infection (PMCTC) interventions, and for ongoing emotional and spiritual care and social support (17). Hence, the need for expansion of VCT services and for stimulating its utilization is outlined as a priority intervention area, through creating greater personal awareness and care (5).

VCT presupposes: the right to know one's HIV status; a link with further and ongoing information, supportive counselling, treatment, care and support systems; and efforts to raise public awareness

about HIV/AIDS and reduce stigma and discrimination. Critical to the provision of VCT services are the principles of voluntary attendance, informed consent and confidentiality, and of high quality, reliable and affordable counselling services. Currently, there are a lot of factors that affect the acceptance of VCT in different community groups despite the presence of the above-mentioned enabling factors (4).

While confidentiality is a necessary element of a quality VCT service, in some cultural contexts, overstressing the confidential aspects of HIV/AIDS has fed into increased stigma, discrimination and fear. In parts of sub-Saharan Africa the concept of "shared confidentiality" is more current than strict confidentiality, in line with traditional patterns of family communication, interaction and decision-making (10, 11).

Although there are important benefits to knowing one's HIV status, HIV infection is stigmatizing in

many communities and this can lead to negative outcomes for people following testing. Stigma may actively prevent people from accessing care, gaining support, and preventing onward transmission. Many people are afraid to seek HIV services because they fear stigma and discrimination from their families and communities (17).

In designing VCT services, cultural perspectives need to be taken into account. A few studies have revealed that when counseling is not of high quality, or in the absence of a supportive environment and back up services, VCT has led to negative client outcomes. Without support, some HIV positive clients become so distressed or angry that they increase sexual risk behavior or suffer depression and anxiety. Also common are experiences of stigma, discrimination, violence and rejection by partners, families or communities (18). Women, especially, often fear and experience violence and rejection from their partners or

husbands, making many women reluctant to share their HIV results. Post-test and HIV/AIDS support clubs can play a valuable role in motivating safer sexual behavior in both HIV-negative and positive clients, as well as providing other needed support (12). Although VCT is becoming increasingly available in developing countries, there is still great reluctance for many people to be tested. There are several possible contributing factors that must be addressed if VCT is to have an important role in HIV prevention and care.

In some countries, people with HIV are subject to discrimination at work or school. Unless legislation is in place to prevent this, some people will be reluctant to undergo VCT (17). Even in areas where VCT services are available, uptake of services is often poor. A common barrier for VCT is the lack of perceived benefit (19). If VCT is linked with medical care, and effort is made to improve medical services for people with

HIV, this will help to reduce this barrier to testing. Offering interventions to prevent MCTC (mother to child transmission) can also be recognized as a major benefit of VCT (17).

From studies in Ethiopia, lack of perception of being at risk, no consideration for VCT, being afraid of a positive result and fear of stigma were some of the reasons for not having pre-marital VCT, while having secondary and above education, being female, and being Christian were associated with willingness to take VCT (13, 15, 16, 20, 21, 22 and 23). However there are few studies in north western Ethiopia where the present study was conducted. Identifying factors playing a detrimental role in acceptance of voluntary counselling and testing ser-

vices helps in removing barriers to the service. Examining and understanding factors associated with VCT acceptance is vital to facilitate HIV prevention efforts. These determinant factors are expected to differ from community to community. Identifying factors affecting acceptance of VCT will help promote these services. Designing VCT services tailored to the different needs of various community groups should be based on empirical findings of the specific area. This study was designed to identify factors affecting VCT acceptance among a range of community and professional groups in North and South Gondar. The finding of this study will help VCT program designers to tackle different contextual factors that might potentially hinder these services.

III.Objectives

General Objective

To identify factors affecting acceptance of VCT

Specific objectives

- To assess knowledge towards VCT in a range of professional and community groups.
- To assess attitudes towards VCT in a range of professional and community groups.
- To identify factors associated with VCT acceptance in a range of professional and community groups

IV. Methods

1. Study area and period

The study was conducted in North and South Gondar administrative zones, north western Ethiopia, from October – December, 2004. North Gondar is situated 745 km north of Addis Ababa. It has a total population of 2,536,548, of which 51% males and 49% females with an area of 48,204.4 km square and population density of 52.6 per km². It has 18 *woredas* in its administrative zone. South Gondar is located 650 km north of Addis Ababa. It has a total population of 2,131,589 people; the ratio of males to females is the same as for North Gondar. It has

an area of 14,337.52 km square, a population density of 148.7 per km square and is made up of 10 *woredas*. The HIV prevalence in Amhara region is approximately 11%; with urban and rural prevalence around Gondar of 14% and 8%, respectively (1).

2. Study population

Eighteen different professional and community groups considered to represent the most important groups by the researchers were included in the study. All professional and community groups of the north and south Gondar were taken as a source population. The groups that were considered were: Professionals:

- Health professionals
- Teachers
- Industrial workers
- Military personnel, etc

Community groups:

- *Idir* members
- HIV club members
- Commercial sex workers
- Youth
- Women, etc

3. Study design

The study design is a community-based cross-sectional survey of a quantitative (descriptive) type. The measurement of the outcome variable (VCT acceptance) and exposure variables (socio-demography, attitude towards VCT, etc) was made at the same point in time.

4. Sample size determination

The sample size was determined using the single population proportion formula with the following assumptions:

Positive attitude towards VCT = 50% (to obtain the maximum sample size)

Degree of precision = 5%

Level of confidence = 95% ($z=$

1.96)

Non-response rate = 20%

$$N = \frac{Z_{\alpha/2}^2 P (1-P)}{d^2}$$

The calculated maximum sample size was 460.

5. Sampling technique

A non-probability purposive sampling technique was employed in the study. The study groups and subjects were selected to represent the most important professional and community groups in the two zones. Two out of ten *woredas* (administrative unit) of South Gondar zone and three out of eighteen *woredas* of North Gondar zone were included in the study. The five *woredas* were randomly selected from all *woredas* in the two zones. The professional and community groups were selected on the basis of their being present in the randomly selected *woredas*. A total of 18 different groups were selected, 6 from South Gondar and 12 North Gondar (see Annex I). A minimum of three and a maximum of six different professional and community groups were selected

in each locality/town based on the size and heterogeneity of the town. Each group had an average of 25 participants. When there were two or more groups of the same type in one *woreda*, then one was selected by simple random sampling (lottery). Included subjects were fifteen years or above.

6. Data collecting instrument

Structured questionnaires were used to collect data. The questionnaire was adapted from the Ethiopian BSS questionnaire, and contained questions related to socio-demographic characteristics, knowledge about HIV/AIDS and VCT, attitudes towards acceptance of VCT; cost of VCT; distance to health institution; stigma and discrimination; previous sexual behavior; perceived benefits of HIV testing; perceived barriers to HIV testing; perceived susceptibility to HIV/AIDS, perceived seriousness of HIV/AIDS, cues to action and normative beliefs (including significance of relevant others). Four qualified nurses were trained for two days

and participated in the pre-test and data collection. The pretest was conducted on 25 young people living in Gondar. Uncertainties and ambiguities that were found in the questionnaire were discussed. The questionnaire was corrected and standardized upon completion of the pretest. Data were collected through interviews conducted by the trained nurses. The data collectors interviewed the study subjects using a pre-tested and structured questionnaire. The principal investigators closely followed and supervised data collection day to day. Incomplete and inconsistent data were identified and necessary corrections were made in the field.

7. Data processing and analysis

Data were collected from November to December 2004 using the pre-tested structured questionnaire in the five selected *woredas*. Data entry, clearing and analysis was done using SPSS for Windows version 10.1 statistical program. For each variable, frequencies, odds ratios (OR), 95% CI and P-value at 5% were computed

to assess the process and degree of association between dependent and independent variables. The questions for behavioral variables were measured with a five-point measurement scale ranging from 1 (very certain/very likely/strongly agree) to 5 (very unlikely/strongly disagree). This scoring was subsequently reversed for negatively stated statements, so that the higher the score the stronger the positive construct (for example, intention to accept VCT). The sums of the score for the items were used as summary statistics to measure the specific construct for the specific behavior. Intention to accept VCT was taken as the dependent variable while the other variables (socio-demographic, source of AIDS information, AIDS related knowledge and past sexual behaviors) were taken to be independent variables. Binary logistic regression was used to control the effect of confounding factors. In performing the binary multiple logistic regression, the predictors were dichotomized in such a way that the top two fifths were compared with the lower three fifths,

where the upper two fifths indicated the presence of the exposure for the predictors while the lower three fifths indicated the absence of the predictor. In the logistic regression model all predictors with a p-value less than 0.25, and other important socio demographic variables were entered.

8. Data quality assurance

The questionnaire was structured and standardized. Training was conducted for data collectors. A pre-test was conducted on a community group who were not part of the study group. The principal investigators supervised and reviewed every questionnaire for completeness and logical consistency. Data coding and data entry were checked at the beginning and at the midway stage of the work. Data cleaning was conducted at the end of data entry.

9. Ethical considerations

Ethical clearance was obtained from the Research and Publications Office of the University of Gondar. An official letter of cooperation was written to the 18

groups in the five *woredas*, informed consent was obtained from participants and confidentiality was maintained.

V. Results

Background Information

A total of 440 people responded to the questionnaire from 460 proposed study participants (96% response rate). Eighty percent of the study groups were from urban areas and twenty percent from rural areas. The proportions of males and females were 65% and 35% respectively (Table 1). The mean (\pm SD) age of the study subjects was 27.79 (\pm 10.8) years with a median age of 25 years.

73% of respondents had been educated beyond grade 8, while 4.5% had no formal education. The majority (94%) of the study participants were orthodox Christians while the rest were protestant Christians and Muslims. 90% were of Amhara ethnicity, 5% Tigrie and 5% from the other ethnic groups (Table 1).

In terms of membership of professional or community group, 78% of respondents were from a professional group and 22% from a community group (Table 2). Sixty three percent of the study groups were from North Gondar and thirty seven percent were from South Gondar administrative zones.

Acceptance of VCT

283 (80.6%) urban residents and 78 (87.6%) rural residents were willing to have VCT (OR 0.59, 95% CI 0.28 to 1.21, $p = 0.12$). With regard to sex 229 (79.8%) males and 132 (86.3%) females were willing to accept VCT (OR 0.63, 95% CI 0.35 to 1.12, $p = 0.09$).

The highest level of VCT acceptance (91.2%) was seen among study subjects aged 15 to 19 years, while the lowest level was seen among those aged 40 years and above (72.2%) (Figure 1).

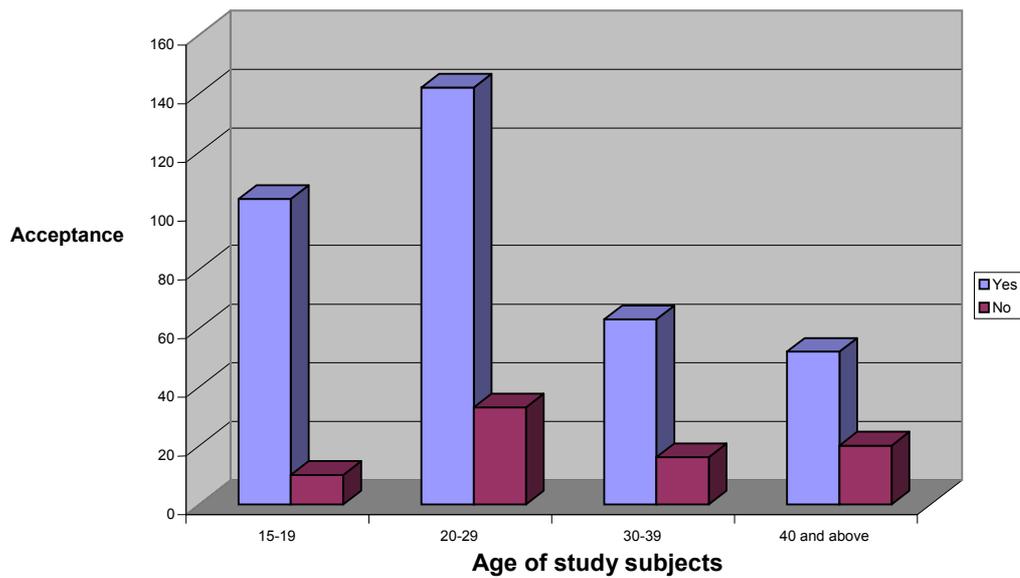
Table 1: Socio-demographic characteristics of respondents from North and South Gondar, November 2004.

Variables	Frequency (N=440)	Percent (%)
Place of residence		
Urban	351	79
Rural	89	21
Sex		
Male	287	65
Female	153	35
Age [Mean (+SD) = 27.79 (+10.8)]		
15-19	114	25.9
20-29	175	39.8
30-39	79	17.9
40 and above	72	16.4
Educational status		
No formal education	20	4.5
Grade 1-4	47	10.7
Grade 5-8	50	11.4
Grade 9-12	182	41.4
Grade 12 and above	141	32.0
Religion		
Orthodox	400	91.0
Muslim	29	6.6
Protestant	11	2.5
Woreda level		
Gondar town	138	31.4
Fogera	84	19.1
Debretabor	78	17.7
Chelga	76	17.3
Dabat	64	14.5
Ethnicity		
Amhara	396	90
Tigrie	22	5
Oromo	11	2.5
Others	11	2.5

Table 2: Distribution of respondents by professional or community group, North and South Gondar, November 2004.

Professional or community group	Frequency (N=440)	Percent (%)
Professional groups		
Commercial sex workers	26	5.9
Construction workers	24	5.5
Defense army	25	5.7
Heavy truck drivers	14	3.2
Large industry workers	18	4.1
Farmers	20	4.5
Hospital health staff	25	5.7
High school students	28	6.4
BSc. Nurse students	26	5.9
Military police	30	6.8
Teacher training students	26	5.9
High school teachers	26	5.9
<i>Woreda</i> pool workers	30	6.8
HIV club members	27	6.1
Community groups		
<i>Idir</i> members	21	4.8
Prisoners	25	5.7
Women's association members	26	5.9
Young people	23	5.2
Total	440	100

Figure 1. Age distribution and VCT acceptance in North and South Gondar, November 2004.



Those aged 15-19 years were four times more willing to have VCT (OR 4.00, 95% CI 1.63 to 9.96, $p < 0.01$). This remained significant after controlling for socio-demographic variables (OR 4.99, 95% CI 1.80 to 13.84, $p < 0.01$). The association between acceptance of VCT and education level was not statistically significant. Health professionals and high

school teachers were found to be less likely to accept VCT than young people (ORs 0.12, 95% CI 0.02 to 0.73, $p < 0.01$ and 0.06, 95% CI 0.05 to 0.36, $p < 0.001$, respectively) (Table 3).

Table 3: Acceptance of VCT vs socio-demographic variables North and South Gondar, November 2004.

Variables	Acceptance of VCT			
	Yes	No	Unadjusted OR (95% CI)	Adjusted OR (95 %CI)
Residence				
Urban	283	68	0.59 (0.28, 1.21)	1.04 (0.44, 2.48)
Rural	78	11	1	1
Sex				
Male	229	58	0.63 (0.35, 1.12)	1.01 (0.52, 1.95)
Female	132	21	1	1
Age				
15-19	104	10	4.00 (1.63, 9.96)	4.99 (1.80, 13.84)
20-29	142	33	1.16 (0.83, 3.29)	1.42 (0.65, 3.12)
30-39	63	16	1.51 (0.67, 3.44)	1.41 (0.58, 3.41)
40 and above	52	20	1	1
Educational status				
No formal	19	1	1	
Grade 1-4	41	6	0.36 (0.02, 3.44)	0.13 (0.01, 1.44)
Grade 5-8	42	8	0.28 (0.01, 2.49)	0.09 (0.02, 0.46)
Grade 9-12	154	28	0.29 (0.01,2.19)	0.33 (0.11, 0.98)
>Grade 12	105	36	0.15 (0.01, 1.15)	0.51 (0.25, 1.00)
Religion				
Orthodox	333	67	2.62 (1.08, 6.25)	4.04 (1.63, 9.99)
Protestant	9	2	2.37 (0.36, 14.54)	1.92 (0.29, 12.64)
Muslim	19	10	1	1

Table 3 (cont): Acceptance of VCT vs socio-demographic variables North and South Gondar, November 2004.

Professional & community groups	Acceptance of VCT		
	Yes	No	Unadjusted OR (95% CI)
Commercial sex workers	24	2	1.14 (0.10, 12.79)
Construction workers	22	2	0.44 (0.01, 6.98)
Defense army	18	7	0.10 (0.00, 0.98)
Heavy truck drivers	11	3	0.35 (0.03, 3.18)
Large industry workers	13	5	0.25 (0.03, 1.83)
Farmers	17	3	0.54 (0.05, 4.65)
Hospital health staff	14	11	0.12 (0.02, 0.73)
High school students	25	3	0.79 (0.08, 6.71)
HIV club members	24	3	0.76 (0.08, 3.08)
<i>Idir</i> members	17	4	0.40 (0.04, 3.08)
BSc. Nurse students	24	2	1.14 (0.10, 12.79)
Military police	23	7	0.31 (0.04, 1.96)
Prisoners	24	1	2.29 (0.14, 68.94)
<i>Woreda</i> pool workers	24	6	0.38 (0.05, 2.47)
Teacher training students	25	1	2.38 (0.15, 71.78)
High school teachers	10	16	0.06 (0.05, 0.36)
Women's association members	25	1	2.38 (0.15, 71.78)
Young people	21	2	1

Knowledge of HIV/AIDS

248 (56.4%) respondents knew people living with HIV/AIDS, while 229 (52.1%) knew someone who had died of HIV/AIDS. Eighty two percent were willing to have VCT (Table 4).

Respondents were asked if knowing one's serostatus could result in being stigmatised and thus affect VCT acceptance. Twenty eight percent of the respondents believed that knowing one's HIV status brought stigma while seventy two percent did not (Figure 2). Subjects who said that disclosing one's status brought stigma were less likely to accept VCT than those who did not believe this (OR 0.40, 95% CI 0.23 to 0.69, $p < 0.001$) (Table 4).

Thirty three percent of the respondents believed that if someone decided to have VCT, they would not have community support. Of these, 111 (25.2%) were willing to accept VCT compared to 57% of those who believed community support would be

forthcoming (OR 0.53, 95% CI 0.31 to 0.90, $p < 0.01$). Eighty two percent of the study subjects said they would become closer to a friend who tested positive. 369 (83.8%) of the respondents were willing to be tested if ART were available. Respondents were seven times more likely to undergo VCT if ART were available than if it were not (OR 7.18, 95% CI 3.95 to 13.10, $p < 0.001$). After controlling for the confounding effect of socio-demographic variables, the availability of ART remained a significant predictor for VCT acceptance (OR 4.46, 95% CI 2.24 to 8.87, $p < 0.001$) (Table 4).

277 (62%) respondents were willing to tell close friends about their sero-status if turned out to be positive. Among those willing to disclose a positive result to a close friend, 240 (86%) were willing to accept VCT, compared to 74% of those not willing to disclose a positive result. Bivariate analysis showed a statistically significant association (OR 2.25,

Table 4. Acceptance of VCT vs knowledge, attitude and practice variables in north and south Gondar, November 2004.

Variables	Acceptance of VCT			
	Yes	No	OR (95% CI)	Age Adjusted OR (95% CI)
Knows people living with HIV				
Yes	199	49	0.75 (0.44, 1.27)	
No*	162	30	1	1
Knows people who died of HIV				
Yes	189	40	1.07 (0.64, 1.74)	
No	172	39	1	1
Knowing HIV status brings stigma				
Yes	87	35	0.40 (0.23, 0.69)	1.53 (0.63, 3.74)
No	274	44	1	1
If I decide to have VCT, I will not have community support				
Yes	111	36	0.53 (0.31, 0.90)	0.42 (0.18, 0.96)
No	250	43	1	1
If my friend turns out to be HIV positive, I would slowly withdraw				
Yes	61	17	0.74 (0.39, 1.42)	
No	300	62	1	1
If my friend turns out to be HIV positive, I would become closer				
Yes	293	67	0.77 (0.37, 1.57)	
No	68	12	1	1

Table 4, cont.

If ART were available, I would be willing to be tested				
Yes	325	44	7.18 (3.95, 13.10)	4.46 (2.24, 8.87)
No	36	35	1	1
If a drug were available to reduce mother-to-child transmission, pregnant women would be willing to be tested				
Yes	324	53	4.30 (2.31, 7.98)	1.55 (0.74, 3.26)
No	37	26	1	1
VCT is important before becoming pregnant				
Yes	353	74	2.98 (0.82, 10.41)	
No	8	5	1	1
If I were HIV Positive, I would tell a close friend				
Yes	240	37	2.25 (1.34, 3.80)	0.64 (0.28, 1.44)
No	121	42	1	1
I would be willing to pay for VCT				
Yes	279	47	2.32 (1.34, 3.99)	0.62 (0.34, 1.14)
No	82	32	1	1
I am willing to let my partner have VCT				
Yes	347	71	2.79 (1.03, 7.44)	1.34 (0.42, 4.29)
No	14	8	1	1

95% CI 1.34 to 3.80, $p < 0.001$). Thus, respondents willing to disclose a positive result were more than two times more likely to accept VCT than those not willing.

The attitude of study subjects towards close friends who were HIV positive was not significantly associated with VCT acceptance (OR 0.74, 95% CI 0.39 to 1.42, $p = 0.32$). 377 (85.7%) respondents said if a drug were available to reduce mother-to-child transmission, pregnant women would be willing to be tested.

418 (95%) respondents were willing to let their partner use VCT services. Those willing to let a partner use VCT were more likely to accept VCT themselves (OR 2.79, 95% CI 1.03 to 7.44, $p < 0.05$) (Table 4).

Ninety percent of the respondents knew about HIV transmission and prevention. Among those with correct knowledge on HIV/AIDS, 82.8% were willing to accept VCT, compared to only 75.5% of those with incorrect knowledge (OR 1.56, 95% CI 0.70 to 3.38, $p < 0.23$).

Figure 2. Distribution by whether knowing HIV brings stigma, North and South Gondar, November 2004.

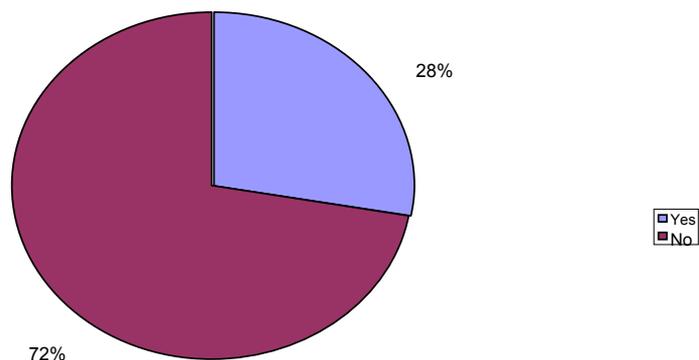
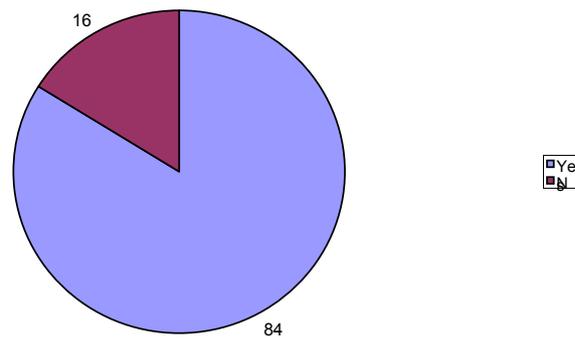


Figure 3. Distribution by willingness to be tested for HIV if ART were available, North and South Gondar, November 2004.



Of those who knew of the benefits of HIV testing, 83.5% were willing to accept VCT, compared to only 73.4% of those who did not know the benefits (OR 1.83, 95% CI 0.94 to 3.54, $p < 0.06$). Among those who perceived barriers to HIV testing, 81.3% were willing to accept VCT, compared to 82.4% of those who did not (OR 0.92, 95% CI 0.54 to 1.60, $p = 0.76$) (Table 5).

Of those who thought themselves susceptible to HIV, 80.3% were willing to accept VCT, compared to 83.6% of those who did not (OR 0.80, 95% CI 0.48 to 1.34, $p = 0.36$). 82.4% of those who

considered HIV to be serious were willing to accept VCT, compared to 79.6% who did not. Among those who said that their acceptance of VCT would be influenced by significant others (religious leaders, community leaders, sexual partner, parents and friends) 88.4% were willing to accept VCT, compared to 63.7% of those not influenced by others (OR 4.33, 95% CI 2.52 to 7.46, $p\text{-value} < 0.001$). After adjustment, the role of significant others in affecting VCT acceptance remained significant (OR 4.48, 95% CI 2.62 to 7.66, $p < 0.001$) (Table 5).

Table 5. Acceptance of VCT vs knowledge and attitudes in North and South Gondar, November 2004.

Variables	Acceptance of VCT			
	Yes	No	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Knowledge of HIV				
Yes	327	68	1.56 (0.70, 3.38)	1.57 (0.69, 3.39)
No	34	11	1	1
Benefit of VCT				
Yes	314	62	1.83 (0.94, 3.54)	1.48 (0.73, 3.01)
No	47	17	1	1
Barrier to VCT				
Yes	117	27	0.92 (0.54, 1.60)	0.95 (0.55, 1.63)
No	244	52	1	1
Susceptibility to HIV				
Yes	167	41	0.80 (0.48, 1.34)	0.84 (0.50, 1.41)
No	194	38	1	1
Seriousness of HIV				
Yes	322	69	1.20 (0.53, 2.64)	0.62 (0.27, 1.42)
No	39	10	1	1
Influence of significant others				
Yes	289	38	4.33 (2.52, 7.46)	4.48 (2.62, 7.66)
No	72	41	1	1

VI. Discussion

This study tried to look into important factors affecting the willingness to accept VCT in a range of professional and community groups in the Gondar area. Voluntary counselling and testing is one of the nationally adopted HIV/AIDS prevention approaches. There was no significant difference in reported willingness to accept VCT between the urban and rural population in this study. As this study focused mainly on urban areas, the rural population is under-represented, which may have resulted in lack of power to identify any urban–rural differential in this particular study.

This study showed that those aged 15-19 years were the most receptive to VCT services. This age group is the group most affected by HIV/AIDS in Ethiopia with the highest incidence of HIV infection (1). Targeting this age group for the VCT service would greatly reduce the risk of HIV/AIDS which is evidenced in this group. The national VCT policy of

Ethiopia considers the minimum age for giving consent for VCT to be 18 years (3). The most vulnerable group to HIV, which is the age group between 15-19 years, is the most receptive group of VCT, hence efforts should be made to extend the service to them. Their receptivity may be due to better access to information through public gatherings, organizations, clubs and other types of institutional media. This finding is in accord with other studies done in other places in Ethiopia (11, 12, 14 and 15). Reconsideration of the minimum age for giving consent for VCT might enable expansion of the service to this vulnerable group.

In this study, educational status was not significantly associated with VCT acceptance. This finding differs from the findings of other studies (5, 10). The reason for this lack of association might be the relatively low prevalence of people of low educational status in this study group.

Health professionals and high school teachers were less willing to accept VCT than other groups included in the study. As people's knowledge increases about the serious health and social consequences of HIV, it may be that they are more likely to decline VCT. Several studies have shown that knowledge does not necessarily bring about changes in attitudes or practices.

Stigma in society is one of the factors identified as affecting VCT acceptance. Society's negative reaction to a specific disease may create a feeling of fear and unacceptability in an individual found to have the disease. This would in turn affect whether an individual wished to know or disclose their status. Community interventions addressing stigma would help in removing impediments to knowing and disclosing HIV/AIDS sero-status.

This study identified availabil-

ity of ART as a positive predictor of reported willingness to accept VCT. The provision of ART has a significant effect in prolonging life which impacts the community in creating positive attitude and acceptance towards the service. Making ART available would increase willingness to accept VCT by all community groups.

The study demonstrated the importance of religious leaders, partners, friends and families as reinforcing factors in favour of VCT. Normative belief focuses on what an individual believes other people, especially influential people, would expect him or her to do. Perception of social or peer norms concerning the acceptability of VCT is an important determinant of VCT acceptance (16).

The proportion of study subjects who are willing to pay for VCT services is a good indication of the potential for service expansion. Expanding the VCT

service at a commensurate cost would help to increase service accessibility without jeopardizing VCT acceptance.

In summary, the most important factors identified in this study for influencing willingness to accept VCT were: being in the age group 15-19 years, availability of ART, the influence of significant others (religious leaders, partners, friends, and teachers), stigma associated with testing and presence

or absence of community support.

Therefore the work of promotion should continue not by considering VCT as an end in itself, but as part of a continuum of services and support. These services range from advocacy and community mobilization to reducing stigma, behaviour change strategies, and psychological support.

VII. Limitations

- The sampling method used was non-probability purposive sampling which may affect the representativeness of the study.
- The main outcome measure was intention to accept VCT. This is only reported willingness and is not a hard outcome.
- Due to limited resources, the study considered a range of professional and community groups in the two administrative zones which may not represent the selected group.
- The study was mainly focused on urban area, and the rural population was underrepresented.

VIII. Conclusions

- Those aged 15-19 years were found to be the most receptive to VCT. However, the current minimum age of consent for VCT is 18 years.
- An individual's decision to accept VCT was found to be influenced by significant others like religious leaders, friends, and partners.
- Health professionals and high school teachers were found to be less willing to accept VCT than other professional groups included in the study.
- Fear of stigma was found to negatively affect an individual's wish to know or disclose their sero-status. Lack of community support was also found to determine an individual's willingness to undergo VCT.
- VCT acceptance was strongly positively associated with availability of ART.

IX. Recommendations

- Involving closely related or influential individuals is an important method of enhancing social acceptance of voluntary counselling.
- The most vulnerable group to HIV (those aged 15-19 years) is the group most receptive to VCT, thus efforts should be made to extend the service to them.
- The lower age limit for giving VCT consent needs to be revised by policy makers
- Efforts should be made to increase awareness and receptiveness to VCT among health workers and educated people.
- Making ART available would increase VCT acceptance by all professional groups.
- Efforts targeted at reducing stigma by all professional groups need to be addressed in order to deliver reliable and sustainable VCT related services.

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XI. Annexes

Annex 1: List of the professional and community groups.

No.	Status of the professional groups	Specific localities/ Woreda
1	Teachers (high school)	Debretabor
2	Health workers (Hospital)	Debretabor
3	HIV/AIDS club members	Debretabor
4	<i>Woreda</i> pool workers	Fogera
5	Commercial sex workers	Fogera
6	Students (high school)	Fogera
7	Prisoners	Chilga
8	Defence army	Chilga
9	Women's association	Chilga
10	<i>Idir</i>	Dabat
11	Young people	Dabat
12	Farmers	Dabat
13	Factory workers	Gondar town
14	College students (Health sciences)	Gondar town
15	College students (Teacher training)	Gondar town
16	Drivers	Gondar town
17	Military police	Gondar town
18	Construction workers	Gondar town

Annex 2: Data transformation schedule

Part One is socio-demographic data (Part1: 1-9)

The scoring for Part Three were transformed from 5 to 1 for positive statements and subsequently reversed for negative statements.

Scoring of constructs

- General HIV/AIDS:
 - o Knowledge= S (2.1: 2.15)
 - o Perceived susceptibility = S (2.20,2.23: 2.24,2.26)
 - o Perceived severity= S(2.25,2.27)
 - o Attitude = (3.3:3.10)
 - o Voluntary Counselling and Testing
 - o Perceived benefit = S (2.16: 2.18)
 - o Perceived barrier = S(2.19, 2.21, 2.22)
 - o Normative Belief = S(2.28, 2.31)
 - o Cues to action= (3.1 and 3.2)
 - o Intention = 3.11
- Other factors (3.12:3.20)

Annex 3: Questionnaire

Part I - Socio-demography Questions

S.No	Questions	Code
1	Study area	Zone _____ Woreda _____
2	Type of group (Occupation)	
3	Code Number	
4	Sex	Male----- 1 Female-----2
5	Age	_____ Years
6	Education	Grade 1-4-----1 Grade 5-8-----2 Grade 9-12----- 3 Grade 12 and above 4
7	Ethnicity	Amhara-----1 Tigre-----2 Oromo-----3 If others specify-----4
8	Religion	Orthodox-----1 Protestant-----2 Catholic-----3 Muslim-----4
9	Permanent residence	Urban-----1 Rural-----2

Part II -Knowledge on HIV/AIDS

2.1	Nowadays HIV/AIDS has a treatment					
2.2	There is a vaccine which prevents HIV/AIDS					
2.3	People with multiple partners are at high risk of getting HIV					
2.4	Contaminated needles may transmit HIV/AIDS					
2.5	Mosquitoes that suck the blood of HIV/AIDS patient may transmit the virus					
2.6	Faithfulness may prevent the risk of HIV transmission					
2.7	Abstinence may prevent the risk of HIV transmission.					
2.8	Not having multiple sexual partners may prevent risk of HIV transmission					
2.9	Using a condom during sexual intercourse may prevent HIV infection					
2.10	The most common way of transmission of HIV is through sexual intercourse					
2.11	Using condoms consistently and appropriately during every sexual act may prevent from HIV					
2.12	A healthy person can get infected by eating together with PLWHA					
2.13	A person looking healthy can have HIV					
2.14	If you tested negative, there is no need of testing in the future apart from protecting oneself from HIV.					

Part II cont.

2.15	One has to plan for HIV test if one has a specific reason for testing					
2.16	Voluntary counselling and testing can reduce unsafe sex	Perceived benefit				
2.17	VCT reduces stigma and discrimination					
2.18	VCT is helpful in planning for one's future.					
2.19	If you decide to be tested for HIV the cost would matter a lot	Perceived barrier				
2.20	If I have a test for HIV, I fear I would be positive					
2.21	If I have a test for HIV, I fear breach of confidentiality					
2.22	If you decide to be tested for HIV the distance to the VCT centre would matter a lot					
2.23	With my current sexual behaviour, my chance of acquiring HIV is high	Perceived susceptibility				
2.24	If I do not use condoms during sexual intercourse, I would be at risk of HIV					
2.25	HIV/AIDS is a killer disease	Perceived seriousness				
2.26	If I do have multiple sexual partners, I may be at risk of HIV					
2.27	I prefer to have other diseases than HIV/AIDS					
2.28	Do you think your partner/lover would approve of you testing for HIV?	Significant of others				
2.29	Do you think your parents would approve of you testing for HIV?					
2.30	Do you think your religious leader would approve of you testing for HIV?					
2.31	Do you think your peers would approve of you testing for HIV?					

Part III Questions on behaviour related to HIV/AIDS

3.1	Do you know any person living with HIV/AIDS?	Yes1 No.....2 I don't know.....3
3.2	Do you know people who are relatives or friends who died of HIV/AIDS?	Yes1 No.....2 I don't know.....3
3.3	If a person accepts VCT, would he/she be respected by the community?	Yes1 No.....2 I don't know.....3
3.4	Does VCT expose people to stigma and discrimination?	Yes1 No.....2 I don't know.....3
3.5	If you plan to accept VCT, do you think that you will not be accepted and supported by the community?	Yes1 No.....2 I don't know.....3
3.6	If your friend turns out to be HIV positive, would you slowly withdraw?	Yes1 No.....2 I don't know.....3
3.7	If your friend turns out to be HIV positive, would you become closer?	Yes1 No.....2 I don't know.....3
3.8	Do you believe that your acceptance of VCT might result in a negative community reaction?	Yes1 No.....2 I don't know.....3
3.9	Do you believe that your acceptance of VCT would make the community have a positive view of you?	Yes1 No.....2 I don't know.....3
3.10	If there were a VCT centre nearby, would you be willing to be tested?	Yes1 No.....2 I don't know.....3
3.11	If you are not willing to be tested, what are your reasons? You can answer more than one	Community stigma .1 Worry of being HIV positive....2 ART not available.....3 ART unaffordable...4 Lack of confidentiality.....5
3.12	If ART were available at a reasonable price, would you be willing to be tested?	Yes1 No.....2

Part III cont.

3.13	If a drug were available to reduce mother-to-child transmission, would pregnant women be willing to be tested?	Yes1 No.....2
3.14	Do you think that VCT is important before becoming pregnant?	Yes1 No.....2
3.15	A person would not necessarily accept VCT, unless she/he is planning marriage or to go abroad.	Yes1 No.....2 I don't know.....3
3.16	All people should accept VCT.	Yes1 No.....2
3.17	Do you prefer that VCT services are offered by.....	Gov. Health institutions. Why.....1 Private health institution Why.....2 NGO,why.....3 Youth club,why.....4 Government offices, why.....5 Others, specify.....6
3.18	If you have started sexual intercourse, how frequently do you use condoms during sexual intercourse?	Always.....1 Most of the time.....2 Sometimes.....3 Never used4
3.19	What would you feel if you tested negative?	Very happy....1 Happy.....2 Nothing.....3
3.20	What would you feel if you tested positive?	Very sorry....1 sorry.....2 Nothing.....3
3.21	If your test result were positive, would you tell the result to your close friends?	Yes1 No.....2 I don't know.....3
3.22	When do think that one ought to check for HIV?	Very sorry....1 sorry.....2 Nothing.....3
3.23	If VCT services were provided freely, would you be willing to use the services?	Yes.....1 No.....2
3.24	If you were supposed to pay, would you be willing to pay?	Yes.....1 No.....2

Part III cont

3.25	If you were supposed to pay, how much would you suggest?	1-5 Birr.....1 6-10 Birr....2 11-20 Birr....3 21-50 Birr.....4 51-100 Birr.....5 100Birr and above....6
3.26	Why do you think VCT services are important?	To know my HIV status...1 To take care of myself...2 To control myself.....3 Others, specify.....4
3.27	Would you be willing to let your partner/lover accept VCT (if he/she decided to do so)?	Yes1 No.....2
3.28	If Q.3.28 is “yes”, what is/are your reasons?	To know their HIV status.1 To plan for marriage....2
3.29	Whom do you think VCT services are primarily important for?	Everybody...1 Commercial sex workers2 Drivers.....3 Students...4 Pregnant women...5 All adults...6 Children..7 Couples before marriage..8 Young people..9 People with multiple partners..10 Others
3.30	If someone knows he or she is HIV positive, what should he/she do?	Stop sexual intercourse.....1 Prevent pregnancy...2 Plan for marriage.....3 Divorce.....4 Use a condom.....5 Seek medical help.....6 Commit suicide.....7 Tell others about his/her status.8 Teach others.....9 Take care of him/herself..10 Be religious.....11 Others, specify.....12
3.31	If someone knows he or she is HIV negative, what should he/she do?	Take care of him/herself..1 Use a condom.....2 Plan for marriage.....3 Stop sexual intercourse...4 Avoid HIV risk factors.....5

Part III cont

3.32	If you knew that you were HIV positive, what would you plan to do?	Stop sexual intercourse.....1 Prevent pregnancy.....2 Plan for marriage.....3 Divorce.....4 Use a condom.....5 Seek medical help.....6 Commit suicide.....7 Tell others about your status8 Teach others.....9 Take care of yourself...10 Be religious.....11 Others, specify.....12
3.33	If your partner/lover were HIV positive, what would you plan to do?	Stop sexual intercourse.....1 Prevent pregnancy.....2 Decide not to marry.....3 Should divorce.....4 Use a condom.....5 Seek medical help.....6 Plan a blood test.....7 Care for my partner..8 Stop any relationship with my partner...9 Others, specify..10

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