

# Perception of High School Students towards Voluntary HIV Counseling and Testing, using Health Belief Model in Butajira, SNNPR

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## Abstract

**Background:** Voluntary counseling and testing (VCT) for HIV is one of the strategies for HIV/AIDS prevention, and yet, there is very little information on what influences the services in Ethiopia.

**Objective:** To assess the perception and attitude of students towards VCT services using the Health Belief Model.

**Methods:** A cross sectional descriptive study was conducted in January 2006, among Butajira senior secondary school students where a multi stage sampling method was used.

**Results:** About ninety seven percent of the students had heard about VCT services but less than one fifth of them had undergone VCT. Eighty two percent of the students were willing to undergo VCT. It was shown that willingness to VCT was significantly associated with perceived susceptibility [AOR=0.37(0.28, 0.89)], perceived barrier [AOR= 0.45 (0.23, 0.89)] and perceived benefit [AOR=1.79 (1.44, 2.49)].

**Conclusions:** The majority of students had heard about VCT and revealed willingness to undergo VCT. High perceived susceptibility and barriers were associated with low willingness to undergo VCT. On the other hand, students with high perceived benefits showed better willingness to undergo VCT. It is recommended that messages on VCT give emphasis on personal susceptibility to HIV/AIDS and benefits of VCT. [*Ethiop. J. Health Dev.* 2009;23(2):148-153]

## Introduction

Ethiopia is one of the sub Saharan countries highly affected by HIV/AIDS pandemic. According to the 2007 Ministry of Health report, the adult prevalence of HIV infection in Ethiopia was estimated at 2.1% where most of the burden occurring among the young age group (1).

World Health Organization's (WHO) interventions for prevention focused on key areas such as counseling and testing as the entry point to treatment, prevention and comprehensive programs to prevent HIV/AIDS infection among infants, women and young people. Recent studies indicate that overall coverage of counseling and testing (VCT) is extremely poor in countries with highest HIV/AIDS burden. Only 5% of people with HIV/AIDS are estimated to be aware of their status world wide (2). Access to VCT is key for successfully implementing anti-retroviral treatment and avoiding re-infection and transmission through behavioral changes. However, VCT is not available in most regions of Africa (3, 4). There are a few studies describing barriers to HIV testing in sub Saharan Africa including Ethiopia (5). The second round Behavioral Surveillance Survey in Ethiopia indicated that only less than half (41%) of the in-school-youth were aware of the existence of confidential HIV testing in their vicinity and the proportion of youth that had VCT was below 10%. In the same report nearly half of the youth perceived themselves at low or no risk in spite of engagement in multiple sexual partnerships (6). This study was conducted to assess the perception and attitude of students towards VCT services using the Health Belief Model (HBM). The HBM was originally developed in USA by social psychologists in the 1950s. The purpose

was to systematically explain and predict preventive health behaviors with special focus on the relationship between health behaviors and practices and utilization of health services. The HBM was used in tuberculosis programs, cervical cancer screening, seatbelt use, and family planning programs. In its later development it included the reaction of people to disease symptoms, diagnosis and also adherence to treatment (7). It is believed that people will take action either to prevent, screen for, or to control ill-health conditions if they consider themselves as *susceptible* to the condition and believe that the condition would lead to potential *serious consequences (severity)*, if they believe that a course of action available to them would be *beneficial* in reducing either susceptibility for the condition, and if they believe that the anticipated *barrier* to (or cost of) taking action are outweighed by its benefits (7). In this study we used the theoretical variables of the HBM which are perceived susceptibility, perceived severity, perceived benefit, perceived barrier and self-efficacy.

## Methods

**Study:** A descriptive cross sectional study was conducted in January 2006 in order to assess knowledge and level of perception towards VCT among high school students.

**Study area:** The study was conducted in Butajira town, which is found in Southern Nations and Nationalities and Peoples Region, Gurage Zone which is located 130 km away from Addis Ababa, Ethiopia. Butajira was selected because of its logistical advantages and the existing Butajira Rural Health Program that funded the study and provided project facilities.

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**Sample size:** The sample size was determined using single population proportion formula. It was estimated considering 85.4% demand rate for VCT which is based on a study conducted in Harar, marginal error of 4% and 95% confidence interval. The required sample size was 306. To eliminate the design effect the sample size was doubled and 15% non-response rate was added as the study contained some sensitive issues on sexual behavior that may not be responded by students. Thus the sample size was 658.

**Sampling Procedure:** a two-stage sampling method was used to select study participants from the high school. The school consisted of grades 9, 10, 10+1, and 10+2 and there were sections in each grade labeled as A, B, C, D, and E. The number of study subjects from each grade was allocated proportionally to the size of the respective classes. Then sections to be included in each grade were selected based on simple random sampling method. Students from the selected sections were chosen using systematic random sampling method. The selected students were assembled in a room and then were provided with self-administered questionnaire that was filled out in the same room.

**Data Collection instruments and management:** Data were collected using self-administrated questionnaire. The questionnaire was prepared first in English and then translated into Amharic by a third person and then back translated for the sake of consistency. The Amharic version questionnaire was pre-tested for clarity, acceptability and flow among subjects not included in the study. The questionnaires reflected the variables in the HBM. Most of the questions in HBM are available in questionnaires for Behavioral Surveillance Surveys on HIV as well as in the application of the model in HIV studies.

**Data entry and analysis:** The questionnaires were checked for completeness by the investigator. The data were analyzed using SPSS software. We used descriptive statistical analysis to depict associations between the dependent and independent variables of the HBM where the relationships of the theoretical variables (perceived susceptibility, perceived severity, perceived benefit, perceived barrier and self-efficacy) in HBM were examined against willingness to VCT (dependent variable). Then logistic regression was applied to control for confounders.

The following definitions were use for the analysis and interpretation.

**Perception about HIV/AIDS and VCT:** In building the composite variables for measuring independent variables of the HBM, responses to groups of items were aggregated and the mean scores were calculated for five independent variables of the HBM i.e. perceived susceptibility, perceived severity, perceived benefit,

perceived barrier and self-efficacy. In each question response options were arranged on a five point Likert scales ranging from strongly agree to strongly disagree which later on were categorized into numerical scores for the analysis.

**Perceived susceptibility:** Responses to four items related to susceptibility of the respondents to HIV/AIDS were aggregated and the mean score was calculated. Those who scored below the mean value were categorized as having low perception of personal susceptibility of getting HIV/AIDS.

**Perceived severity:** Three items were included to measure perceived severity and the mean score for perceived severity was calculated. Those respondents who scored below the mean score were categorized as having low perception towards the severity of HIV/AIDS.

**Perceived benefit:** Five items were included to measure perceived benefits of VCT and the mean score for perceived severity was calculated. Those respondents who scored below the mean score were categorized as having low perception of the benefits of VCT.

**Perceived barriers:** Three items were included to measure perceived barriers of undergoing VCT in terms of cost and inconvenience (or feeling of embarrassment) and the mean score for perceived barriers was calculated. Those respondents who scored above the mean score were categorized as having high perception of barriers.

**Self-efficacy:** Three items were included to assess self-efficacy in terms of having confidence in using VCT and then mean score was calculated.

**Ethical considerations:** Ethical clearance was obtained from Faculty of Medicine, Addis Ababa University. Permission was secured from Butajira High School and then consent was obtained from all the study participants. Confidentiality was strictly maintained in the study.

## Results

### Socio demographic characteristics

Six hundred thirty eight (96.9%) students completed the questionnaires successfully, among them 415 (65%) were males. Of these, 194 (30.4%) were grade 9, 174 (27.3%) grade 10, 140 (21.9%) were grade 10+1 and 130 (20.4%) grade 10+2. The mean age of the students who reported their age was 16.25  $\pm$  2.09 years. The majority of the students 614 (96.2%) were single. Three hundred fourteen students (49.2%) were Muslim, 245 (38.4%) were orthodox Christians, and 72 (11.3%) were protestant by religion (Table 1).

### Sexual behavior of the study populations

Out of 638 respondents, 129 (20.2%) reported previous history of sexual contact. Among those with previous

history of sexual contact, 108 (17%) and 21(3.2%) were males and females respectively. The median age for first sexual intercourse was 17 (16.54±1.9) and 18 (17.5±1.4) years for male and female, respectively. Of those who experienced sexual intercourse for the first time, only one third reported that they had used condom.

Table1: **Socio-demographic characteristics of the study population, Butajira, January 2006.**

Socio-demographic Variables	Number (638)	Percent
Sex		
Male	415	65%
Female	223	35%
Age* (n=481)		
<15	85	13.3%
15-19	321	50.3%
≥20	75	12.6%
Marital Status (n=637)		
Single	614	96.2%
Married	23	3.6%
Religion		
Muslim	314	49.2%
Orthodox Christian	245	38.4%
Protestant	72	11.3%
Others	7	1.1%
Educational Status		
9 <sup>th</sup>	194	30.4%
10 <sup>th</sup>	174	27.3%
10+1 <sup>th</sup>	140	21.9%
10+2 <sup>th</sup>	130	20.4%

\*156 students filled I do not know my age and 1 filled no response

Out of those who had previous history of sexual contact, 50 (38.7%) of males and 9 (6.9%) of females responded that they had sexual intercourse in the last 12 months. Among those who had sex in the past 12 months, only 45 (38%) reported consistent condom use in every sexual encounter.

### Knowledge about VCT

Six hundred sixteen 96.7% of the students had heard of

VCT from different sources. The main source of information was radio (97%) followed by television (65%) friends (25%) and school (20%).

Students were asked whether VCT was important or not. About half of the respondents thought that undergoing VCT was very important.

Regarding preference of professionals as counselors, 52% of the students preferred trained VCT counselors, followed by physicians (25.2%), HIV patients (10.5%) and religious leaders (5.8%).

The majority 382 (60%) of the respondents showed preference to confidential testing, followed by anonymous way of testing 156 (24.4%). As a way of receiving HIV test result, the majority 365 (57.2%) preferred face-to-face while by 197 (30.9%) preferred it to be done secretly in an envelope.

Regarding their attitude and practice towards VCT, 118 (18.5%) had used VCT service. Among these males and females counted for 10.8% and 7.7%, respectively.

When students' willingness to undergo VCT was assessed, five hundred twenty six (82.5%) of the respondents explained they were willing to undergo VCT. Among those who were not willing, the reason for not being willing to undergo VCT was fear of anxiety following possible positive result in 50 (45.5%) and due to fear of stigma and discrimination by the society 22 (19.6%) (Table 2).

### Perceived susceptibility

Students' attitude towards perceiving themselves as susceptible to HIV infection was assessed and the result indicated that less than half of them had low perception of acquiring the infection. The most frequently cited reasons by those with low perception were having had no

Table2: **Knowledge and attitude of Butajira high school students towards VCT, January 2006 (n=638).**

Characteristics	Male	Female	Total
Heard of Voluntary HIV counseling and testing			
Yes	405 (63.5%)	211 (33.2%)	616 (96.7%)
No	10 (1.5%)	12 (1.8%)	22 (3.3%)
Feel that VCT is necessary (n=619)			
Yes	211 (33.1%)	107 (16.7%)	318 (49.8%)
No	195 (30.6%)	106 (16.6%)	301 (47.2%)
Undergone VCT			
Yes	69 (10.8%)	49 (7.7%)	118 (18.5%)
No	346 (54.2%)	174 (27.3%)	520 (81.5%)
Willingness to under go VCT			
Yes	338 (53%)	188 (29.5%)	526 (82.5%)
No	77 (12.1%)	35 (5.4%)	112 (17.5%)
Willingness to pay for VCT service (n=637)			
Yes	231 (36.4%)	141 (22%)	372 (58.4%)
No	183 (28.7%)	82 (12.9%)	265 (41.6%)
Willingness to under go VCT if given free of charge			
Yes	350 (54.8%)	188 (29.5%)	538 (84.3%)
No	28 (4.4%)	16 (2.5%)	44 (6.9%)
I don't know	37 (5.8%)	19 (2.9%)	56 (8.8%)

sexual contact (41.6%), being faithful to their partner (37.3%) and using condom consistently (18.7%). In this regard the mean score was calculated and showed 3.1398 ( $\pm 0.70799$ ) for males and 3.1368 ( $\pm 0.77859$ ) for females.

**Perceived Severity**

Half of the respondents had high perception towards severity of HIV/AIDS. The mean score for perceived severity was 3.1627 ( $\pm 0.89587$ ) for males and 3.1300 ( $\pm 0.98005$ ) for females.

**Perceived Benefit**

One fourth of the respondents agreed that VCT is an effective way to prevent HIV/AIDS. The mean score for the perceived benefit of VCT was 1.6232 ( $\pm 0.42503$ ) and 1.6287 ( $\pm 0.36203$ ) for males and females, respectively.

**Perceived Barrier**

The majority of the students had high level of perception on barrier for VCT. The mean score was 2.6229 ( $\pm 0.71767$ ) for males and 2.6300 ( $\pm 0.76738$ ) for females.

**Self-Efficacy**

The majority of the respondents had high confidence in using VCT. The mean score for self-efficacy were 1.5462

( $\pm 0.66339$ ) and 1.5262 ( $\pm 0.66831$ ) for male and female, respectively.

The following variables show statistical association with willingness to VCT.

Age groups 15-19 and 20 years and above were more likely to undergo VCT, [AOR= 1.52 95% CI (1.28, 1.90)] and [AOR= 1.78 95% CI (1.49, 1.92)], respectively. Those who were in grades (11-12) i.e. 10+1 and 10+2 were more likely to show willingness to VCT compared to those of grade 9 and 10, [AOR=3.05 95% CI (1.36, 6.78)]. Students who had sexual intercourse were less likely to show willingness to VCT compared to those who did not have, [AOR= 0.54 95% CI (0.29, 0.98)]. Students who had high perceived susceptibility were less likely to have intention to willingness for VCT than those having low perception [AOR= 0.3795% CI (0.28, 0.89)]. Those who had high perception on benefit were more likely to have intention to willingness to VCT compared to those who had low perception, [AOR=1.79 95% CI (1.44, 2.43)]. Those who had high perception on barriers were less likely to have intention for willingness to VCT compared to those having low perception on barriers, [AOR=0.45 95% CI (0.23, 0.87)] (Table 3). Self-efficacy did not reveal statistically significant association with willingness to VCT when adjusted.

**Table 3: Willingness for having VCT among students versus socio-demographic and theoretical variables, Butajira, 2006**

Variable	Willingness to VCT		Crude OR 95% CI	Adjusted OR 95% CI
	Yes	No		
<b>Age</b>				
<15	38	4	1.00	<b>1.00</b>
15-19	173	39	0.13 (0.02, 1.05)	<b>1.52 (1.28, 1.90)*</b>
$\geq 20$	47	14	1.21 (0.03, 1.53)	<b>1.78 (1.49, 1.92)*</b>
<b>Sex</b>				
Male	232	183	1.00	1.00
Female	141	82	0/06 (0.50, 1.84)	0.67 (0.36, 1.16)
<b>Educational status</b>				
9-10	195	33	1.00	<b>1.00</b>
11-12	143	44	0.42 (0.21, 0.83)*	<b>3.05 (1.36, 6.78)*</b>
<b>Area of residence</b>				
Urban	200	50	1.00	1.00
Rural	138	27	0.78 (0.47, 1.31)	0.85 (0.48, 1.52)
<b>Had sexual intercourse</b>				
No	259	48	1.00	<b>1.00</b>
Yes	79	29	0.98 (1.17, 3.35)	<b>0.54 (0.29, 0.98)*</b>
<b>Use Condom</b>				
No	49	23	1.00	1.00
Yes	30	6	2.34 (0.86, 6.42)	2.73 (0.84, 8.59)
<b>Perceived Susceptibility</b>				
Low	170	40	1.00	1.00
High	168	37	0.42 (0.65, 0.95)*	0.67 (0.35, 1.28)
<b>Perceived Severity</b>				
Low	170	40	1.00	1.00
High	168	37	0.42 (0.65, 0.95)*	0.67 (0.35, 1.28)
<b>Perceived Benefit</b>				
Low	170	40	1.00	<b>1.00</b>
High	168	37	0.42 (0.65, 0.95)*	<b>1.79 (1.44, 2.43)*</b>
<b>Perceived Barrier</b>				
Low	190	31	1.00	<b>1.00</b>
High	148	46	0.91 (0.15, 3.15)	<b>0.45 (0.23, 0.87)8</b>
<b>Self Efficacy</b>				
Low	108	63	1.00	1.00
High	230	14	0.11 (0.06, 0.19)*	0.11 (0.66, 1.23)

\*P<0.05

## Discussion

In this study about one in five students reported sexual experience (16.9% males and 3.3% female); this figure is low compared to other studies in USA and Canada, which were 46-72% and 24-72% for boys and girls, respectively (8). However, it was higher compared to the BSS report where 9.9% (14.6% males and 5.3% females) reported premarital sexual experience (6). In our study nearly 19% of the students (10.8% of males and 7.7% of females) had undergone VCT. This was higher than the BSS report where only 9.3% (11.1% of females and 7.4% of males) of the study subjects had undergone VCT. Our finding was however lower than the report from Addis Ababa where the VCT utilization was 15.8% (9). In general, these figures indicate that VCT uptake has remained low though there was rapid expansion of VCT in the last two years in Ethiopia. Even though the majority of students thought that undergoing VCT was very important, more than one third of them replied it was not easy to undergo VCT. This indicates the presence of barriers and the need to overcome them in order to scale up acceptance of VCT by the students.

Although the majority of respondents preferred to be counseled by any trained counselors and physicians, some of them had a preference for religious leaders and HIV patients. This finding highlights that involvement of religious leaders and HIV patients could scale up the acceptance for VCT. Studies done in Uganda and Tanzania showed that involving traditional healers and religious leaders in HIV counseling had demonstrated significant result to expand VCT services (10).

The majority of the respondents preferred confidential method of VCT service. This indicated that maintaining confidentiality was a crucial element in the implementation of effective VCT services.

Students who were grade 10+1 and above had shown more willingness to undergo VCT than those students in grade 9-10<sup>th</sup>. Those students who were in this educational level might have had better access to information and awareness about VCT as well as increased sexual exposure and risk perception. This finding was also similar to other studies done in Ethiopia and Uganda. (11). Students of higher age were more likely to have willingness for VCT compared to those in lower age. This might be explained by the corresponding increase in knowledge levels of the students as their age advances.

Those students who had ever sexual experience and had high perceived susceptibility were less likely to have intention for willingness to VCT. This might be because of fear of the possible positive result as they were engaged in unprotected sexual intercourse. Fear of positive result, stigma and discrimination attached with HIV in the public were the major reasons mentioned by the respondents affecting their willingness to have VCT services. A similar study amongst youth in Arbaminch,

Ethiopia has identified factors that affect utilization of VCT including stigma and discrimination, fear of positive result and level of HIV risk perception (12).

In conclusion, the majority of students have heard about VCT and revealed willingness to undergo VCT. Willingness for VCT was affected by age, education and previous sexual experience. High perceived susceptibility and high perceived barriers were associated with low willingness to undergo VCT. On the other hand, students with high perceived benefits revealed better willingness to undergo VCT.

Based on our findings we recommend strengthening of the IE/BCC program advocating the benefits of VCT to reduce fear of stigma and discrimination and minimizing unsafe sex amongst students. It is recommended that messages about VCT should give emphasis on personal susceptibility to HIV/ AIDS and benefits of VCT. Self-efficacy towards the use of VCT needs to be encouraged.

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## References

1. Federal Ministry of Health (FMoH), National Consensus Meeting on single point HIV prevalence estimate: Palace Hotel, Adama, Ethiopia, 11-12 May 2007.
2. World Health Organization (WHO). Investing in a comprehensive health sector response to HIV/AIDS –scaling up treatment and accelerating prevention. WHO, 2004.
3. Sweat M, Gregorich S, Sangiwa G, Furlonge C, Balmer D, Grinstead O, Coats T. Cost-effectiveness of voluntary counseling and testing in reducing sexual transmission of HIV-1 in Kenya and Tanzania. *Lancet* 2000; 356: 113-21.
4. Gibier de souza. L, Verga A, Cardoso J, Manjate RM, Barereto A. Using MoH-NGO partnership to implement VCT in Mozambique, IAS, 14th International AIDS Conference Barcelona, 2002.
5. World Health Organization (WHO). Gender Dimensions of HIV status Disclosure to sexual partners: Rates Barriers and outcomes. A review paper. WHO, Geneva, 2004.
6. Federal Ministry of Health (MOH) and HIV/AIDS Prevention and Control Office (HAPCO). HIV/AIDS Behavioral Surveillance Survey Ethiopia, 2005.
7. Janz NK, Champion VL, Stecher VJ. The Health Belief Model. In: Glanz K, Rimer BK, Lewis FM,

- eds. Health Behavior and Health Education: Theory, Research and Practice. Jossey- Bass, A Wiley Imprint, 2002; 45-66. (Chapter in a book)
8. Boyer CB and Keagles SM, AIDS risk and prevention among adolescents. Soc.Sci. Med. 1991; 33: 11-23.
  9. Tassew F. Knowledge and attitude towards VCT services among high school students in Addis Ababa, Ethiopia. Masters Thesis, Medical Faculty, Department of Community Health, Addis Ababa University, Addis Ababa, 2005.
  10. King R, Homes J. Involving traditional healers in AIDS education and counseling in sub Saharan Africa: A review. Journal of AIDS 1997; 11(suppl A): s217-s225.
  11. Wondimagegn G. Factors associated with VCT utilization in Guraghe Zone, SNNPR, Ethiopia. Masters Thesis, Medical Faculty, Department of Community Health, Addis Ababa University, Addis Ababa, 2004.
  12. Meshesha B. Factors influencing voluntary counseling and testing service utilization associated with VCT utilization among youths in Arbaminch town: A Health Belief Model approach. Southern Ethiopia. Masters Thesis, Faculty of Public Health, Jimma University, Jimma, 2007.