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Research Article

Voluntary Counseling and Testing Practice and Associated Factors Among High School Students in Dera Woreda, Amhara Region, North West Ethiopia, 2021: A Cross-Sectional Survey, Application of Health Belief Model

Girma Moges[1], Yosef Wasihun[1], Assiya Mohamed[2], Tadele Fentabil Anagaw[1] and Eyob Ketema Bogale[1]*

[1]*Department of Health Promotion and Behavioral Sciences, Bahir Dar University, Ethiopia*

[2]*Department of Epidemiology, Bahir Dar University, Ethiopia*

Abstract

Objective: To assess voluntary counseling and testing practice and associated factors of high school students in Dera woreda, Amhara Region, Northwest, Ethiopia, 2020.

Design: Institution-based cross-sectional study was conducted.

Setting: A study was conducted in Dera district, Amhara Region, Ethiopia from February 28 to March 10, 2020.

Participants: Five hundred sixty-two systematically selected high school students were included in the study. Data were collected by using self-administered structured questionnaires. Data was entered into EPI data version 3.1 and then exported to SPSS version 25 for analysis. Bivariable and Multivariable logistic regression used for analysis.

Result: The prevalence of voluntary counseling and testing practice was found to be 34.3%. Being married (AOR=2.070, 95% CI, (1.213, 3.463), good knowledge (AOR=2.2, 95% CI, (1.362, 3.120), positive attitude (AOR=1.1, 95% CI, (1.064, 1.129), perceived severity (AOR=1.07, 95% CI, (1.023, 1.114), cues to action (AOR=1.09, 95% CI, (1.011, 1.170 p=0), and self-efficacy (AOR=1.05, 95% CI, (1.011, 1.170) were statistically significant associated factors for VCT.

Conclusion: VCT utilization rate among students was still low. Being married, good knowledge, positive attitude, perceived severity, cues to action and self-efficacy were statistically significant associated factors for VCT. Therefore, strengthening coordinated efforts for convincing students to perceive their risk behavior and to utilize VCT service is recommended with special attention to high school students.

Strength and limitation: As the study was cross-sectional, we cannot infer the temporal relationship between information and VCT practice. Since some questions include sensitive issues, responses are sorted and may create desirability bias.

Keywords: Illness; HIV/AIDS; Counseling; Health behavior; VCT

Abbreviations

AOR: Adjusted Odds Ratio; HBM: Health Belief Model; AIDS: Acquired Immune Deficiency Syndrome; ARV: Anti-Retroviral Therapy; HIV: Human Immune Deficiency Virus; PLWHAS: People Living with HIV/AIDS; SSA: Sub Saharan Africa; STD: Sexual Transmitted Disease; VCT: Voluntary Counselling and Testing; SPSS: Statistical Packages for Social Science; WHO: World Health Organization

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***Corresponding author:** Eyob Ketema Bogale, Department of Health Promotion and Behavioral Sciences, Bahir Dar University, Bahir Dar, Ethiopia, E-mail: ketema.eyob@gmail.com

Background

Voluntary Counseling and Testing can be defined as a confidential face-to-face interaction between a professional counselor and a client or a group of clients with a view of assisting the clients to make informed decisions and adjust effectively in life [1].

HIV/AIDS counseling involves educating a client or group of clients on the control, management, and prevention of HIV/AIDS. Counseling assists people to make informed decisions, cope better with life challenges, lead positive lives, and prevent further transmission of HIV. HIV/AIDS counseling consists of three stages, which are pre-test counseling, post-test counseling, and follow-up [2].

Globally in 2018, around 37.9 million people were living with HIV, 1.7 million people became newly infected with HIV, 770,000 people died from AIDS-related illnesses, 74.9 million people have become infected with HIV since the start of the epidemic and 32.0 million people have died from AIDS-related illnesses since the start of the epidemic [3].

Sub-Saharan Africa has essentially the most severe HIV and AIDS epidemic in the world, although the burden of the epidemic continues to differ greatly between nations and regions. In 2018, 37.9 million people were reported to be living with HIV/AIDS globally, of which

27.6 million are from sub-Saharan Africa alone. There appears to have been a decrease in the number of HIV-infected people both globally and in sub-Saharan Africa. The eastern and southern regions of Africa are the most affected areas in the continent. About 1.1 million people died of AIDS-related death globally in 2015. Out of this number, about 72.7% are from sub-Saharan Africa [4].

In Ethiopia, the annual incidence of HIV among adults aged 15-64 years in urban Ethiopia is 0.06%, which corresponded to approximately 7,000 new cases of HIV annually among adults ages 15-64 years living in urban Ethiopia. The prevalence of HIV among adults aged 15-64 years in urban Ethiopia is 3.0%:4.1% among females and 1.9% among males. This corresponds to approximately 380,000 people living with HIV (PLHIV) ages 15-64 years in urban Ethiopia as of April 2018. The prevalence of HIV among children ages 0-14 years in urban Ethiopia is 0.3%, the same among both females and males. This corresponds to approximately 19,000 children ages 0-14 years living with HIV in urban Ethiopia. The prevalence of VLS among HIV-positive adults ages 15-64 years in urban Ethiopia is 70.1%:71.7% among females and 66.8% among males [5].

On the other hand, in 2016, Ethiopian Demographic Health Survey (EDHS) revealed that the overall prevalence of HIV in Ethiopia was estimated to be around 1.5% among the population whose age groups are between 15 to 49 years. Besides, women had a higher HIV prevalence (1.9%) as compared to men (1.0%). At the same time, the survey mentioned that 24% of women and 34% of men, whose ages are between 15 to 24 years, had comprehensive knowledge about HIV/AIDS. Their level of knowledge increased steadily with their educational status, but their main sources of information were believed to be from mass media, health professionals, and schools. Similarly, 25% of young women and 28% of men, who had had sexual intercourse, had been tested for HIV [6].

The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviors. This is done by focusing on the attitudes and beliefs of individuals. The HBM was first developed in the 1950s by social psychologists Hoch Baum, Rosen stock, and Kegels working in the U.S. Public Health Services. The model assumed that behavior is determined by perceived susceptibility, perceived severity, perceived benefit, perceived barriers, cues to action, and self-efficacy constructs [7].

Some studies in Ethiopia shows that lack of perception of being at risk, no consideration for VCT an afraid of a positive result, and fear of stigma were some of the reasons for not demanding VCT, so examining and understanding factors associated with VCT service utilization are vital & timely activity to facilitate HIV prevention efforts [1,8,9].

In Ethiopia, HIV Counseling and Testing (HCT) began a few years before with the service expanding throughout the country and it was reported that many young people with HIV in Ethiopia did not know that they were infected with the virus. However, there was limited understanding of the practice of VCT and associated factors among school youth in South Gondar where this study will be conducted. Therefore, this study was assessing the practice and associated factors of high School Students in Dera Woreda regarding HIV/AIDS and VCT.

Materials and Methods

Study design and settings

The institutional-based cross-sectional study design was conducted in Dera woreda from February 28 to March 10, 2020. It is located in the South Gondar zone 569 km north of Addis Ababa. There are 5 public high schools in the woreda. At the time of the study, there were 9559 (4799 females and 4760 male) students in the academic year 2019/2020. Grade 9th students had 6691 (3332 males and 3359 are females) and grade 10th students had 2868 (1428 male and 1440 were females). In each high school, there are HIV/AIDS, Trachoma, Personal hygiene, and Health education clubs that help the student to develop Knowledge and Attitude.

Participants and sampling

The source population was all daytime high school students in the Dera district and those selected high school students were study participants during the study period from February 28 to March 10, 2020. Those students who are seriously ill during the data collection period were excluded from the study. The calculated sample was 620 considering (p)= 62.2% from a previous study in Ethiopia [10], level of confidence =95%, and marginal of error=0.05 including 10% non-response rate.

Samples were proportionally allocated for each high school based on the number of students. Also in each high school, there were grades 9 and 10, and then proportional allocation for grade 9 and 10 students was done. Then, a two-stapes sampling procedure was employed in order to get a representative sample size from the study population. According to the number of sections in each high school, 25 sections were selected from a total of 98 sections (15 grades 9 and 10 from grade 10 students) by using the lottery method's simple random sampling technique. To pick an individual participant from each selected section, lists of students were taken from the school administration office and codes were given. The first participant was selected using a lottery method, a simple random sampling technique. Patient and public involvement: None

Data collection and measurements

A pretested, structured, self-administered questionnaire was used to collect the data. The questionnaire included socio-demographic variables, knowledge, attitude, and perception (perceived susceptibility, perceived severity, perceived benefit, perceived barriers, cues to action, and self-efficacy) towards VCT. The data were collected by six college completed clinical nurses in the selected participant office and the principal investigator supervised the data collection process. The training was given to data collectors about the data collection tool, how to collect data, and taking consent to have a common understanding.

The knowledge was measured by using eight items with yes, no and i didn't know questions. These items were summed up with 0 minimum and 16 maximum scores and used for further analysis as a continuous variable. In the same this, the attitude was measured by using five items on five points Likert scale. These items were summed up with 5 minimum and 25 maximum scores and used for further analysis as a continuous variable.

The perceived susceptibility part consisted of six items in five-point Likert scale and score of individuals for each item were summed up ranged from 6 minimums to 30 maximum total score, perceived severity consisted seven-point Likert scale items and score of individuals for each item were summed up ranged from 7 minimums to 35 maximum total score, perceived benefit consisted seven-point Likert scale items and score of individuals for each item were summed up ranged from 7 minimums to 35 maximum total score, perceived

barriers consisted of six items with five-point Likert scale and score of individuals for each item were summed up ranged from 6 minimums to 30 maximum total score, cues to action consisted of five items in five-point Likert scale and score of individuals for each item were summed up ranged from 5 minimums to 25 maximum total score and also, self-efficacy consisted of four items in five-point Likert scale and score of individuals for each item were summed up ranged from 4 minimum to 20 maximum total score. For all constructs, the sum of the score of individuals for each item was summed up after reverse coding for negatively worded items and all constructs were treated as continuous variables for analysis.

The questionnaire was translated from English to the local language (Amharic) and translated back to English by another individual to check the consistency. It was pretested on 5% (31) of woreda high school students before the actual data collection period. The reliability test was checked using Cronbach's alpha of 0.7 as a cut-off point and multicollinearity between independent variables was also checked.

Data management and analysis

The data were checked, coded, and entered using Epi-Data software version 3.1 (Epi Data Association, Odense, Denmark) and exported to SPSS software Version 23 for further analysis. The descriptive result was presented using frequency and proportions for all variables. Each independent variable was assessed for statistically significant association with the dependent variables in bi-variable analysis at a 95% confidence interval and a p-value of ≤ 0.25. Those variables whose p-values are less than 0.25 during the bi-variable analysis were fitted to the final multiple logistic regression model to adjust for potential confounders. In the final model, a p-value < 0.05 was considered as statistically significant. The goodness of fit of the final model was checked using the Hosmer and Lemeshow test of best fit with a p-value >0.05 and the result were 0.69.

Results

Socio-demographic characteristics

A total of 562 students participated in the study with a response rate of 90.6%. Among the study participants, 308 (54.8%) were males and the mean age of the study participants was 15.28 (± SD1.24) with a range of 15-18 years. Four hundred forty (78.3%) of the respondents were single, 376 (66.9%) were Orthodox Christians in religion and about 302 (53.7%) were grade 9 (Table 1).

Knowledge, attitude, and practice of VCT

Of 562 participants, 193 (34.3%) had ever undergone VCT in their life. The mean knowledge sum of the score of participants was 6.14; and the mean attitude sum of the score of respondents was 20.13, ± SD 6.45 with a range of 5 to 25. One hundred sixty-seven (29.7%) of the respondents had sexual experience. Out of which, 81 (49.5%) were females and the rest 86 (51.5%) were males. The mean age of first sexual contact was being 16.4 (± SD 2.0) years. The main reason for sexual intercourse was 70 (12.46%), 22 (3.9%), 17 (3%), and 9 (1.6%) were personal desire, peer pressure, the influence of alcohol, and coercion respectively.

Table 1: Socio-Demographic Characteristics of High School Students in Dera district, North-West Ethiopia, May 2020 (N=562).

Variable	Frequency	Percent
Sex	308	0.548
	254	0.452
Marital status	89	0.158
	440	0.783
	33	0.059
Religion	376	0.669
	158	0.281
	17	0.03
	11	0.02
Level of education	302	0.537
	260	0.463

Perception of high school students towards VCT

The mean score for perceived susceptibility, perceived severity, perceived barrier, perceived benefit, self-efficacy, and cues to action was shown as follows. Students' perceiving susceptible to HIV infection was assessed and the mean score was 17.56 (SD ± 4.7) with a range of 6 to 30, students' perceived severity of HIV infection was assessed and the result indicated that the mean score was calculated, and showed 21.7(SD ± 5.26) with a range of 7 to 35, the mean score for the perceived benefit of VCT was 24.66 (SD ± 6.26) with a range of 7 to 35, the mean score perceived barrier for VCT was 17.79 (SD ± 5.01) with a range of 6 to 30, the mean score for cues to action was 9.49 (SD ± 2.8) with a range of 3 to 15 and the mean score for self-efficacy were 15 (SD ± 4.04) with a range of 4 to 20 (Table 2).

Table 2: Descriptive Statistics for Perception towards VCT Dera District High School Students Mar 2020.

	N	Minimum	Maximum	Mean	Std. Deviation
Perceived susceptibility	562	6	30	17.5623	4.73059
Perceived severity	562	7	35	21.7082	5.26112
Perceived benefit	562	7	35	24.6566	6.26149
Perceived barrier	562	7	30	17.79	5.01357
Cues to action	562	3	15	9.4982	2.82417
Self efficacy	562	4	20	15.0338	4.0466

Factors associated with VCT practice

In the binary and multiple logistic regression analysis, marital status, knowledge, attitude, perceived severity, cues to action, and self-efficacy were significantly associated with the practice of VCT. Those students who were single were about 2 times more likely to practice VCT than those who are married {AOR=2.07 (1.235, 3.463), P=0.008]. A unit increase of knowledge sum score increases 2.2 times likely hood of VCT practice (AOR = 2.2(1.362, 3.120), p= 0.030). A unit increase of attitude sum score increases 1.1 times more likely hood of VCT practice (AOR=1.1(1.064, 1.129), p=0.001). A unit increase in perceived severity sum of score increases 1.07 times the likely hood of VCT practice (AOR=1.07; CI (1.023,1.114)), and a unit increase of cues to action sum of the score, increases 1.09 times likely hood of VCT practice (AOR=1.09; CI (1.011,1.170)). Also, a unit increase of self-efficacy sum of score increases 1.05 times likely hood of VCT practice (AOR=1.05; CI (1.011, 1.170)) which is summarized in Table 3.

Discussion

In this study 34.3% of the study subjects had undergone VCT; these figures are lower than a study done in Debre Birhan high school [10], Bahir Dar University, and Awi zone [11] high school which were 50%, 51.3%, 53.6% respectively [12].

This showed that the acceptance rate of VCT as a preventive measure is decreasing and might be due to the merging of HAPCO in the last few years. Similarly, this finding was lower than a study done in wolkitie [13], Addis Ababa [14] and Bahir dar [15]. High school students which were 71.5%, 60%, and 48.36% respectively. This showed that the acceptance rate of VCT increases from a rural area

Table 3: Factors Associated with VCT Practice among High School Students in Bi-variable and Multivariable Logistic Regression Analysis, in Dera District, Northwest Ethiopia, Mar 2020 (N=562).

Variable		Practice of VCT		OR (95% CI)		P-value
		Yes	No	Crude	Adjusted	
Marital status	Married (1)	44	45	1	1	
	Single	130	310	2.332 (1.467,3.706)	2.070 (1.213,3.463)	0.008
Place of residence	Urban (1)	114	150	1		
	Rural	79	369	1.012(0.710,1.442)*	0.861(0.561,1.322)**	0.494
Religion	Orthodox (1)	115	261	1	1	
	Muslim	63	95	1.891(0.566,6.323)*	1.065(0.629,4.209)**	0.929
	Protestant	10	7	1.257(0.368,4.294)*	0.779(0.192,3.161)**	0.727
	Catholic	5	6	0.583(0.126,2.694)*	0.417(0.073,2.366)**	0.323
Level of education	Grade 9(1)	95	207	1	1	
	Grade 10	98	162	1.318(0.930,1.869)	1.254(0.840,1.872)	0.268
Knowledge				2.848(1.775,3.928)	2.2(1.362, 3.120)*	0.03
Attitude				1.085(1.056,1.115)	1.1(1.064,1.129)*	0
Perceived susceptibility				1.051(1.011,1.091)	0.997(0.951,1.046)	0.905
Perceived severity				1.094(1.055,1.134)	1.1(1.023,1.114)*	0
Perceived benefit				1.020(0.992,1.049)	0.960(0.925,0.996)	0.005
Perceived barrier				1.057(1.019,1.096)	1.049(1.004,1.097)	0.014
Cues to action				1.114(1.046,1.186)	1.09(1.011,1.170)*	0.024
Self-efficacy				1.096(1.049,1.144)	1.05(1.011,1.170)*	0.024

NB; *Statistically significant variables at P value <0.05 in the multivariable analysis, OR: Odds ratio; 1.00 _ Reference category.

to urban.

In this study knowledge, attitude, and marital status were significantly associated with VCT practice. This finding was similar to a study done in Jimma [9], welkite [13] and Addis Ababa [14]. Knowledge of high school students about VCT practice had a significant association with VCT practice. This result was consistent with a study conducted in Addis Ababa [4], Woldia [11], and Bahir dar [15].

In this study, VCT practice was more likely among married students than single students. The reason could be that those married students were more confident in VCT practice. This finding was supported by a study conducted in Ambo [11] but a study conducted in Awi Zone opposes this finding. The possible reason for this difference might be aware of students of VCT service [13].

On the other hand, this study was a significant association with marital status; those students who were single were about 2 times more likely to practice VCT than those who were married. This result was absolutely different from a study done in Awi Zone showed that divorced/widowed and married study participants were more than four and two times extra utilizing VCT services than unmarried counterparts respectively [11].

In this study perceived severity, cues to action, and self-efficacy were significant associations with the practice of VCT. This result was different from a study done in Butajira (SNNP) VCT was significantly associated with perceived susceptibility, perceived barrier, and perceived benefit [16].

Limitation of the Study

As the study was cross-sectional, we cannot infer the temporal relationship between information and VCT practice. Since some questions include sensitive issues, responses are sorted and may create desirability bias.

Declarations

Ethical approval and consent to participate

Ethical approval for this study was obtained from Institutional Review Board of Bahir Dar University (Approval number: CMHS/IRB/ 28/002/2020). An official support letter was obtained from Amhara Public Health Institute. Written consent was obtained from the participants after informing all of the purpose, benefits, and risks of the study and that the procedures were in compliance with Helsinki Declaration.

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