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Knowledge About HIV/AIDS, Risk Reduction Behaviors and Readiness to Undergo Voluntary Counseling and Testing (VCT): Focus on Public and Private College Students in Oromia Regional State, Ethiopia.

By

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Abstract

HIV and its effect, the Acquired Immunodeficiency Syndrome (AIDS), are rampant worldwide problems with broad social, cultural, economical implications. Never in history has there arisen such a widespread and fundamental threat to human development as HIV/AIDS (UNAIDS 2004). It is universally acknowledged that AIDS is unique in its rapid spread, its extent and the depth of its impact. With the intention of assessing the Ethiopian experience, the present study attempted to examine the relationship of public and private college students' knowledge about HIV/AIDS, risk reduction behaviors and readiness to undergo Voluntary Counseling and Testing (VCT) for HIV. To attain at this objective, 384 (237 public 147 private) college students from Arsi Zone of the Oromia regional state, were randomly selected and involved in this study. Pilot-tested self-rating questionnaire was used to gather the required information for the study. For data analysis, both descriptive and inferential statistics like simple and multiplier regressions and t test were employed. Analysis of the data revealed that knowledge about HIV/AIDS and risk reduction behaviors show some relationship but knowledge about HIV/AIDS did not predict the participants' readiness to access VCT services. On the other hand, related knowledge about HIV/ AIDS together with risk reduction behavior was found to contribute for the participants' readiness to access VCT. Furthermore, the present study revealed that male and female participants did not show significant difference in HIV/AIDS related knowledge and readiness to undergo VCT. In risk reduction behaviors, however, female participants were found to be less effective than their male counterparts.

Key terms : Knowledge, HIV/AIDS, risk reduction behaviors, readiness for VCT, Counseling.

Introduction

Background

The human immunodeficiency virus (HIV) has created an enormous challenge worldwide. In many countries, particularly in developing countries, about 20-25% of the population is adolescents (Lamptey *et al.* 2002). These large proportions of population, from various behavioral, cognitive and developmental perspectives are labeled as vulnerable group and deserve attention in terms of research and prevention. WHO (2010) disclosed that total number of people living with HIV/AIDS was 34 million in 2010. Moreover, it was reported that 2.7 million people became infected with HIV during 2010, including an estimated 390,000 children. It was also identified that the 1.8 million HIV/AIDS related deaths were recorded in 2010. On the other hand, AVERT (2010) disclosed that antiretroviral therapy has had a significant impact on the number of deaths from AIDS in sub-Saharan African countries; the scale-up of treatment contributed to a 29% decline in AIDS-related deaths between 2005 and 2010.Still, sub-Saharan African countries, in particular, are the world's hardest hit region by HIV/AIDS.

Although HIV/AIDS has now been identified in nearly all countries, the prevalence or scale of infection varies widely both between and within countries. It is reported that more than 68% of people who are infected with HIV live in sub-Saharan African countries (AVERT, 2010). A decade ago, Lampety *et al.,* (2002) had stated that the effect of the disease is very alarming in Africa as compared to the other parts of the world.

Intending to get mechanisms of curbing such a devastating worldwide effect of the epidemic, scholars have conducted several studies of knowledge, attitude and practice of adolescents towards HIV/AIDS. In Ethiopian context, however, few studies, (e. g. Beyene et al. 1997, Mengistu

& Khodakovich 1990; Daniel 1996; Ashebir 1995) had conducted a survey to assess knowledge, attitude and practice of condom in preventing HIV/AIDS . The above and other similar investigations conducted on HIV/AIDS targeted students because students as adolescents are viewed as being at high risk for HIV infection due to their propensity to engage in exploratory behavior and their needs for peer, social approval and their believe of non-vulnerability. The results of such studies showed that most of the students under study were aware of the disease but their personal practice revealed that only a few have brought changes in their risky behavior.

Concerning knowledge of college students about modes of HIV/AIDS transmission, Kelly (2001) described that tertiary level learners seem to be generally aware of the existence of HIV/ADS and to know the basic facts about its transmission. Earlier misconceptions, such as HIV could be transmitted through saliva or mosquito bites are no longer very common.

Uninterestingly, a survey conducted by Fisseha et al. (1997) in Addis Ababa schools showed that 54% of the sexually active students reported that they had multiple sexual partners. The most disturbing report of this study was that an important majority of them admitted to have had sex with commercial sex workers. In a similar manner, Hailegnaw (1996) reviewed that some rural high school students had their first sexual intercourse before reaching the age of 16 years and most had never used condoms during intercourse.

Problem Statement

In Ethiopia, there were 1.2 million people living with HIV/AIDS in 2010, with an adult HIV prevalence of 2.4% (7.7% urban and 0.9% rural) and male female ratio of 1.9% and 2.9% respectively (MoH 2010).Some previous studies conducted to assess the awareness, knowledge and sexual practice of the young population revealed that their HIV/AIDS related knowledge was more than average (Anderson *et al.* 1990 ;Shabir *et al.*1997; Daniel 1996; Visser 2005; Shitaye *et al*. 2004) .Thus, the assumption behind these studies was that, increased knowledge about HIV transmission and its prevention can lead to a change in behavior which in turn leads to actions that promote the prevention of the disease. With this intent, scholars argue that HIV/AIDS prevention is not mainly a problem of transmitting knowledge but rather one of changing attributes and overt behavior (Mehta & Sodhi 2004). However, even when people have good understanding and awareness of the virus, they are not changing their behavior.

Regarding the attainment of the desired behavioral change, VSO (2004) pointed out that bringing about behavior change is much more difficult than raising awareness, as there are so many contributing factors that lead people to behave in a certain way or which prevents them from changing their behavior. VSO extended that these factors may include culture, the role and position of women in the society, ideas of masculinity, migration and working away from home for prolonged periods of time, traditional practices such as female circumcision etc.

As a major intervention strategy, scholars, (e.g.Ikovics et al. 1998; WHO 2010) put VCT continuously to be at the front of AIDS related clinical care and prevention. Thus, in addition to the assessment of HIV/AIDS related knowledge and risk reduction behavior relationships, the present

study extends to the level of investigating whether the respondents' readiness to undergo VCT depends on the level of knowledge about HIV/AIDS and risk reduction behaviors they exhibit. To this end, the following couple of basic questions were formulated to be answered in this study.

1. What is the relationship of HIV/AIDS knowledge, risk reduction behaviors and readiness to undergo VCT?

2. Is there a significant difference between male and female college students in their knowledge about HIV/AIDS, risk reduction behaviors and readiness to undergo VCT?

Objectives

The general objective of the present study is to assess the relationships that exist among HIV/AIDS knowledge, risk reduction behaviors and readiness to undergo VCT with particular emphasis on public and private college students in Arsi zone of the Oromia regional state, Ethiopia.

Definitions of Key Terms

- Knowledge of HIV/AIDS: ones' understanding of concepts related to HIV/AIDS, i.e. its origin, modes of transmission, its prevention etc.
- Counseling: a helping relationship between the client and the Counselor.
- Risky Behaviors**:** – behaviors that are likely to expose people to HIV/AIDS; e.g. unprotected sex.
- Risk Reduction Behaviors: **-** One's overall behavior or attempt to Protect him or herself not to contract HIV/AIDS.

- Readiness – willingness and preparedness to be counseled and get ones blood tested for HIV.

Methodology

Participants

The participants of the present study were first year college students in Arsi zone of the Oromia regional state, Ethiopia. Out of seven colleges, three of them were selected using simple random sampling technique .From each of the selected colleges, two streams /departments were selected using lottery method. Selecting subjects on stream /departmental basis was found to be advantageous for its ease of getting informed consent from the students and administer the questionnaire while they are in regular classes. To screen those students to be involved in the study, from each stream, random number table sampling technique was employed using their identity numbers which were obtained from the registrar offices of the colleges. Totally, 384 (205 male and 179 female), (237 public 147 private college) first year students were randomly selected and involved in this study.

Instruments

The data collecting instrument employed this study was self-report questionnaire. The questionnaires was adapted from the existing measures that were used abroad and in local context (Ashbir 1995; Sanrock 2000; MEASURE 2003).These items on HIV/AIDS knowledge were true–false types and were prepared to assess common knowledge of HIV/AIDS such as modes of transmission, modes of prevention, ARV drugs and other related facts.

On the other hand, the items on risk reduction behaviors were prepared on the bases of five point liker type (always, frequently, sometimes, rarely, and not at all). These items were also adapted from tan already existing measures (Horizons 2005; Ashebir 1995; MEASURE 2003).These items were intended to generate information on practical measures taken by the students to protect themselves from the disease, their practice to limit their sexual partners, the extent of their condom use after they heard about HIV/AIDS and the like.

The third component of the questionnaire was designed to assess the students' readiness to undergo VCT. These items were prepared on the bases of five point liker type (Strongly agree, agree undecided, disagree, strongly disagree). The items were intended to assess the respondents' preparedness, plan, and willingness to access VCT. Unlike the previous two variables, these items were developed by the researcher after reviewing different literatures.

To test and improve the instruments, pilot study was conducted in the study area. Because the items on knowledge about HIV/AIDS were dichotomous, Kuder Richardson (KR 21) formula was used to analyze the reliability of the test. Accordingly, reliability value of 0.67 was obtained. Items on risk reduction behavior and readiness to for VCT were five scale liker type so that Chrombach alpha was applied to compute their reliability. Accordingly, the internal consistency of risk reduction behavior and readiness for VCT had been found .81 and 0.73 at alpha level.

Data analysis

To analyze and interpret the data, both descriptive and inferential statistics were applied. Mean, standard deviation and Pearson's product

moment coefficient were used to see the relationship of knowledge about HIV/AIDS, risk reduction behaviors and readiness to undergo voluntary counseling and testing for HIV. To check the predicting power of the variables treated in the study, simple and multiple regressions were applied. Finally, analysis of T test was applied to see whether male and female respondents show differences in knowledge about HIV/AIDS, risk reduction behaviors and readiness to undergo VCT.

Result of the Study

Pearson product moment coefficient correlation was used to check the interrelationship among the variables considered in this study. The bivariat correlation matrix (table 1) indicates that knowledge about HIV/ADS is significantly correlated with risk reduction behaviors ($r=0.142^{**}$, $p\leq 0.05$).

Table 1: Bi-variate correlation among major variables in the study

Variables	X_1	$\mathbf{X_2}$	$\mathbf{Y_1}$	$\mathbf{Y_2}$
Sex (x_1)				
Knowledge about HIV/AIDS X_2)	-0.02			
Risk Reduction Behaviors (Y_1)	0.142**	0.138**		
Readiness for VCT (Y_2)	0.037	0.086	0.146*	

P*<0.05

In addition to Pearson's product moment coefficient(r), analysis of simple regression was employed to see whether knowledge about HIV/AIDS (X_2) could predict the respondents' risk reduction Behaviors (y_1). Summary of the regression analysis is presented as follows.

Table 2: Summary of simple regression for predicting risk reduction behaviors from knowledge about HIV/AIDS

Source	Sum of squares	Degree of freedom	Mean squares	F
Regression	351.46	1	351.46	
Residual	18205.41	382	47.65	7.37*
Total	18556.87	383		

P *<0.01

The F ratio indicated in table (2) reveals that at alpha level .01, one can say that knowledge about HIV/ AIDS is related to the respondents' risk reduction behaviors. It is also learned from the simple regression analysis that with (t =2.72*, p<.01) knowledge about HIV / AIDS is found to be contributor to risk reduction behaviors. However, knowledge about HIV/AIDS is found to contribute only about 1.9 % for the variations in respondents' risk reduction behaviors. Therefore, the prediction of risk reduction behaviors from knowledge about HIV/ AIDS is statistically significant in this study. In a similar manner, analysis of simple regression was employed to see the effect of knowledge about HIV/ AIDS on the respondents' Readiness to undergo VCT.

However, congruent with the correlation value, simple regression analysis (F=2.85, $P \geq 0.05$, R^2 =0.007) shows that knowledge about HIV/AIDS is not related to readiness to undergo VCT. In this study, knowledge about HIV/AIDS is found to contribute only 0.7 % of the variations in readiness to undergo VCT. Thus, the prediction of readiness to undergo VCT from knowledge about HIV / AIDS is not statistically significant among college students in this study.

Furthermore, analysis of simple regression was performed to check the contribution of risk reduction behaviors to readiness for VCT. Summary of the analysis is shown as follows.

Table 3: Summary of simple regression for predicting readiness to undergo VCT from risk reduction behaviors

	Sum of squares	Degree of freedom	Mean square		
Regression	642.02	1	642.02	F	
Residual	29349.644	382	76.832	8.356*	R^2 =0. 021
Total	29991.664	383			

P*<0.05

Simple regression analysis of the data shows that risk reduction behavior significantly predicts Readiness to undergo VCT (F= 8.356*, p<0.05). The regression coefficient, also shows that with (t= 2.891*, p<0.05), risk reduction behavior is found to contribute to readiness to undergo VCT. Thus, the prediction of readiness to undergo VCT from risk reduction behaviors is statistically significant among college students in the present study. However, it is learned from this study that only 2.1 % of the variations in the readiness to undergo VCT could be attributed to risk reduction behaviors.

Finally, analysis of multiple regressions was employed to see whether knowledge about HIV/AIDS in combination with risk reduction practices could predict readiness to undergo VCT. Summary of the analysis is indicated in the following summary table.

Table 4: Summary of multiple regression of predicting readiness to undergo VCT from knowledge about HIV/ AIDS and risk reduction behaviors

	degree of freedom	Mean square	F	R^2
Regression	2	387.607		
Residual	381	76.684	5.055*	0.026
Total	383			

P*<0. 05

Multiple regression analysis showed that knowledge about HIV/AIDS and risk reduction behaviors taken together are significantly related to readiness to undergo Voluntary Counseling and Testing for HIV (F=5.055*, P≤ 0.05). Knowledge about HIV/AIDS and risk reduction behaviors together contributed about 2.6% of the variations in readiness to undergo VCT among college Students. Thus, the prediction of readiness to undergo VCT from knowledge about HIV/ AIDS and risk reduction behaviors taken together is found to be statistically significant among college students in this study.

The second research question in the present study was about college students' differences in knowledge about HIV /AIDS, risk reduction behaviors and readiness to undergo VCT as a function of sex. Accordingly, comparison of mean (t-test) was employed taking knowledge about HIV/AIDS, risk reduction behaviors and readiness to undergo VCT as dependent variables and sex as an independent variable. However, the result of t-test had shown that shown significant difference only in risk reduction behaviors. Analysis of t-test is indicted as follows.

Table 5: Summary table of t-test on the students' risk reduction behaviors

Variable	Sex	Participants	Mean	St. deviation	t

Risk reduction behaviors	Male	205	46.9	6.64	2.98*
	Female	179	44.69	6.91	

P*<0.05

As shown in the above table, the students' risk reduction behavior brought a significant difference (t=2.98*, p<0.05). In this study, female students are found to be less effective in risk reduction behaviors as compared to their male counter parts. An assessment made to see if the students' readiness to undergo VCT indicated no significant difference. Generally, female and male participants in the present study have shown differences only in risk reduction behaviors.

Discussion

The major purpose of the present study was to assess the relationship of the students' knowledge about HIV/AIDS, risk reduction behaviors and readiness for VCT. Accordingly, correlation coefficient of the variables shows positive relationship between knowledge about HIV/AIDS and risk reduction behaviors. Besides correlation coefficients, analysis of simple regression disclosed that the students' knowledge about HIV/AIDS had slightly contributed to their risk reduction practices. However, the relationship of the two variables is not as strong as commonly expected.

On one hand, the current result is consistent with a previous study conducted in America. Anderson *et al.* (2002) reported that students with high knowledge about HIV/AIDS were found to be less likely to commit multiple sexual intercourse but more likely to report consistent and correct condom use. In a similar manner, the current result indicates that increased

knowledge about HIV/AIDS can lead to a change in behavior to the desired directions. Therefore, it is encouraging to see that the present anti HIV/AIDS campaigns can promote the attempts of curtaining the HIV/AIDS epidemic.

Contrary to the present result, there are some studies which reported that high level of knowledge about HIV/AIDS did not lead to the desired behavioral changes (Fisseha *et al.* 1997; Beyene *et al*. 1997; Kelly 2001; Niguse 1998). Rationalizing such odd results, some researchers (e.g. Shitaye *et al.* 2004; Fonchingong *et al.* 2004; Mehret *et al*, 2002) argue that the un-attainability of the desired behavioral change is because of wrong interpretations and misunderstandings about HIV/AIDS. Hence, these researchers suggested that it is unfair to conclude that high knowledge about HIV/AIDS can not lead to risk reduction behaviors. The present result, therefore, support the proposition that absences of the desired behavioral change may be because of misconceptions not because of the un-relatedness of the variables.

With regard to the assessment of higher institution students' knowledge about HIV/AIDS, Kelly (2001) described that tertiary level students of South Africa seem to be generally aware of the existence of HIV/AIDS and to know the basic facts about its transmission. Kelly added that almost two third of the students surveyed stated that they had changed their behavior because of what they had learned about HIV/AIDS with significant proportions saying that their changed behavior now allowed them for condom use. Descriptive statistics of the data shows that the students' HIV/AIDS related knowledge mean score is 16.19 on a scale of maximum score 18. Thus, the students' knowledge about HIV/AIDS is said to be high.

In this respect, the present result is congruent with previous findings of (Niguse 1998; Beyene et al. 1997; Kelly 2001).

Generally, even if the prediction level is not strong, it can be said that knowledge about HIV/AIDS has contributed to risk reduction behaviors among the participants of the present study. However, the reported risk reduction behavior is not equivalent to the widely held assumption that high knowledge about HIV/AIDS leads to high risk reduction behaviors.

Further interpretation of the correlation value shows that the relationship between knowledge about HIV/AIDS and Readiness to undergo VCT is not statistically significant. In a similar manner, analysis of simple regression for the prediction of readiness to undergo VCT from knowledge about HIV/AIDS has also shown ($t=1.82$ $P<0.05$) insignificant correlation between the two variables. This result is incongruent with a common assumption that high knowledge of HIV/AIDS is one of the motivators for individuals to get counseled and tested. Thus, the present result is parallel to what Solomon (2004) mentioned that as public awareness of HIV/AIDS increases, so will readiness for VCT.

Some previous studies indicate that people refuse testing because HIV testing and subsequent knowledge of HIV status can bring emotional stress, stigma and abandonment (Guary et al. 1999; cited by Shitaye et al. 2004). Fylkesnes & Siziya (2004) also suggested that concern of being HIV infected is the main factors that influence readiness to undergo VCT among the young people. Similarly, a study conducted in Zambia revealed out that, readiness for VCT among young people was found to be very low. In spite of knowledge and readiness for VCT, significant relationship is found between the students' risk reduction behaviors and readiness for VCT. Analysis of

simple regression has shown that risk reduction behaviors significantly predict readiness to undergo VCT ($F=8.356^*$, $P < 0.05$). However, it is learned from this study that risk reduction behavior contributed only about 2.1% of the variations in readiness for VCT.

One possible explanation for such result may be the respondents' less perception of HIV positive test results. In other words, since the respondents had reduced risk and do not expect to be HIV positive, fear of coping with results may not have threatened their readiness for VCT. Inconsistent with the present result, Kathleen et al. (1997) indicated that readiness to undergo VCT was generally higher among people at high risk for acquiring or transmitting the infection, (e.g. STD patients, pregnant women at high risk) than among low risk persons. Similarly, Fylkesnes & Siziya (2004) suggested that individuals' perception of risky behaviors has positive influence on readiness to utilize VCT services among young people.

The respondents' knowledge of HIV/AIDS in this study was found to predict their risk reduction behaviors but failed to influence on their readiness to access VCT. Beyond this, further investigation was carried out to check whether HIV/AIDS related knowledge in combination with risk reduction behaviors could predict readiness to undergo VCT. Multiple regressions analysis result has shown that HIV/AIDS related knowledge and risk reduction behaviors taken together predict the respondents' readiness to utilize VCT services. However, when we see the independent contribution of knowledge about HIV/AIDS and risk reduction behaviors, it is only risk reduction behavior that significantly predicts the respondents' readiness to undergo VCT. However, the contribution is found to be only 2.1%.

On one hand, previous studies indicated that readiness to undergo VCT was found to be higher among people who are at high risk for acquiring HIV and who acknowledge these risky behaviors (Kathleen et al. 1997; Fylkesnes & Siziya 2004). Yet, there is evidence that tertiary level students do not regard themselves as being seriously at risk of HIV infection (Kelly, 2001).Similarly, it was indicated that perceived probability of a positive HIV result is one of the variables most significantly associated with low readiness for VCT (Wilson et al. 1996; cited by Solomon et al. 2004).

In the present study, it has been found that the respondents' knowledge of HIV/AIDS could contribute to their risk reduction practices. Thus, absence of risky behaviors could be indicative of less perceived probability of HIV positive results. Consequently, the participants might have been motivated to know their blood status as far as they are confident of themselves. The present result, therefore, has shown that knowledge about HIV/AIDS combined with risk reduction behaviors can influence readiness to undergo VCT.

Particular to differences and similarities, the present study shows that there is no significant mean difference between male and female students in their HIV/AIDS related knowledge. This result is found to be incongruent with UNICEF (2010) indicated that Ethiopian males have comprehensive knowledge of AIDS than females (33 % males and to 20 %). Unlike the case of knowledge about HIV/AIDS, sex is found to bring significant statistical difference on risk reduction behaviors among the participants of the present study. Incongruent with the present study, Ashabir (1995) reported that male students in the TTI seem to be less efficient in promoting risk reduction behaviors than their female counterparts. The present study, however, shows

that male participants seem to have reduced risky behaviors as compared to their female counter parts.

Evidences indicate that young women are much more likely to be infected by HIV than young men. For example, Masters et al. (1995) pointed out that women are biologically more vulnerable to infection and often have less power to refuse sex or insist condom use. Specific to Ethiopian case, World Bank (2008) stressed that young girls in Ethiopia are more vulnerable to HIV than boys because of early age at sexual debut, early marriage, sexual abuse and violence such as rape and abduction. Consistent with the present result, UNICEF (2010) revealed that condom use at high risk sex among Ethiopian females was only 28 % while that of males was 50 % in 2005.

A possible explanation for such result may be the effect of an ongoing relationship promise. Because of the effect of culture, the notion of trust affects females than males. Perhaps, for a female student, promise of an ongoing relationship from the male may be sufficient to trust without questioning about his previous risk for the disease. This situation added with their failure of negotiating non-risky sexual practices may indicate that most of the female students have perceived themselves to be at risk.

Like that of HIV/AIDS related knowledge and risk reduction behavior, readiness for VCT of the students was examined on the basis of their sex. The result justifies that there is no significant difference between male and female participants in their readiness to utilize VCT services. The present result is consistent with previous study result of Fylkesnes & Siziya (2004) that reported no consistent difference in readiness to undergo VCT between male and female participants.

Conclusions

The results of the present study has enabled the researcher to draw the following conclusions

- There is positive relationship between the college students' knowledge about HIV/AIDS and their risk reduction practices. From this, it is possible to generalize that knowledge of HIV/AIDS can somehow contribute to risk reduction practices of the youth.
- Knowledge about HIV/AIDS has no direct relationship with readiness to utilize VCT services. Thus, college students' knowledge about HIV/AIDS did not contribute for their decision to be counseled and tested.
- Knowledge on HIV/AIDS and risk reduction behaviors taken together could predict the college students' readiness to undergo VCT .Thus, possessing the necessary knowledge related to HIV/AIDS followed by precautions not to be infected by HIV/AIDS can contribute to the decision to be counseled and tested for HIV.
- The students' knowledge about HIV/AIDS and readiness to undergo VCT has not shown statistically significant difference due to sex. However, female participants in this study were found to be less effective in risk reduction practices. This could be because of their feeling of Powerlessness to challenge those practices that may increase their risk for HIV or their failure to defend when their intentions of using preventive methods are disposed by their male sexual partners.

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***Synthesis* AIDS in Ethiopia**