



Assessment of Knowledge and Attitudes towards Human Immunodeficiency Virus, and Perceptions towards Premarital Sex among College students: A Cross-sectional Study

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ABSTRACT

University/college students are at risk to Human immunodeficiency Virus because of their risky sexual behaviors. Interventions based on data are, therefore, crucial to mitigate the challenge related to human immunodeficiency virus among college/university students. This study aimed to assess the knowledge and attitudes of students at Gondar College of Teacher Education towards human immunodeficiency virus and their perceptions towards premarital sex. A cross-sectional quantitative survey employed on 400 students. Sample size determined using single population proportion formula where the individual participants selected by simple random sampling technique after proportionately stratified in department & year of study. The Data was collected through self-administered questionnaires and presented in frequencies and percentages. Inferential statistics determined using chi-square, independent t-test, and one-way Analysis of Variance. Most respondents (94.3%) had excellent knowledge of human immunodeficiency virus; some reported misconceptions. Third-year and sexually inexperienced students showed a low level of knowledge on human immunodeficiency virus ($F = 6.198, p = 0.002$). Many respondents (35.6%) had negative attitudes towards people living with human immunodeficiency virus. Chi-square analysis showed that negative attitude towards acquired immunodeficiency syndrome significantly associated with females ($\chi^2 (1) = 6.420, p = 0.011$), unmarried respondents ($\chi^2 (1) = 4.178, p = 0.041$), and younger ages ($\chi^2 (2) = 11.278, p = 0.01$). One-hundred twenty-five (37.7%) respondents claimed a history of sexual experience. Many respondents (23.5% to 62.3%) showed permissive attitudes towards premarital sex. Most respondents showed good knowledge about human immunodeficiency virus & positive attitudes, however, some misconceptions, negative attitudes, and sexual practices observed in the study. Many respondents showed permissive behaviors towards premarital sex. Thus, future research and human immunodeficiency virus prevention interventions in the college should focus on behavior change models and strengthening cultural norms.

Keywords: Attitudes; College students; Gondar/Ethiopia; HIV/AIDS; Premarital sex

INTRODUCTION

Globally, young people between 15 and 24 years of age account for nearly half of all new human immunodeficiency virus (HIV) infections (Asante et al., 2014). Youths are vulnerable to HIV because of their physical, psychological, and economic reasons (Oppong Asante & Oti-Boadi, 2013). Higher education institutions host youths who are more likely exposed to risky sexual practices such as substance use, sexual compulsion, and unsafe sex (Gemedda et al., 2017). A study in Ghana revealed that the lifestyles of university students put themselves at risk of contracting HIV (Oppong Asante & Oti-Boadi, 2013). Peer pressure and merit-based sex (to get expensive clothing, jewelry, and accessories) motivate young women

to engage in sexual practices. Youths, thus, must struggle with their social autonomies, peer pressures, and lack of maturity to make positive decisions about sex (Andrew et al., 2018).

Therefore, knowledge about HIV can serve as one tool to deal with positive sexual decisions. The spread of HIV in any community partly determined by the knowledge and attitudes towards sexuality and actual sexual practices (Gemedda et al., 2017). Research findings revealed that lack of adequate information put higher institution students at risk of getting HIV and acquired immunodeficiency syndrome (AIDS) (Adefuye et al., 2009; COP/ROP, 2019; Folasayo et al., 2017; Shiferaw et al., 2011a, 2014; Tan et al., 2007). A study in Lao showed that inadequate knowledge, negative attitudes, and risky sexual practices were the major hindrances in the prevention of HIV/AIDS

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(Bounbouly Thanavanh, Harun-Or-Rashid, 2013). The level of HIV knowledge, attitude, and sexual practices against HIV/AIDS can form a basis for behavioral interventions (Gemedo et al., 2017) and HIV prevention programs usually focus on increasing knowledge to overcome misconceptions and promote positive attitudes towards HIV/AIDS (Kassa et al., 2016).

A qualitative study among nine higher education institutions in Ethiopia claim that students in higher education institutes had a clear gap of knowledge about HIV and AIDS (MoE, 2012). A study in Madawalabu University showed that the knowledge of students about HIV was unsatisfactory (Teferra et al., 2015). Over the past two decades, Ethiopia achieved notable results in reducing HIV prevalence rate from 3.3% in 2000 to 0.9% in 2017; and AIDS-related deaths decreased from 83,000 deaths in 2000 to 15, 600 in 2017 (HAPCO, 2018). However, this gain challenged by over satisfaction and reduced effort. Recent reports in Ethiopia revealed that sexual practice among unmarried youths starts at early ages and the prevalence of sexually transmitted diseases rises, including HIV/AIDS (COP/ROP, 2019). A study at Jigjiga University showed that students were at risk of contracting HIV because of their sexual behaviors (Mavhandu-Mudzusi & Asgedom, 2016). Another study at Haramaya University showed that there was a high level of sexual risk behavior among students (Dingeta et al., 2012). Similar study reported in Bahir Dar University (Wondemagegn Mulu, Mulat Yimer, 2014).

Apart from HIV/AIDS knowledge and attitudes, researchers argued that premarital sex may contribute to the expansion of HIV/AIDS. Several studies in Ethiopia revealed youths were engaged in premarital sex, though premarital sex is taboo in the country (Kassa et al., 2016; Kebede et al., 2018a; Witte, K, Girma, B, 2003). Keeping virginity until marriage had been an accepted norm in Ethiopia, but now it seems to be eroded for various reasons (Molla et al., 2008). A research argued that to change negative health behaviors, one must first identify and promote positive health behaviors within the cultural logic of its contexts (Airhienbuwa et al., 2014).

Some documents suggested that HIV prevention programs are more likely to be effective if it relies on behavioral theories (Airhienbuwa et al., 2014; Scholly et al., 2005). Four of the most commonly cited theories in HIV prevention are the Health Belief Model, the AIDS Risk Reduction Model, the Stages of Change, and the Theory of Reasoned Action (FHI, 2011). Applying one or more of the behavior change theories in universities or colleges in Ethiopian could reduce the prevalence of HIV infection among youths.

Since most youths in Ethiopia are now at universities and colleges, these places are the best place to deal with HIV/AIDS. That is why HIV/AIDS prevention programs put in place at universities and colleges in the country (HAPCO, 2018). Thus, Gondar College of Teacher Education (Gondar CTE) is trying to implement strategies to reduce the prevalence of HIV infection among students. Among these strategies include allocating 2% budget for HIV awareness campaigns, voluntary counseling and testing, condom promotion and provision, delivering life skills and peer education training. However, experiences from the college anti-AIDS club showed that HIV prevention service utilization among students in the college was poor. This situation initiated the researcher to conduct this research and seek interventions for future planning. The findings of this study could have implications for future HIV prevention plan and can be considered as part of the strategy to lessen the HIV/AIDS burden in the study area. Therefore, the study aimed to assess student's knowledge and attitudes towards HIV/AIDS, and their perceptions on premarital sex.

MATERIALS AND METHODS

Study area:

The study was conducted at Gondar College of Teachers Education (CTE). The college is found in Gondar town, a historic town, with latitude 12°36'N and longitude 37°28'E, and 2133 meters above sea level. The Ministry of Education, Ethiopia, established Gondar CTE in 1981 as a Teacher Training Institute and later upgraded to college level by the Amhara National Regional State Education Bureau. Since its establishment, the college has been producing quality teachers to primary schools. There were 2,653 (male 1235 and female 1418) diploma trainees under regular program during the study period.

Study design and period:

A cross-sectional quantitative survey used as the study design to gather information across different departments and years of study from April to June 2017.

Source of population:

Registered regular students by the Office of Registrar, Gondar CTE, from year 1 to 3 in different departments were considered as the study population and fulfill the inclusion criteria.

Inclusion Criteria:

All students registered from year 1 to 3 under the regular program and present in the class during data collection period included in the study.

Exclusion criteria:

Regular students who were not attending class at the time of data collection and all extension students were excluded from the study.

Sample size and sampling technique:

Sample size determined using single population proportion statistical formula taking 60% knowledgeable about HIV/AIDS according to the previous study conducted on knowledge of HIV transmission and prevention in the college (Aragaw Shibabaw, 2007). Considering 5% of absolute precision with 95% confidence interval, the minimal sample size attained was 324. Taking non-response rate and mistreatment of questionnaires into consideration (19%), the final sample size brought to 400. Assuming homogeneity in their background (similar locality, language, and culture) and nearly equivalent class size (30 to 40 students per section), participants selected randomly from each section, after proportionately stratified in year of study and department.

Data collection tool and technique:

Before distributing the questionnaires, data collectors informed respondents about the purpose of the study and on how to fill out the questionnaire. After getting oral consent, the data collectors distributed the self-administered questionnaires to respondents and assured the confidentiality of their responses. Participants filled out the questionnaires privately on their own pace and returned it to the data collectors. Two instructors from the Department of Natural Science who have rich experience in research and data collection assisted the researcher during questionnaire administration and data entry into SPSS.

Survey questionnaire:

The purpose of the questionnaire was to get information about the knowledge and attitudes of respondents towards HIV/AIDS, and their perceptions towards sex before marriage. The researcher adapted and developed the questionnaire from previous studies (Akoachere, 2016; Bounbouly Thanavanh, Harun-Or-Rashid, 2013; Shiferaw et al., 2011b). It was first prepared in English; later on translated into the local language, Amharic to avoid language barriers. The questionnaire included socio-demographic information, questions related to HIV/AIDS knowledge, questions on attitudes, and items on perceptions towards premarital sex. The socio-demographic characteristics of the respondents included age, sex, and year of study, marital status, sexual experience and department. There were 11 questions related to HIV/AIDS knowledge, 8 questions on attitudes, and 6 questions regarding

the perceptions of students towards premarital sex. A pre-test conducted among 60 regular students who did not take part in the study. This tryout helped the researcher to validate the instrument and make clarity to some items.

Dependent variables:

HIV/AIDS knowledge, attitude, and perceptions towards premarital sex

Independent variables:

Age, sex, department, year of study, sexual experience, and marital status

Operational definitions and scoring:

In this study, HIV/AIDS knowledge and attitudes were defined as follows.

Knowledge:

Respondents who answered greater than the mean of knowledge-related questions were categorized as knowledgeable whereas those who answered less than or equal to the mean were categorized as having inadequate knowledge.

Attitude:

Students who scored above the mean were categorized as having favorable attitude while those who scored less than or equal to the mean score were considered as having an unfavorable or negative attitude.

Scoring:

For HIV/AIDS knowledge, respondents replied to the 11 questions regarding HIV transmission, prevention, symptoms, and testing by choosing 'agree' or 'disagree' with the provided information. Agree and disagree responses later interpreted as "Yes" and "No". Every correct response coded as 1 and incorrect responses marked 0. Therefore, the minimum and maximum scores can vary between 0 and 11. Knowledge scores from 0 to 6 considered as poor, whereas scores from 7 to 11 taken as having an excellent knowledge of HIV/AIDS as in (Andrew et al., 2018; Shiferaw et al., 2011a). The internal consistency of the HIV/AIDS knowledge subsection was $\alpha = 0.751$.

Respondents' attitude towards HIV/AIDS measured using eight questions with a four point Likert - scale, with strongly disagree -1, disagree - 2, agree -3, and strongly agree - 4. Neutral options omitted to determine the position of respondents towards the disease. Later on, strongly disagree and disagree responses summed up together and considered as 'disagree' whereas strongly agree and agree grouped together as 'agree'. Every positive answer to each attitude question coded as 1 and 0 for negative responses. The scores then summed up to generate an overall attitude score for every

participant. The level of attitude can range from 0 (minimum) to 8 (maximum). The scores of attitude ranging from 0 to 5 considered as negative and those scores from 6 and above considered as positive as in (Akoachere, 2016). The internal reliability calculated for attitude part was 0.736.

In the end, the perception of respondents towards premarital sex determined using six questions with a four point Likert—scale: strongly disagree -1, disagree -2, agree -3 and strongly agree -4. Once again, strongly disagree and disagree responses re-grouped as 'disagree' with the provided information whereas agree and strongly agree grouped and considered as 'agree'. The 'disagree' responses to every question on premarital sexual attitude marked as 1 and the 'agree' responses coded as 2.

Data management and analysis:

The collected data checked for completeness and any incomplete or misfiled questionnaires discarded. Data then entered into the Statistical Package for Social Sciences (SPSS) version 20.0 and cleaned using frequencies for implausible and missing values. Participant's response to questions related to HIV/AIDS knowledge, attitude, and perceptions towards premarital sex recoded into a new variable as described in the scoring section before the final analysis. Demographic variables and perceptions to premarital sex analyzed in frequencies and percentages. For mean comparisons, the non-normally distributed HIV/AIDS knowledge scores transformed into an approximately normally distributed data using the transform command in SPSS. Then after, an independent sample t-test and Analysis of Variance (one-way) employed to compare any differences in HIV/AIDS knowledge mean score against the

demographic variables. Chi-square test used to explore the associations between attitudes and demographic variables. The relationship between the HIV/AIDS knowledge and attitude towards the disease analyzed using the Pearson product correlation coefficient. In all cases, a two tailed and $p < 0.05$ considered being statistically significant at 95% CI.

Ethical clearance:

Permission to carry out this study got from the Ethical Review of the college CTE. Before dispatching questionnaires, all the study participants got information about the purpose of the study and assured that all data is confidential and analyzed anonymously. All respondents gave oral consent to take part in the study.

RESULTS

Demographic data:

Among 400 study participants, 332 completely and correctly filled the questionnaires, giving a response rate of 83%. Almost an equal number of males (48.5%) and females (51.5%) took part in the study. The mean age of the respondents was 20.3 years ($SD \pm 2.5$), with a minimum of 17 (celebrated 17th birth date) and a maximum of 35 years of age. Most respondents (82.5%) were unmarried, and only 17.5% married. Among the study participants, 37.7% (125) were sexually active (Table 1).

Knowledge about HIV/AIDS:

The respondents' raw score on HIV/AIDS knowledge varied from 3 to 11 out of 11, with a mean of 9.33 ± 1.53 . Most of the respondents (94.3%) had excellent HIV/AIDS knowledge.

Table 1: Demographic information of the respondents involved in the study at Gondar CTE, April 2017 (N = 332, own data)

		Frequency	%
Sex	Male	161	48.5%
	Female	171	51.5%
Age (years)	< 18	8	2.4%
	18 – 20	182	54.8%
	21 – 25	133	40.1%
	> 25	9	2.7%
Year of study	Year 1	85	25.6%
	Year 2	129	38.9%
	Year 3	118	35.5%
Marital status	Married	58	17.5%
	Unmarried	274	82.5%
Sexual experience	No	207	62.3%
	Yes	125	37.7%
Departments	Language	58	17.5%
	Math's	74	22.3%
	Natural science	66	19.9%
	Social science	43	13.0%
	Health & physical education	70	21.1%
	Education (preschool & special need)	21	6.3%

N = number of respondents

However, some misconceptions observed like diagnosis of HIV after a week of unsafe sex (20.8%), a woman will not contract HIV if she had unsafe sex during her period (14.5%), individuals with HIV in their blood quickly show serious signs of being infected (14.5%), and an individual will not get HIV if she/he is taking antibiotics (14.5%, Table 2). One-hundred twenty-five (37.7%) respondents didn't know a female condom.

Association of HIV/AIDS knowledge with demographic variables:

Sexually inexperienced respondents had statistically significantly higher mean scores of HIV knowledge (9.46) than sexually experienced respondents (9.11) ($t = 2.011, p = 0.045$). The one-way ANOVA results showed that second-year students had statistically significantly higher mean score of HIV knowledge (9.61) than first (9.42) and third year (8.95) students ($F = 6.198, p = 0.002$). Other demographic variables didn't seem to contribute to HIV knowledge difference (Table 3).

Attitude towards HIV/AIDS:

Table 2: Demographic information of the respondents involved in the study at Gondar CTE, April 2017 (N = 332, own data)

		Frequency	%
Sex	Male	161	48.5%
	Female	171	51.5%
Age (years)	< 18	8	2.4%
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Year of study	Year 1	85	25.6%
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Departments	Language	58	17.5%
	Math's	74	22.3%
	Natural science	66	19.9%
	Social science	43	13.0%
	Health & physical education	70	21.1%
	Education (preschool & special need)	21	6.3%

N = number of respondents

Table 2: The response of students to HIV/AIDS knowledge who took part in the study at Gondar CTE, April 2017 (N = 332)

Questions on HIV/AIDS Knowledge	Correct responses		Misconceptions	
	N	%	N	%
HIV can be transmitted through casual contact	311	93.7%	21	6.3%
A person can get HIV by sharing a glass of water with someone who has HIV	321	96.7%	11	3.3%
Washing genital parts after sex keeps a person from getting HIV	307	92.5%	25	7.5%
All pregnant women with HIV in their blood will have babies born with AIDS	291	87.7%	41	12.3%
People with HIV in their blood will quickly show serious signs of being infected	283	85.2%	49	14.8%
HIV can be contracted by kissing with HIV-positive partner	303	91.3%	29	8.7%
A woman cannot get HIV if she had sex during her period	285	85.8%	47	14.2%
There is a female condom that can decrease a woman's chance of getting HIV	207	62.3%	125	37.7%
A person will not get HIV if she or he is taking antibiotic	284	85.5%	48	14.5%
Having over one sexual partner can increase a person's chance of being infected with HIV	242	72.9%	90	27.1%
Taking a test for HIV one week after having sex will tell a person if she or he has HIV	263	79.2%	69	20.8%

N= number of respondents

Table 3: The socio-demographics and mean differences in HIV/AIDS knowledge among respondents at Gondar CTE, April 2017 (N = 332)

	N	%	Mean	Standard Deviation	Statistical value	P- value
Sex					0.727a	0.468
Male	161	48.5%	9.39	1.49		
Female	171	51.5%	9.27	1.57		
Age					-1.334a	0.183
17-20	190	57.2	9.2316	1.47		
21 and above	142	42.8	9.4577	1.61		
Year of study					6.198b	0.002*
Year 1	85	25.6%	9.42	.14		
Year 2	129	38.9%	9.61	.13		
Year 3	118	35.5%	8.95	.16		
Marital status					0.185a	0.854
Married	58	17.5%	9.36	1.84		
Unmarried	274	82.5%	9.32	1.46		
Sexual experience					2.011a	0.045*
No	207	62.3%	9.46	1.42		
Yes	125	37.7%	9.11	1.69		
Department					0.759b	0.747
Language	58	17.5%	9.52	1.59		
Math's	74	22.3%	9.47	1.58		
Natural Science	66	19.9%	9.24	1.55		
Social Science	43	13.0%	9.30	1.41		
HPE	70	21.1%	9.23	1.43		
Education	21	6.3%	8.88	1.96		

(a) – Independent t-test value, (b)–F-value (one-way ANOVA), (*) significant at 95% CI.

Table 4: The percentage of respondents who answered HIV/AIDS attitude questions in the study at Gondar CTE, April 2017 (N = 332)

	Negative attitude		Positive attitude	
	N	%	N	%
Are you willing to live together with PLHIV in the same house?	146	44.0%	186	56.0%
I dislike handshaking with people who are HIV positive.	53	16.0%	279	84.0%
If your friend is HIV positive, would you continue your friendship with him/her?	76	22.9%	256	77.1%
If a food seller is HIV positive, would you buy items from him/her?	92	27.7%	240	72.3%
Do you think that you have a responsibility in ending HIV transmission?	43	13.0%	289	87.0%
If a student is HIV positive, she/he should be allowed to continue his/her studying in college?	60	18.1%	272	81.9%
AIDS patients should be isolated for the safety of others.	49	14.8%	283	85.2%
If a teacher is HIV positive, she/he should be allowed to continue his/her teaching in the college?	49	14.8%	283	85.2%

The attitude score of respondents varied from 1 to 8 with a mean score of 6.29 ± 1.77 . Overall, 35.6% (115) of the respondents showed negative attitudes towards HIV/AIDS. One-hundred forty-six (44.0%) respondents were not willing to live together with people living with HIV (PLHIV); 16.0% dislike handshaking with PLHIV, and 22.9% will stop their friendship with their HIV positive friend (Table 4). Most respondents (81.9%) agreed that an HIV-positive student

should continue her/his studying in the college, and 85.2% agreed that an HIV-positive teacher should continue her/his teaching in the college (Table 4). Chi-square analysis showed that negative attitude towards HIV/AIDS significantly associated with females ($\chi^2 (1) = 6.420$, $p = 0.011$), unmarried respondents ($\chi^2 (1) = 4.178$, $p = 0.041$), and younger ages ($\chi^2 (2) = 11.278$, $p = 0.01$). No significant difference in attitude with other demographic variables.

Correlates of HIV knowledge with attitude:

Pearson product correlation analysis showed that the HIV/AIDS knowledge of the respondents correlated significantly with their attitude towards HIV/AIDS ($r = 0.120$, $p = 0.045$). That is students with higher knowledge of HIV proportionately developed positive attitudes towards HIV/AIDS, but weak correlation.

Attitude towards premarital sex:

This study also assessed participants' attitude towards premarital sex. Table 5 displays the proportion of respondents who gave answers to questions related to premarital sex. Seventy-eight (23.5%) respondents disagreed that young unmarried women should not have sex until marriage; similarly, 26.2% (87) disagreed that young unmarried males should not have sex until they marry. Almost half of the study participants (54.2%) disagreed to condemned premarital sex and 32.8% (109) agreed to have sexual relationships between unmarried youths.

Asgedom, 2016) claimed a previous history of sexual experience. In agreement with the current finding, 34.2% of respondents at Addis Ababa University (Nigatu Regassa, 2011) and 36.4% of students at Bahir Dar University (Wondemagegn Mulu, Mulat Yimer, 2014) reported a past history of sexual experience. The discrepancies in the findings could be because of differences in the background of the students, sample size, time and place of study. It could also be because of under reporting of past sexual experiences or forgetting back history.

Regarding to the HIV/AIDS knowledge of the respondents, data showed that most of the respondents (94.3%) had a good level of HIV/AIDS knowledge. This finding was comparable to studies conducted in Nigerian private university (97.1%) (Abiodun et al., 2014), Debre Markos University (96%) (Tsegay et al., 2013), and Jiga High School and Preparatory School, Ethiopia (93.3%) (Kassa et al., 2016). Contrary to this, DHS Ethiopia (2016) reported that only 24% of young women and 39% of young

Table 5: The proportion of respondents' response to perceptions towards premarital sex at Gondar CTE, April 2017 (N= 332)

	Disagree		Agree	
	N	%	N	%
Young unmarried women should not have sex until they marry	78	23.5%	254	76.5%
Young unmarried men should not have sex until they marry	87	26.2%	245	73.8%
Unmarried young people should not even have opposite-sex friendships	207	62.3%	125	37.7%
Sexual relationships between unmarried young people are not acceptable even when they love each other	109	32.8%	223	67.2%
Young people who have premarital sex should be condemned for their low social morals	180	54.2%	152	45.8%
Young opposite-sex partners need to check their HIV status	42	12.7%	290	87.3%

DISCUSSIONS

Assessing the knowledge and attitudes of youths towards HIV/AIDS was vital prior to any intervention programs. In addition, the perception of youths towards sex before marriage is also crucial as it determines their sexual behavior. Thus, this study aimed at assessing the status of HIV/AIDS knowledge and attitudes, and perceptions of Gondar CTE students towards premarital sex. The findings showed that 37.7% of the study participants had a history of sexual experience, though the expectation is high because of their living arrangements outside the college campus. Unlike this finding, studies at universities in Ethiopia showed that a higher percentage of students were sexually active. For instance, 52.6% of respondents in a study at the University of Gondar (Shiferaw et al., 2014), 60% of respondents at Aksum University (Kebede et al., 2018b), and 70.5% of the study participants at Jigjiga University (Mavhandu-Mudzusi &

men were knowledgeable about HIV prevention (EDH, 2016). A study among students at Dilla University showed that the level of knowledge on HIV/AIDS related issue was 53%, still lower than the current finding (Gemedo et al., 2017). In this study, majority of the respondents were knowledgeable about HIV/AIDS, though some misconceptions noted. The discrepancies in the percentages could arise because of the cut-off points used in the study. Respondents who answered over 51% of the survey questions categorized as having excellent knowledge, implying that their chance of missing questions was 0% to 49%. Regardless of the inconsistent knowledge of HIV/AIDS among youths, they generally seemed to have better understanding of the disease.

An interesting finding here is that sexually inexperienced respondents had higher HIV/AIDS knowledge mean score than the sexually experienced once. This might infer that

knowledgeable students might have made positive decisions about sex. However, the discrepancies in year of study might be due to personal differences, or any other reason. Unlike the findings in this study, a study in eastern Ethiopia showed that in-school females were less likely to have comprehensive HIV/AIDS knowledge than males (Oljira et al., 2013). The reason third-year students had a low level of HIV knowledge than first and second-year students could probably be because of personal differences, less attention to HIV information disseminations for the past few years before this study, or any other.

Pertaining to the attitudes of participants towards HIV/AIDS, the findings revealed that 35.6% of them showed negative attitudes. In line with this finding, 34% of preparatory students in Gondar town showed negative attitudes towards HIV, AIDS patients and other STDs (Shiferaw et al., 2011a), and 34.5% of Addis Ababa University students showed unfavorable attitudes towards HIV prevention (Abiodun et al., 2014). Unlike the current finding, higher percentages of male high school students in Lao (44.3%, (Bounbouly Thanavanh, Harun-Or-Rashid, 2013) and high school students in Cameroon (47.5%) (Colins Kingoum Nubed and Jane-Francis Tatah Kihla Akoachere, 2016) showed negative attitudes towards people living with HIV. A study at Debre Markos University also showed that 48.5% of respondents had an unfavorable attitude towards treating and working with HIV/AIDS patients (EDH, 2016). The variations in the findings might be due to time difference, nature of study participants, or sample size. Even though Gondar CTE students had a good level of HIV knowledge, they still had a negative attitude towards HIV/AIDS. A study highlighted that knowledge alone was not enough to change attitudes towards PLHIV but also social, cultural, and religious factors could affect it (Shiferaw et al., 2011a). In this study, negative attitude towards HIV/AIDS found to associate with gender female, unmarried and younger students. In contrary to this, female students at Bahir Dar University had a more favorable attitude as compared to males (Mulu et al., 2014).

This study also examined the correlation of HIV/AIDS knowledge with attitude. Data showed that respondents' HIV/AIDS knowledge positively correlated with their attitudes. This indicated that respondents with higher knowledge of HIV proportionately developed positive attitudes towards it. This finding agrees with previous studies (Akoachere, 2016; Bounbouly Thanavanh, Harun-Or-Rashid, 2013) where respondents with medium and high levels of HIV knowledge proportionately developed positive attitudes. Thus,

future HIV awareness campaigns would eliminate some of the misconceptions noted in this study.

This study also assessed the perceptions of Gondar CTE students towards premarital sex. The study found out that 26.2% of males and 23.4% of females stood against the idea that unmarried youths should not have sex until marriage. Almost half of the respondents (54.2%) disagree for blaming premarital sex, and 32.8% agreed to sexual relationships among unmarried youths. These findings showed that Gondar CTE students had permissive attitudes towards premarital sex. Closer to the current finding, nearly half of the study participants in Aksum University accept premarital sexual practice (Kebede et al., 2018b).

Research findings pointed out that attitudes, outlooks, norms, and beliefs related to sexual behaviors determine the intended sexual behavior (McManus & Dhar, 2008). Thus, unmarried youths would likely to engage more in sexual practice as far as the attitudes and norms never detain their sexual behaviors. A study in Bahir Dar town showed that 30.8% of unmarried high school female students had pre-marital sexual experience (Mulugeta & Berhane, 2014). Another study at Madawalabu University showed that 42.7% of the undergraduate health science students had premarital sex (Teferra et al., 2015). In this study, about 61.6% of the sexually experienced respondents were unmarried. This shows that premarital sexual intercourse was high among Gondar CTE students. This implies that more effort is required to gear youths' perceptions towards premarital sexual practices.

There are a number of studies that tried out behavior change interventions for reducing youth's vulnerability to HIV/AIDS. For example, a study in Ethiopia employed the Extended Parallel Process Model (EPPM) to address the KAP-Gap in HIV/AIDS prevention (Witte, K, Girma, B, 2003). The EPPM findings suggest Ethiopian HIV/AIDS prevention campaigns should focus on making youth feel realistically susceptible to getting infected with HIV and making them believe they are able to easily and feasibly use condoms. Another study in USA showed that positive behaviors and sustained personal transformations require a culturally grounded approach to public health interventions (Airhihenbuwa et al., 2014). A review of behavior change theories in South Africa argued that both social and behavioral theories make an important contribution to the design and implementation of prevention programs for HIV/AIDS (G.C. Lindegger, Solomon & Essack Z, 2007). Thus, it would be better if higher education institutions in Ethiopia aim to test some of the behavior change models as an HIV prevention intervention methods and future research areas.

In conclusion, this study assessed the HIV/AIDS knowledge, attitudes, and the perceptions of students towards premarital sex at Gondar CTE. Overall, most students had a good level of HIV/AIDS knowledge and positive attitudes. However, there are some HIV/AIDS misconceptions, negative attitudes, permissive attitudes towards premarital sex. Significant numbers of Gondar CTE students were sexually active; most of which were unmarried. Therefore, future HIV prevention interventions in the college and/or the region should focus on interventions/research based on behavior change models and social/cultural norms.

LIMITATIONS

In this study, only questionnaire data were considered. There would also be a bias in memorizing or under reporting a previous sexual behavior, thus generalizations were made with precautions. But still, the research findings implied to strengthen the HIV preventive measures with major emphasis on behavior change.

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