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ORIGINAL RESEARCH

HIV/AIDS Related Knowledge of University Students in Southeast Ethiopia: A Cross-Sectional Survey

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Purpose: University students are often a sexually active group that is at risk of acquiring and transmitting HIV. This risk depends on their level of knowledge towards the disease. Hence, HIV/AIDS related knowledge represents the acquisition of scientific facts and information regarding the symptoms, way of transmission, adverse consequences, and prevention strategies of the disease. Therefore, this study aimed to assess level of HIV/AIDS related knowledge among regular undergraduate students of Madda Walabu University, Southeast Ethiopia.

Methods: A cross-sectional study was conducted from February 10–25, 2020. A simple random sampling technique was employed to select the study participants. Data were entered to Epi Data version 4.6.0.2 and analyzed using SPSS version 26 software. A bivariate and multivariable binary logistic regression model was used to identify factors associated with level of HIV/AIDS knowledge. Odds ratio with 95% confidence interval and p-value<0.05 was used to declare statistical significance.

Results: A total of 442 study participants were included in the study. The level of HIV/AIDS knowledge among study participants was found to be 51.4%. Health science students [AOR=16.28 (8.21–32.28)], being in year III and above [AOR=5.34 (2.92–9.76)] and having monthly stipend >300 birr from parents and relatives [AOR=2.70 (1.34–5.48)] had a higher odds of a good level of HIV/AIDS knowledge.

Conclusion: Nearly half of the students had a poor level of HIV/AIDS knowledge. Field of study, year of the study, and monthly income were significantly associated with level of HIV/AIDS related knowledge. University-based HIV/AIDS education considering year of study has to be given, and risk reduction on focusing on behavioral change intervention are recommended.

Keywords: HIV/AIDS, knowledge, university students, risky behavior

Introduction

The world has entered the fourth decade of the Acquired Immunodeficiency Syndrome (AIDS) epidemic.[1] A global HIV/AIDS disease burden report published in 2019 shows there were 1,940,000 [966,000 Female, 976,000 Male], 1,210,000 [723,000 Female, 487,000 Male] and 14,500 [9,080 Female, 5,400 Male] new infections globally, in Sub-Saharan Africa, and in Ethiopia, respectively.[2] The new infection rate is projected to rise from 250,000 in 2015 to nearly 400,000 among adolescents annually by 2030 if progress in reaching adolescents stalls globally.[3]

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According to a report from a Ethiopian demographic health survey (EDHS) data of 2016, in Ethiopia around 24% of young women and 39% of young men aged 15–24 years have knowledge about HIV prevention.[4] However, studies among university students reported a Sero-prevalence of HIV/AIDS infection ranges between 0.36–1.2%.[5,6] Recent preliminary reports indicate that the risky behaviors among university students are increasing at an alarming rate.[7] Sexually transmitted infections including HIV/AIDS are high among students having poor knowledge.[8] University students are at higher risk of engaging in risky sexual behavior, especially if they are under the influence of alcohol or drugs and lack the necessary maturity in handling negative peer pressure.[9]

Level of personal knowledge is considered essential for acquiring optimum health, in which, in this context, HIV/AIDS knowledge represents the acquisition of scientific facts and information regarding the symptoms, way of transmission, adverse consequences, and prevention strategies of the disease.[10] The mean level of HIV/AIDS knowledge of undergraduate students is not universal, it varies among universities. For instance, studies from Historically Black College among African-American undergraduate students university (America) reported a high (96.5%) level of knowledge[11] and Bahir Dar university (Ethiopia) reported a relatively low (45.7%) level of knowledge.[12] Other studies found the level of HIV/AIDS knowledge to be from 61–66%.[12–15]

In Ethiopia, interventions targeting the general public do not directly respond to higher education institution students' needs which have an elevated risk for becoming infected with HIV.[17] Perhaps most importantly, it has become increasingly clear that preventing the transmission and the acquisition of HIV must focus upon promoting knowledge and bringing behavioral changes.[1]

Since university students are a valuable resource of society, it is imperative that they are armed with the HIV/AIDS information to protect themselves from falling prey to this infectious disease. They may have shorter relationships and more partners, or engage in risky sexual practices. Therefore, assessing the level of knowledge of HIV/AIDS among university students will provide vital information on the students' knowledge and possible misconceptions of the disease. Hence, this study aimed to assess level of HIV/AIDS related knowledge and its associated factors among regular undergraduate students of Madda Walabu University, southeast Ethiopia.

Methods and Materials

Study Design and Period

An institutional cross-sectional study design was conducted from February 10 to 25, 2020.

Study Setting

The study was conducted in Madda Walabu University on undergraduate regular students. The university was established in 2006 and located in Bale Zone, in the town of Robe, about 430 km away from the capital city, Addis Ababa. According to the data obtained from the registrar record office, currently the university has 50 undergraduate programs, eight schools, one institute, and two colleges of health sciences. It has three campuses, Robe, Goba and Shashamane College of Health Sciences. During the data collection, the university had a total number of 9,253 regular undergraduate students.[18]

Sample Size Determination

Sample size was calculated using a single population proportion formula, assuming a 49.37% proportion of knowledge on HIV/AIDS,[19] 95% confidence interval (CI), and 5% margin of error. $n= (1.96)^2\ 0.5\ (0.5)/(0.05)^2=384$. After adding a 15% non-response rate, the final sample size was found to be 442.

Sampling Procedure

First, Madda Walabu University was selected from public universities found in Ethiopia. Then the identification of the number of the campus, colleges, and number of students in each campus was checked from university registrar record office by principal investigator. After that samples were allocated for each campus accordingly (Goba College of health science and Shashamane, and Robe campus). Then from the total eight schools in Robe campus, six schools were selected randomly. Then students were stratified for selected schools and colleges of health sciences. After that students were further stratified in class year under selected schools and colleges of health science. Finally, simple random sampling was implemented using students list obtained from registrar as sampling frame per selected departments.

Study Variables and Outcomes

Sociodemographic and risk behavior variables were study variables whereas level of HIV/AIDS related knowledge was outcome variable. A series of 20 questions related

with HIV/AIDS were asked. Study participants who scored at least 50% of the knowledge questions were categorized as having "good knowledge" and else were categorized as having poor knowledge.

Data Collection Tools and Procedures

A self-administered English language questionnaire was used to collect data. Four diploma nurses and three university instructors were assigned as data collectors and supervisors, respectively. The data collection tool adopted from a previous study pertinent to the topic, with well validated instruments of internal consistency reliability analysis of HIV-KQ (Knowledge Question) (α=0.91)[20] and internal consistency reliability as measured by Kuder-Richardson formula (KR-20) (α=0.58) (n=483) and test–re-test=0.59 (n=39).[21] The ensuing knowledge section, based on the HIV-KQ-20 scale, consisted of 20 questions related to HIV, modes of its transmission, and prevention. For each of the 20 Yes/No, HIV-related questions, a score of 1 was assigned to each "correct" answer, whereas a score of 0 was assigned to "incorrect" answers and coded. Questions with opposite statements were recoded. No deductions were made for any answer. Assessments were based on the analysis of the summation of these scores, which had a possible range of 0–20, whereby scores greater than or equal to mean indicates good knowledge of HIV, else were considered as having poor knowledge of HIV. In addition, the tool for assessing risk behavior adopted from literature reviewed pertinent to the topic[20,21] and from standard questionnaires designed by Family Health International for Behavioral Surveillance Survey (BSS) on high-risk behavior for HIV-1[24] and contextualized.

Data Quality Assurance

Pretest was done on 5% of the sample size in the non-selected department of MWU, in order to check the clarity of the tool and allocate time needed for filling the questionnaires. Training was provided for data collectors and supervisors. Through the course of data collection, the data collectors were supervised and there was regular phone contact between principal investigator and data collectors to know the data collection progress. Incomplete data were discarded and considered as non-response. The data was said to be incomplete when half of the items in each section were not filled. Therefore, 12 questionnaires were discarded based on this criterion. Finally, the collected data was reviewed and checked for full completeness before data entry.

Data Processing and Analysis

The data was entered to Epi Data version 4.6.0.2 and coded. After that it was exported to SPSS version 26 and cleaned before analysis. Descriptive statistics like frequency, percentage, and mean was computed for the variables. The results of the study were presented using tables, graphs, charts, and text, based on the data obtained. Statistical significance and strength of the association between independent variables and the outcome variable was measured by using a logistics regression model. A variable with *p*-value of less than 0.2 during bivariate binary logistic regression analysis was transferred to a multivariable binary logistics regression model to adjust for possible confounders. Adjusted odds ratios (AOR) with their 95% confidence intervals were used to determine the presence and strength of associations. Enter method was used in the final regression model. *P*-value<0.05 was used to declare statistical significance.

Ethical Consideration

Ethical approval was obtained from the ethical review committee of the Department of Midwifery, school of Nursing and Midwifery Institutional Review Board, University of Addis Ababa, and IRB gave protocol number of A023/20/SNM for this work. Permission was obtained from MWU management and respective schools. Voluntary written consent was obtained from each study participant and the participants were informed about the purpose of the study. To protect students' confidentiality and increase chances of releasing honest information, questionnaires were kept anonymous and the class was designed so students could never read over others' shoulder. This study was conducted in accordance with the Declaration of Helsinki.

Results

Of the total sample size, 430 study participants completed the questionnaire, yielding a response rate of

Table 1 Socio-Demographic Characteristics of the Regular Undergraduate Students of Madda Walabu University Bale Zone, Southeast Ethiopia February 10–25, 2020

Variables	Frequency	%
Sex		
Female	140	32.6
Male	290	67.4
Age		
18–24	393	91.4
≥25	37	8.6
Marital status		
Single	367	85.3
In sexual relationship	63	14.7
Origin or residence		
Urban	225	52.3
Rural	205	47.7
Religion		
Orthodox	199	46.3
Muslim	103	24.0
Protestant	113	26.3
Other*	15	3.5
Ethnicity		
Oromo	308	71.6
Amhara	73	17.0
Tigrean	14	3.3
Other**	35	8.1
Field of study		
Health science	116	27.0
Non-health science	314	73.0
Year of study		
Year II	119	27.7
Year III and above	311	72.3
Monthly stipend from family or relatives in birr		
<300 birr	96	22.3
>300 birr	278	64.7
Do not remember	56	13.0
Preparatory school accomplishing		
Governmental	354	82.3
Non-governmental	76	17.7

Notes: Other* Waqeffatta, Catholic, Adventist. Other** Sidama, Sheka, Woleytta, Silte, Sumale.

97%. The remaining 12 (3%) responses were excluded from analysis due to incompleteness of the data.

Socio-Demographic Characteristics of the Respondents

The mean age of the participants was 21.93 years with a standard deviation of 1.91 years. The study participant's age ranged from 18–28 years. Three hundred and eight (71.6%) of the participants were Oromo by ethnicity, followed by Amhara (73, 17.0%). Of the total respondents, 290 (67.4%) were male, 314 (73.0%) belonged to departments of non-health, and 119 (27.7%) were year II students (Table 1).

Risk Behavior of the Respondents

Regarding substance use, 100 (23.3%), 78 (18.1%), and 45 (10.5%) participants had ever drunk alcohol, chewed chat, and smoked cigarettes, respectively. During staying on campus, 57 (13.3%) participants had tried different ranges of drugs in which 22 (5.1%) tried cocaine, 20 (4.7%) tried shisha/gaya, and 15 (3.5%) had tried hashish (Table 2).

Among the total respondents, around 262 (60.9%) were had been tested for HIV, of which 95 (22.1%) tests were done more than a year ago (Figure 1). Of 160 (37.2%) participants who had ever sexual intercourse, only 30 (7%) of them had used a condom in their first sexual contact. The mean ages at first sexual intercourse of the participants were 18.21 years, with a standard deviation of 2.11 years, in which it was 18.55±2.11 and 17.28±1.89 for males and females, respectively. Regarding sexual partners, 42 (9.8%) participants had more than two sexual partners in their lifetime and 11 (2.6%) had more than two sexual partners during the study time. Among participants with a history of sexual intercourse, 23 (5.3%) reported having sex after drinking alcohol and 13 (3.0%) reported having sex after using psychoactive drugs (Table 3).

HIV/AIDS Knowledge of the Participants

The sum of questions was obtained to range from 4–20, with mean HIV/AIDS knowledge of 13.60 and SD of 3.74. Of the total participants, only 23 participants answered all questions correctly.

Of the total participants, around 344 (80.0%) respondents answered "correctly" to the question that asked if condoms are 100% effective in preventing HIV. In addition, 304 (70.7%) participants answered "correctly" to the question that asked if they can get HIV from a mosquito bite, and almost 70% of the respondents (298, 69.3%) answered correctly the question which asked if all pregnant women infected with HIV will have babies born with HIV/AIDS (Table 4).

As described in Figure 2, nearly half (209, 48.6%) of the respondents had a poor level of knowledge about HIV/AIDS.

Table 2 Substance Use Risk Behaviors for Having HIV/AIDS among Regular Undergraduate Students of Madda Walabu University Bale Zone, Southeast Ethiopia February 10–25, 2020

Variables	Frequency	%
Had smoked cigarettes		
Yes	45	10.5
No	385	89.5
How often do you smoke?		
Everyday	7	1.6
At least once a week	25	5.8
Less than once a week	8	1.9
Do not remember	4	0.9
No response	1	0.2
Chewed chat		
Yes	78	18.1
No	352	81.9
How often do you chew?		
Everyday	25	5.8
At least once a week	24	5.6
Less than once a week	13	3.0
Do not remember	10	2.3
No response	6	1.4
Drinking alcohol		
Yes	100	23.3
No	330	76.7
How often do you drink alcohol?		
Everyday	1	0.2
At least once a week	41	9.5
Less than once a week	27	6.3
Do not remember	27	6.3
No response	4	0.9
Tried to use different range drugs		
Yes	57	13.3
No	373	86.7
Types of drugs		
Shisha/Gaya	20	4.7
Hashish	15	3.5
Cocaine	22	5.1
Go to night clubs		
Yes	37	8.6
No	393	91.4
How often do you go to clubs?		
Everyday	4	0.9
At least once per week	13	3.0
Less than once per week	10	2.3
Do not remember	8	1.9
No response	2	0.5

Factors Associated with Level of HIV/AIDS Related Knowledge

After adjusting for confounders, the field of study, year of study, and monthly income from the parent and relatives were found to be statistically significant predictors of HIV/AIDS related knowledge.

As presented in Table 5, health science students had 16-times (AOR=16.28. 95% CI=8.21–32.28) higher odds of HIV/AIDS knowledge. In addition, year III and above students were 5-times more likely to have good HIV/AIDS knowledge compared to year II students (AOR=5.34, 95% CI=2.92–9.76). Furthermore, students who had a monthly income >300 from the parents and relatives were 2.7-times more likely to have good HIV/AIDS knowledge (AOR=2.70; 1.34–5.48).

Discussion

This study has assessed the level of HIV/AIDS knowledge and associated factors among regular undergraduate students of Madda Walabu University. The finding of this study revealed that 51.4% of respondents were knowledgeable about HIV/AIDS in the study area. This finding is higher than in a study conducted at Bahir Dar university (45.7%),[12] but lower than the study conducted at Dilla (53%),[10] Addis Ababa (66%),[16] Malaysia (64%),[13] United Arab Emirates (61%),[14] Turkey university (61%),[15] and Historically Black College and University (96.5%).[11] The difference in the finding may be due to a difference in assessment tools and population sample used. This further may be due to a difference in health education regarding HIV/AIDS and ways of delivering the education. For instance, in developed countries probably there was an active involvement of governmental and non-governmental organizations in HIV/AIDS related issues (education, providing different training, etc.), resulting in a higher level of knowledge. However, from my observation in developing countries like Ethiopia there is a limited involvement of the non-governmental organization, in which government mainly take the responsibility related issues of HIV/AIDS result in limited accessibility. Furthermore, in Ethiopia the reason why there was a discrepancy in level of HIV/AIDS knowledge among different university students was supposed to be due to differences in

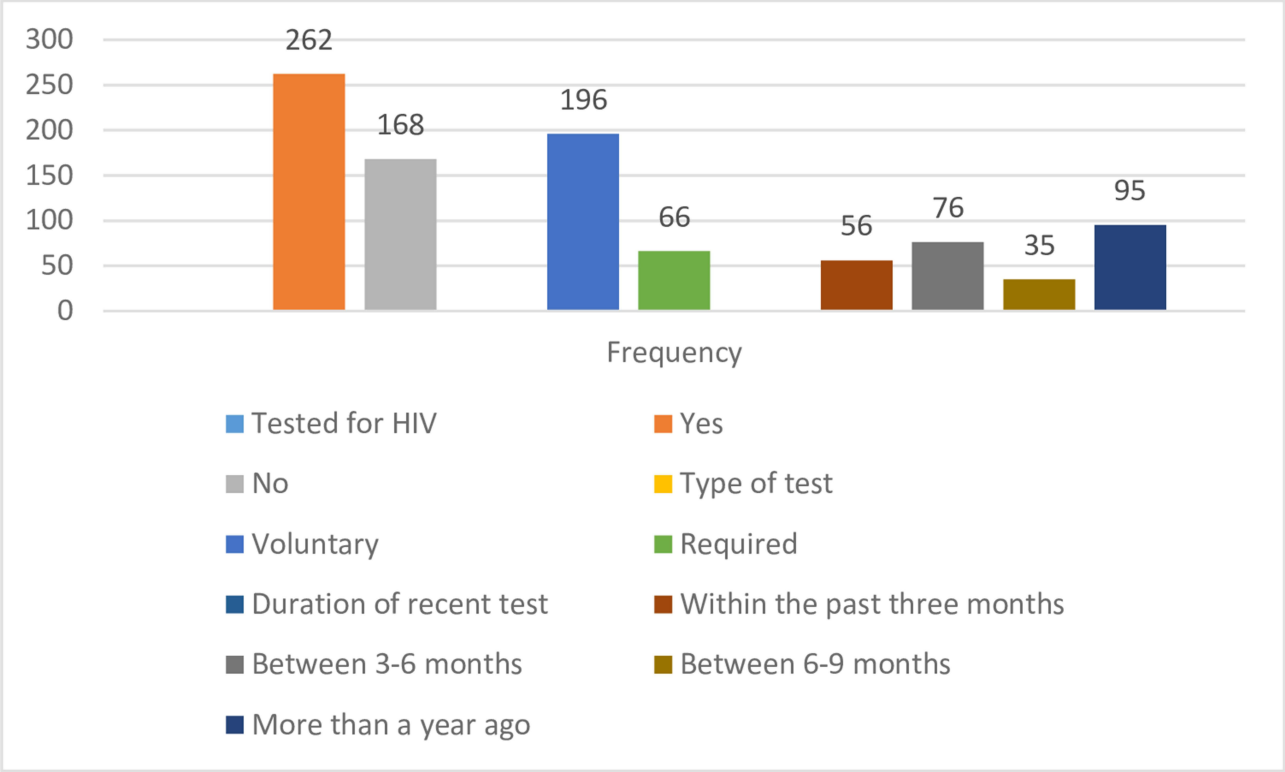

Figure 1 HIV test characteristics of regular undergraduate students of Madda Walabu University, Southeast Ethiopia, 2020.

characteristics of the participants and differences in access and activeness of HIV/AIDS related programs implemented in these universities. In the study area, even if there is a club and office work on HIV/AIDS related issues, it still needs attention to be actively involved in health education regarding HIV/AIDS and fulfil the needs of the university students in all aspects.

The present study revealed that health science students were 16-times more likely to have good knowledge of HIV/AIDS compared to non-health science students. This finding is in line with a study conducted in Addis Ababa University (Ethiopia) in which students enrolled in health departments were almost 3-times more knowledgeable than students in non-health departments,[16] and a related study conducted at a university in Turkey which found that students involved in health fields had higher HIV/AIDS knowledge compared to their counterparts.[23] The probable reason may be that health science students were more informed about reproductive health and could get HIV/AIDS education in their courses. This could be better explained due to the fact that the curriculum of health science programs incorporated facts about infectious diseases in general and HIV/AIDS in particular.

In this study participants earning >300 birr monthly stipend from their families and relatives were found to be almost 3-times more likely to have good HIV/AIDS related knowledge. This finding resembles the study conducted in the university of Malaysia in which students from a family of high monthly income were found to be more knowledgeable about HIV/AIDS[13] and oanther related study conducted in Turkey university students who reported a positive correlation between HIV/AIDS preventive self-efficacy and monthly stipend level.[23] This may be due to participants from a family of high income being exposed most of the time to other extra sources of information and supportive reading materials which is the

Table 3 Risky Sexual Behaviors for HIV Infection aong Regular Undergraduate Students of Madda Walabu University Bale Zone, Southeast Ethiopia February 10–25, 2020

Variables	Frequency	%
Ever had sexual intercourse		
Yes	160	37.2
No	270	62.8
Used condom in first sexual intercourse		
Yes	30	7.0
No	130	30.2
Number of sexual partners in lifetime		
One	58	13.5
Two	34	7.9
More than two	42	9.8
Do not remember	12	2.8
No response	14	3.3
Current number of sexual partner		
One	95	22.1
Two	31	7.2
More than two	11	2.6
Do not remember	6	1.4
No response	17	4.0
Sexual contact with person greater at least 10 years old		
Yes	7	1.6
Used condom	2	0.5
Not used condom	5	1.2
Sexual contact with commercial sex worker (for males only)		
Yes	5	1.2
Used condom	5	1.2
Not used condom	0	0.0
Had sex after drinking alcohol (Male & Female)		
Yes	23	5.3
Had sex after using psychoactive drugs		
Yes	13	3.0
No	417	97.0
Ever watched pornography		
Yes	167	38.8
No	263	61.2

alternative source of information for HIV/AIDS education. This could be better explained due to students who were earning less money not being able to watch alternative source information (like youtube) because of its charges being more than the income they get from their family and relatives.

Table 4 HIV/AIDS Knowledge among Regular Undergraduate Students of Madda Walabu University Bale Zone, Southeast Ethiopia February 10–25, 2020 (n=430)

S. No	Variables	Correctly Answered	
		n	%
1	You cannot get AIDS if you have sex only once or twice without a condom.	322	74.9
2	A person can "pass" an HIV antibody test (test negative) but still be infected with HIV.	172	40.0
3	Condoms are 100% effective in preventing HIV.	344	80.0
4	Males can pass HIV onto others through their semen.	219	50.9
5	You can get HIV by sitting on the seat of a toilet that a person with AIDS has used.	326	75.8
6	Abstinence from sex and drugs is the best way for adolescences to avoid getting HIV.	240	55.8
7	You can get HIV from drinking from the same glass or water fountain that a person with AIDS drank from.	291	67.7
8	HIV can be found in semen, vaginal fluids, and blood.	332	77.2
9	A person can get HIV by sharing drug needles.	352	81.9
10	HIV can be found in breast milk.	302	70.2
11	Once you are infected with HIV, you are infected for life.	306	71.2
12	People infected with HIV are usually very thin and sickly.	227	52.8
13	Some people have gotten HIV by swimming in the same pool as someone with AIDS.	291	67.7
14	You can get HIV from a mosquito bite.	304	70.7
15	Taking a test for HIV 1 week after having sex will tell a person if she or he has HIV.	295	68.6
16	Having sex with more than one partner can increase a person's chance of being infected with HIV.	273	63.5
17	Showering, or washing one's genitals/private parts, after sex keeps a person from getting HIV.	312	72.6
18	All pregnant women infected with HIV will have babies born with AIDS.	298	69.3
19	People who have been infected with HIV quickly show serious signs of being infected.	299	69.5

(*Continued*)

Table 4 (Continued).

S. No	Variables	Correctly Answered	
		n	%
20	A woman cannot get HIV if she has sex during her period.	342	79.5

In this study students in year III and above were found to be 5-times more likely to had good HIV/AIDS knowledge compared to year II. This is supported by a study conducted among Wolkite University students in which junior students had significantly lower odds of being knowledgeable related to HIV/AIDS than their seniors. The possible reason may be that health students took courses related to infectious disease sand HIV infection particularly in most cases if they reached year III and above according to the curriculum, and non-health science students may access more information and some training regarding this infection as the year of study advanced even if there was no course entitled with infectious disease and HIV infection in their curriculum. Another reason may be that most of the time students above year III may be exposed to the practical attachment, mainly in the department of health, in which it helps to increase their knowledge related to HIV/AIDS since they face cases in the hospital and may involve themselves in health education given in health facilities.

Strengths and Limitations of the Study

As with all other research, this research had certain strengths and limitations. The study carefully used an appropriate design to answer the research question. Data was carefully analyzed and interpreted. As limitations, the study was restricted to local (only university level), which decreases its representativeness because it was not done in the general population. Since this study was a cross-section study design, the nature of the study may be difficult to ascertain the causal relationship between the study variables.

Conclusion

In this study area, nearly half of the students had a poor level of HIV/AIDS related knowledge. The field of study, year of the study, and monthly income were associated with level of HIV/AIDS knowledge. To improve the students' level of knowledge related to HIV/AIDS; specified, focused, continued, and strengthened, university-based HIV/AIDS education especially targeting year of study has to be given. In addition, supporting by offering reading materials for students from poor family and risk reduction on behavior change focused intervention are recommended.

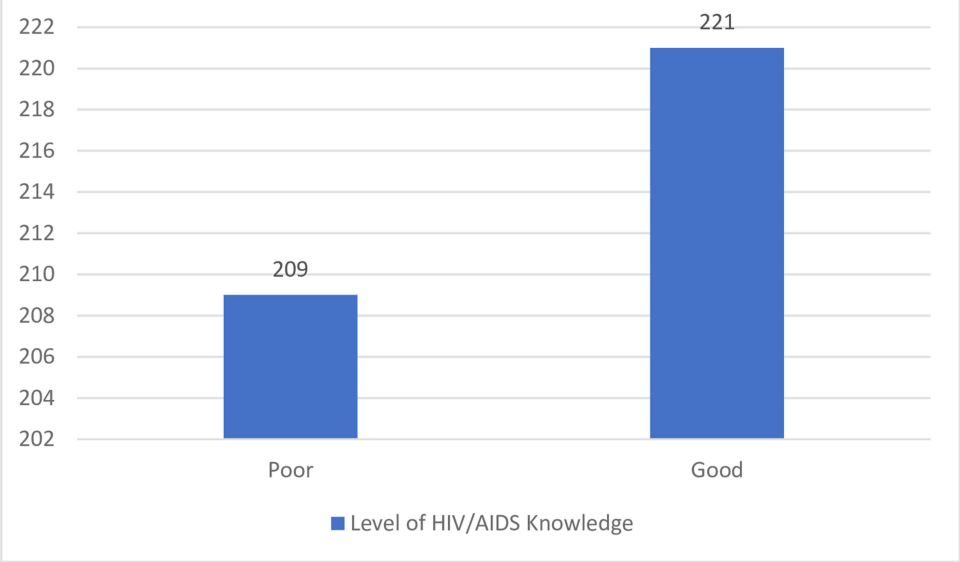

Figure 2 Level of HIV/AIDS Knowledge among regular undergraduate students of Madda Walabu University Bale Zone, Southeast Ethiopia, 2020.

Table 5 Bivariate and Multivariate Logistic Regression Analyses of Factors Associated with HIV/AIDS Knowledge among Study Participants at Madda Walabu University Bale Zone, Southeast Ethiopia February 10–25, 020

Variables	HIV/AIDS Knowledge		COR (95% CI)	AOR (95% CI)	*P*-value
	Poor N (%)	Good N (%)			
Origin of residence					
Urban	117 (27)	108 (25)	0.75 (0.51–1.099)	0.71 (0.45–1.11)	0.13
Rural	92 (22)	113 (26)	1.00	1.00	
Field of study					
Health science	16 (4)	100 (23)	9.97 (5.61–17.71)	16.28 (8.21–32.28)	<0.001*
Non-health science	193 (45)	121 (28)	1.00	1.00	
Year of study					
Year II	77 (18)	42 (10)	1.00	1.00	
Year III and above	132 (31)	179 (41)	2.49 (1.60–3.85)	5.34 (2.92–9.76)	<0.001*
Monthly income					
<300	43 (10)	53 (12)	2.22 (1.13–4.37)	2.08 (0.94–4.61)	0.104
>300	130 (30)	148 (34)	2.05(1.13–3.72)	2.70 (1.34–5.48)	0.006*
Do not remember	36 (9)	20 (5)	1.00	1.00	
Smoke cigarette					
Yes	29 (7)	16 (4)	0.48 (0.26–0.92)	0.77 (0.34–1.75)	0.53
No	180 (42)	205 (47)	1.00	1.00	
Ever had injected drugs					
Yes	34 (8)	22 (5)	0.57 (0.32–1.01)	0.52 (0.27–1.00)	0.05
No	175 (41)	199 (46)	1.00	1.00	
Tried range of different drugs					
Yes	36 (8)	21 (5)	0.51 (0.28–0.89)	0.95 (0.47–1.90)	0.88
No	173 (40)	200 (47)	1.00	1.00	
Ever had watched pornography					
Yes	92 (22)	75 (17)	0.65 (0.44–0.95)	1.09 (0.68–1.77)	0.71
No	117 (27)	146 (34)	1.00	1.00	
Age					
18–24	19 (5)	18 (4)	1.13 (0.58–2.21)	1.61 (0.73–3.56)	0.24
≥25	190 (44)	203 (47)	1.00	1.00	

Notes: *Significant at $p<0.05$ (Adjusted).
Abbreviations: COR, crude odds ratio; AOR, adjusted odds ratio; CI, confidence interval.

Abbreviations

WHO, World Health Organization; EDHS, Ethiopia Demographic and Health Survey; KQ, knowledge question; NASTAD, National Alliance of State and Territorial AIDS Directors; UNICEF, United Nations Children's Fund; USAID, United States Agency for International Development; SPSS, Statistical Package of Social Science; CI, confidence interval; COR, crude odds ratio; AOR, adjusted odds ratio; AAU, Addis Ababa University; MWU, Madda Walabu University.

Data Sharing Statement

The data set analyzed during the current study is available from the corresponding author on reasonable request.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors declare that they have no conflicts of interest for this work.

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