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HIV/AIDS knowledge levels among senior university students: a sociodemographic perspective

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ABSTRACT

Aims: The aim of this study was to assess the knowledge levels of final-year students studying in different faculties of Dicle University regarding HIV/AIDS, to identify differences between faculties, and to determine sociodemographic determinants affecting knowledge levels.

Methods: This cross-sectional study was conducted between January 1 and March 1, 2025, in the Faculties of Medicine, Dentistry, Pharmacy, Nursing, Education, Engineering, Veterinary Medicine, Agriculture, and Theology. The study population consisted of 4,406 final-year students, and the sample size was calculated as 354 based on a 50% prevalence, a 5% margin of error, and a 95% confidence interval. The sample was proportionally distributed among faculties, and participants were reached using convenience sampling. Data were collected using a face-to-face administered questionnaire. The data collection form consisted of two sections: sociodemographic characteristics and sources of information related to HIV/AIDS, and the 21-item AIDS Knowledge Scale, which has established validity and reliability. Statistical analyses included descriptive statistics and normality assessment using the Shapiro–Wilk test. For comparisons between groups, the independent samples t-test was used when parametric assumptions were met, whereas the Mann–Whitney U test was applied when these assumptions were not satisfied. Effect sizes for pairwise comparisons were calculated using Cohen's d. In addition, multivariable linear regression analysis was performed to identify independent factors associated with the total knowledge score. A p-value of <0.05 was considered statistically significant.

Results: A total of 354 students participated in the study (mean age: 23.37±2.49 years; 57.1% male). The mean total score of the AIDS Knowledge Scale was 15.14±2.98 (range: 6–21). A statistically significant difference was found among faculties. Students from the faculty of medicine had the highest mean score (18.03±2.49), which was significantly higher than those of other faculties ($p<0.001$). The mean scores of some health-related faculties, such as nursing (13.41) and pharmacy (14.29), were below the overall average. Overall, 9.3% of participants reported that they had no knowledge about HIV/AIDS. Students who obtained information from university based sources had significantly higher scores (16.48±2.93) compared to those who obtained information from other sources (14.75±2.88; $p<0.001$). Higher knowledge scores were observed among students whose fathers had a high school education or above (15.51±2.99; $p=0.013$). Participants who described their income level as low had lower knowledge scores (14.05±3.08; $p=0.003$). No significant association was found between knowledge scores and gender or maternal education level. In the multivariable regression analysis, socioeconomic variables particularly paternal education level and income remained significant predictors of HIV/AIDS knowledge, whereas faculty type was no longer significant, suggesting that socioeconomic background may be a stronger determinant of HIV/AIDS knowledge than academic discipline.

Conclusion: University-based education and socioeconomic indicators influence HIV/AIDS knowledge levels. A lack of knowledge exists particularly in some health-related faculties outside the faculty of medicine. This finding indicates the need for interdisciplinary and structured HIV/AIDS education programs across faculties. The regression analysis further revealed that socioeconomic factors, particularly paternal education and income level, were stronger predictors of HIV/AIDS knowledge than faculty affiliation, underscoring the need for interventions that extend beyond curriculum-based approaches to address broader socioeconomic inequalities in health literacy. The results may provide guidance for targeted interventions and educational policies at the university level.

Keywords: HIV, AIDS, university students, knowledge level, public health

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INTRODUCTION

Acquired immune deficiency syndrome (AIDS) was first described in the literature in 1981 in the United States with the identification of rare pneumonia-causing pathogens and Kaposi's sarcoma. The causative agent of AIDS was isolated in 1983 and defined as the human immunodeficiency virus (HIV). It was determined that the virus suppresses the immune system in humans, leading to the inability to treat otherwise easily manageable diseases and the emergence of rare opportunistic infections.[1-3]

HIV can be transmitted through unprotected (without condom use) sexual contact of any type (oral, vaginal, or anal) with an HIV-positive individual; through the shared use of HIV-contaminated injection equipment or non-sterilized surgical instruments; through infected blood and blood products; and from an HIV-positive mother to her child during pregnancy, delivery, or breastfeeding.[2,3]

HIV infection is one of the leading causes of morbidity and mortality worldwide, with the majority of cases reported from Sub-Saharan Africa.[1,3] According to the World Health Organization (WHO), approximately 39.0 million people were living with HIV by the end of 2022, and 630,000 people worldwide died from HIV related causes at the same year.[3] According to the 2024 report published by the Joint United Nations Programme on HIV/AIDS (UNAIDS), approximately 88.4 million people have been infected with HIV since the early 1980s, and 42.3 million people have died due to AIDS related illnesses (UNAIDS, 2024).[4]

In Turkiye, between 1985 and November 8, 2023, a total of 39,437 HIV-positive individuals and 2,295 AIDS cases were reported with confirmed positive test results. Of these cases, 81.5% were male, 18.5% were female, and 16.1% were foreign nationals. When cases were examined according to transmission routes, it was found that the route of transmission was not reported in 57.0% of cases since the first case was identified in 1985. Among cases with a reported transmission route, 95.6% were via sexual transmission, 2.0% through intravenous drug use and 1.2% via mother-to-child transmission.[2,5]

Globally, it has been reported that 50% of all newly diagnosed HIV cases occur among individuals aged 15–24 years, indicating that adolescents and young adults are at particularly high risk for HIV transmission.[5] In Turkiye, HIV infection is most frequently observed in the 20–49 age group. These findings suggest that university students constitute a population at risk when the age distribution of HIV cases is considered.[6] Evaluating the knowledge levels of these risk groups and providing appropriate education are crucial for preventing the increase in HIV/AIDS cases.[7,8]

University students represent a substantial proportion of young adults and may be at increased risk due to insufficient knowledge about HIV/AIDS. This age period is characterized by increased sexual activity and engagement in risky behaviors. However, previous studies have shown that young adults often lack adequate knowledge about HIV/AIDS, which may influence risky sexual behaviors and HIV transmission rates.[9-14]

In a study conducted by Pourjam et al.,[10] a significant difference was found in HIV/AIDS knowledge levels between medical and non-medical students, with medical students demonstrating higher levels of knowledge compared to their non-medical peers.

Since the prevention and control of high-risk behaviors is the only effective way to prevent this disease, there is a need to investigate the knowledge levels of both medical and non-medical students regarding HIV/AIDS and to develop systematic educational programs to provide appropriate training.[9,10]

Therefore, assessing the knowledge levels of university students about HIV/AIDS is essential for developing effective educational programs and prevention strategies for this population. Particularly, interdisciplinary and evidence-based educational modules should be integrated into the curricula in health science faculties other than medical school.[10,11] Educational content should not be limited to information transfer alone but also should be supported by approaches that address misconceptions, enhance critical thinking, and focus on protective behaviors. Learning elements such as patient rights, ethics, communication skills, and contact-based or case-based learning should be systematically incorporated into educational programs to reduce stigma towards HIV.[13-15]

This study aims to determine the HIV/AIDS knowledge levels of final year students enrolled in the Faculties of Medicine, Dentistry, Pharmacy, Nursing, Education, Engineering, Veterinary Medicine, Agriculture, and Theology at Dicle University and to examine the relationship between knowledge levels and demographic factors. These findings may contribute to planning necessary educational programs at the universities and supporting service providers in health service planning for the prevention and control of HIV/AIDS.

METHODS

The study protocol was approved by the Non-interventional Clinical Researches Ethics Committee of Dicle University Faculty of Medicine (Date: 20.11.2024, Decision No: 11) and informed consent was obtained from all participants. All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

This cross-sectional study was conducted between January 1 and March 1, 2025. The study population consisted of final-year students enrolled in the Faculties of Medicine, Dentistry, Pharmacy, Nursing, Education, Engineering, Veterinary Medicine, Agriculture, and Theology at Dicle University. The sample size was calculated using the OpenEpi statistical tool. Based on a population size of 4,406 students, a prevalence of 50%, a margin of error of 5%, and a 95% confidence interval, the required sample size was calculated as 354. The proportion of each faculty within the study population was determined, and participants were distributed proportionally according to these percentages.

Accordingly, the study included 33 students from the faculty of medicine, 12 from dentistry, 14 from pharmacy, 17 from nursing, 94 from education, 71 from engineering, 14 from

veterinary medicine, 41 from agriculture, and 58 from theology. Participation in the study was voluntary, and participants were recruited using convenience sampling. Data were collected through face-to-face interviews and recorded using a structured data collection form.

The data collection form consisted of two sections. The first section included questions on students' sociodemographic characteristics, including age, gender, maternal and paternal education levels, level of income, and sources of information about HIV/AIDS. The second section consisted of the AIDS Knowledge Scale.

AIDS Knowledge Scale: It was developed by Aydemir, Yakın, and Arslan[6] in 2018. The scale consists of 21 items designed to assess knowledge related to AIDS. Participants were asked to read each item and select one of three response options: "true," "undecided," or "false." The scale includes three main factors: modes of transmission (7 items; e.g., Eating from the same plate as a person with AIDS can transmit the disease), prevention and general knowledge (9 items; e.g., Monogamy helps prevent AIDS), and treatment (5 items; e.g., There is a vaccine for AIDS). Items 4, 5, 7, 9, 10, 12, 13, 14, 15, 16, 17, and 19 are reverse-coded. Total scores range from 0 to 21, with higher scores indicating a higher level of knowledge.

Inclusion criteria were voluntary participation, being a final-year student at one of the specified faculties of Dicle University and having no communication barriers.

Statistical Analysis

The data analyses were performed using IBM SPSS Statistics version 24.0. Descriptive variables were presented as number (n), percentage (%), mean, standard deviation, median, minimum, and maximum values. The normality of data distribution was assessed using the Shapiro–Wilk test. For comparisons of group means, the independent samples t-test was applied when parametric assumptions were met, whereas the Mann–Whitney U test was used when these assumptions were not satisfied. Effect sizes for pairwise comparisons were calculated using Cohen's d. In addition, multivariable linear regression analysis was performed to identify independent factors associated with the total knowledge score. A p-value of <0.05 was considered statistically significant.

RESULTS

The mean age of the students participating in the study was 23.37±2.49 years, with an age range of 20 to 44 years. Of the participants, 57.1% were male, and 70.3% reported their level of income as middle. The highest proportions of both maternal and paternal education levels were primary or secondary school, accounting for 33.1% and 32.5%, respectively (Table 1).

27.4% of the participants reported the internet as their primary source of information about HIV/AIDS, followed by university-based sources (22.3%) and social media (19.2%). In contrast, the proportions reporting traditional sources of information were relatively low, including television (3.1%), healthcare professionals (5.9%), and family members (2.3%) (Table 2).

Table 1. Sociodemographic characteristics of participants (n=354)

	Median (min–max)	Mean±SD
Age (years)	23 (20–44)	23.37±2.49
	n	**%**
Sex		
Male	202	57.1
Female	152	42.9
Faculty		
Medicine	33	9.3
Dentistry	12	3.4
Pharmacy	14	4.0
Nursing	17	4.8
Education	94	26.6
Engineering	71	20.1
Veterinary medicine	14	4.0
Agriculture	41	11.6
Theology	58	16.4
Maternal education level		
Illiterate	65	18.4
Literate	47	13.3
Primary/secondary school	117	33.1
High school	56	15.8
University	69	19.5
Paternal education level		
Illiterate	13	3.7
Literate	43	12.1
Primary/secondary school	115	32.5
High school	94	26.6
University	89	25.1
Perceived income level		
Low	56	15.8
Middle	249	70.3
High	49	13.8
Total	354	100.0

Min: Minimum, Max: Maximum, SD: Standard deviation

Table 2. Most frequently reported sources of information on HIV/AIDS (n=354)

Source	n	%
No information	33	9.3
Television	11	3.1
Internet (search engines, news websites, etc.)	68	19.2
Social media (Instagram, X, Facebook, etc.)	97	27.4
Family	8	2.3
Friends	22	6.2
Health professionals	21	5.9
High school	15	4.2
University	79	22.3
Total	354	100.0

AIDS: Acquired immune deficiency syndrome, HIV: Human immunodeficiency virus

Mean HIV/AIDS Knowledge Scale scores by faculty are presented in Table 3. When faculties were categorized into two groups "health sciences" and "non-health sciences" students in the health sciences group (15.68±3.32) demonstrated significantly higher HIV/AIDS knowledge scores compared to their non-health sciences counterparts (14.95±2.84), with the difference reaching statistical significance (p=0.050) (Table 4).

Table 3. Mean HIV/AIDS Knowledge Scale scores by faculty

Faculty	n	Min–max	Mean±SD
Medicine	33	11–21	18.03±2.49
Dentistry	12	12–20	15.92±2.27
Pharmacy	14	8–20	14.29±3.45
Nursing	17	9–17	13.41±2.27
Education	94	9–20	15.09±2.79
Engineering	71	8–20	14.59±2.99
Veterinary medicine	14	9–20	14.07±3.45
Agriculture	41	6–20	14.73±2.93
Theology	58	9–20	15.33±2.65
All faculties	354	6–21	15.14±2.98

AIDS: Acquired Immune Deficiency Syndrome, HIV: Human Immunodeficiency Virus, Min: Minimum, Max: Maximum, SD: Standard deviation

Table 4. HIV/AIDS Knowledge Scale scores according to sociodemographic characteristics and information source

Variable	Category	n	Mean±SD	p value
Faculty group*	Health Sciences	90	15.68±3.32	0.050
	Non-health sciences	264	14.95±2.84	
Sex	Female	152	15.05±2.93	0.650
	Male	202	15.20±3.01	
Maternal education	Below high school	229	15.34±2.71	0.098
	High school and above	125	14.76±3.39	
Paternal education	Below high school	170	14.73±2.91	0.016
	High school and above	184	15.51±2.99	
Perceived income	Low	56	14.05±3.08	0.003
	Moderate/high	298	15.34±2.91	
Main information source	University	79	16.48±2.93	<0.001
	Other sources	275	14.75±2.88	

*Prior to analysis, variables were collapsed into two categories: "health sciences" and "non-health sciences." Homogeneity of variances was assessed using Levene's test, and in cases where this assumption was violated, non-parametric methods were employed in lieu of parametric tests, with group comparisons conducted using the Mann–Whitney U test.
*In this study, variables containing multiple categories were reduced to two categories prior to analysis, and comparisons were performed at the binary group level. Accordingly, Bonferroni or Dunn–Bonferroni corrections for multiple comparisons were not applied.
SD: Standard deviation

When evaluated in terms of sociodemographic variables, a statistically significant difference was observed in HIV/AIDS knowledge scores according to faculty type (p<0.001). Students from the faculty of medicine had significantly higher knowledge scores compared with students from other faculties.

No statistically significant differences in knowledge scores were observed by gender or maternal education level (p>0.05). In contrast, knowledge scores were significantly higher among participants whose fathers had an education level of high school or above (p=0.013). In addition, participants with a high or middle level of income had significantly higher knowledge scores than those with a low level of income (p=0.003). Participants who obtained HIV/AIDS information from university-based sources had significantly higher knowledge levels compared with those who obtained information from other sources (p<0.001) (Table 4).

When responses to the items of the AIDS Knowledge Scale were examined, the majority of participants correctly identified several statements, including "monogamy helps prevent AIDS" (75.4%), "knowing one's partner is effective in prevention" (74.0%), "condom use is protective" (69.5%), and "there are medications used in the treatment of AIDS" (69.8%). However, a substantial proportion of participants incorrectly identified false statements as true, such as "AIDS can be prevented through healthy nutrition," "regular exercise prevents AIDS," and "stress can cause AIDS." In addition, 33.9% of participants marked the statement "there is a vaccine for AIDS" as true.

The multivariate linear regression analysis revealed that the established model was statistically significant (F=7.086, p<0.001), accounting for 12.6% of the variance in total knowledge scores (R^2=0.126; adjusted R^2=0.108). According to the analysis results, maternal education level, paternal education level, income status, and knowledge source group were found to be significantly associated with total knowledge scores. Individuals whose mothers had a high school education or above demonstrated significantly lower total knowledge scores (B=–1.212, 95% CI: –1.890 to –0.533; p=0.001), whereas individuals whose fathers had a high school education or above exhibited significantly higher total knowledge scores (B=0.980, 95% CI: 0.332–1.628; p=0.003). Individuals with moderate or good income levels had significantly higher total knowledge scores compared to those with poor income levels (B=1.295, 95% CI: 0.465–2.125; p=0.002). Furthermore, individuals whose primary source of knowledge was categorized as "other sources" had significantly lower total knowledge scores compared to those in the "university" group (B=–1.710, 95% CI: –2.554 to –0.866; p<0.001). In contrast, gender, age group, and faculty variables were not found to be significantly associated with total knowledge scores (p>0.05) (Table 5).

Table 5. Multivariate linear regression analysis of factors affecting total knowledge score

	B	SE	95% CI for B	p value
Gender	0.025	0.311	-0.586 : 0.637	0.935
Maternal education	-1.212	0.345	-1.890 : -0.533	0.001
Paternal education	0.980	0.330	0.332 : 1.628	0.003
Income	1.295	0.422	0.465 : 2.125	0.002
Knowledge source group	-1.710	0.429	-2.554 : -0.866	<0.001
Age group	-0.329	0.330	-0.978 : 0.320	0.319
Faculty	0.123	0.424	-0.711 : 0.957	0.772

Reference categories: gender, "female"; maternal and paternal education, "below high school"; income, "poor"; knowledge source group, "university"; age group, "23 years and younger"; faculty, "health sciences faculty. SE: Standard error, CI: Confidence interval

When the primary source of knowledge was dichotomized into "internet and social media" versus "other sources," students who utilized other sources (television, radio, healthcare personnel, school, etc.) had a numerically higher mean rank of AIDS knowledge scores (187.28) compared to those who primarily used internet and social media (166.30). However, this difference between groups did not reach statistical significance (Mann-Whitney U=13745, Z=−1.934, p=0.053, r=0.10).

DISCUSSION

In this study, the knowledge levels of university students regarding HIV/AIDS were examined, and the findings indicated that students' knowledge levels varied according to faculty type, socioeconomic status, sources of information, and parental education levels.

The results demonstrated that HIV/AIDS knowledge levels differed significantly across faculties. In the Dicle University sample, the overall mean knowledge score was 15.14±2.98. The significantly higher knowledge score observed among students of the faculty of medicine (18.03±2.49) compared with students from other faculties (14.84±2.86) (p<0.001) suggests the determining role of curriculum structure and systematic health education in knowledge acquisition. Similarly, a study conducted in Iran reported that medical students had significantly higher levels of HIV/AIDS knowledge than students enrolled in non-medical faculties.[9]

Several national studies have also reported that students in health sciences and pharmacy programs demonstrate significantly higher knowledge levels compared with students from other faculties.[16,17] However, in the present study, the relatively low knowledge scores observed among students of the faculty of nursing may indicate the need to review HIV/AIDS related content and teaching processes within these programs. Furthermore, previous studies conducted among dentistry students have emphasized that knowledge levels may vary across different faculties and institutions.[7,15] Such differences may be associated with factors including curriculum content, academic workload, teaching methods, and faculty expertise.

In this study, students were found to obtain information about HIV/AIDS predominantly from digital sources such as the internet and social media. Similarly, in a study by Gökçe and Özer,[19] the internet was reported as primary source of information (46.8%). A study conducted in Saudi Arabia indicated that obtaining HIV/AIDS-related information from online sources may increase knowledge levels, however, it may also increase exposure to misinformation.[10] This finding highlights the importance of digital health literacy in determining the quality of health related information from online sources. With regards to this, guiding students toward reliable digital sources is as essential as strengthening university-based educational content.[19]

On the other hand, significantly higher knowledge scores among participants who reported the university as their primary source of information (16.48±2.93) compared with those who obtained information from other sources (14.75±2.88) (p=0.000) support the effectiveness of structured education. Ataş et al.[15] reported that preclinical dentistry students primarily obtained information from reading materials and the internet, and they noted that university-based education may become the main source of information as the level of education increases. Aykan et al.[13] similarly reported that university students most frequently preferred the internet as a source of information. In line with these findings, Ataş and Yıldırım[15] emphasized that while digital resources dominate during the preclinical period, academic education becomes the primary source during clinical years, which is critical for accessing accurate information.

Responses to the items of the AIDS Knowledge Scale in the present study also showed the presence of certain basic misconceptions. A proportion of participants evaluated statements such as "there is a vaccine for AIDS" and "stress can cause AIDS" as true. Similarly, a study conducted among university students in Ethiopia reported that students may hold fundamental misconceptions about HIV/AIDS despite perceiving themselves as knowledgeable.[11] In addition, misconceptions regarding transmission through mosquito bites or physical contact, which lack scientific validity, have been reported to persist in the literature.[20,21]

The false belief that "there is a vaccine for AIDS" was reported by 33.9% of participants in the present study. Similar findings have been reported in other studies, where this rate reached 39.0% among midwifery students.

The false belief that "there is a vaccine for AIDS" was reported by 33.9% of participants in the present study. Similar findings have been reported in other studies, where this rate reached 39.0% among midwifery students. This finding suggests that incorrect associations may exist even among sexually transmitted infections.[13,17] The identification of the false belief that "stress can cause AIDS" both in our study and in studies conducted among dentistry students indicates that such misconceptions may be shared across different disciplines.[7,14,15]

Misconceptions should not be considered solely as a lack of knowledge; they may also contribute to stigma and avoidance behaviors.[6,15] In the study by Işık and Özcan,[14] 64.9% of midwifery students reported that they would feel concerned about contact with infected blood even in the absence of an open wound, while in the study by Ataş et al.,[15] 56.6% of dentistry students stated that they would not treat an HIV-positive individual. In addition, studies conducted among vocational high school students in Türkiye have reported low levels of HIV/AIDS knowledge accompanied by negative attitudes.[18] These findings suggest that theoretical knowledge alone may not always be sufficient to reduce stigma.

Our findings also demonstrated that socioeconomic variables were significantly associated with HIV/AIDS knowledge levels. Higher knowledge scores among participants whose fathers had an education level of high school or above, as well as among students with a high or middle level of income, suggest that access to information and health literacy are closely related to social determinants. A large-scale analysis conducted in Sub-Saharan Africa reported that comprehensive knowledge of HIV/AIDS was associated with education level, media

exposure, and household wealth.[22] Similarly, the systematic review by Endalamaw et al.[23] emphasized that inequalities in HIV/AIDS-related knowledge and services may have substantial effects on health outcomes. A study conducted in Saudi Arabia also reported that age, education level, and monthly income were significantly associated with HIV/AIDS knowledge scores.[10] Therefore, insufficient knowledge may be viewed not only as an individual level issue but also as an area of inequality shaped by social and economic conditions.

In the multivariable regression analysis, faculty type was no longer a significant predictor of HIV/AIDS knowledge scores, whereas several socioeconomic variables remained significant. This finding suggests that differences in knowledge levels may be more strongly associated with socioeconomic background than with faculty affiliation alone. In particular, higher paternal education level and higher perceived income were associated with higher knowledge scores, indicating that access to information and health literacy may be shaped by broader social determinants. Interestingly, maternal education level showed an inverse association with knowledge scores.

Furthermore, given students' extensive reliance on digital sources, institutional guidance aimed at increasing access to reliable online health information and initiatives designed to improve digital health literacy should be planned.[13,20] The development of targeted health literacy programs for socioeconomically disadvantaged groups and the promotion of equal opportunities in access to information also appear to be critical.[22,23]

In the present study, no significant difference was observed between female and male students in terms of HIV/AIDS knowledge scores. The literature presents mixed findings on this issue. While some studies have reported higher knowledge levels among female students.[16,24] others have found no significant differences between genders.[25,26] Several recent studies conducted in Turkiye suggest that gender differences in HIV/AIDS knowledge may be decreasing, possibly due to the widespread use of the internet and social media, which may equalize access to information across genders.[12,15] In our sample, the relatively similar distribution of female and male students across faculties may also have contributed to the absence of a gender based difference in knowledge levels.

The relatively low HIV/AIDS knowledge scores obtained in this study suggest that university students may remain vulnerable in this regard. It should be noted that this study assessed knowledge levels only and did not examine risk-related behaviors such as HIV testing rates or sexual risk behaviors. Therefore, future studies including behavioral data would provide a better understanding of HIV-related risk among university students.

The majority of studies in the literature examining HIV/AIDS knowledge among university students are single-institution, cross-sectional in design, and limited in sample size, which complicates comparisons across findings. For instance, the study conducted by Bahadir Yilmaz and Yüksel[7] included vocational high school students, and direct comparisons with university students should be interpreted with caution due to population differences.

When groups were compared with respect to primary source of knowledge, no statistically significant difference was found between students who used internet and social media and those who used other sources (p=0.053). Nevertheless, it is noteworthy that the p-value was in close proximity to the significance threshold and that students utilizing other sources had numerically higher knowledge scores. This finding raises questions regarding the quality and reliability of online information sources, suggesting that the accuracy of HIV/AIDS-related information disseminated through the internet and social media may be variable. It is considered that this association may reach statistical significance in studies conducted with larger sample sizes.

The multivariable regression analysis explained 12.6% of the variance in total HIV/AIDS knowledge scores. Higher paternal education level (B=0.980) was positively associated with knowledge scores, a finding consistent with evidence from China indicating that highly educated fathers are better equipped to communicate sexual health information with their children.[27] Conversely, maternal education at high school level or above showed an unexpected inverse association with knowledge scores (B=–1.212), which may be attributable to the cultural characteristics of the study population or a specific disconnect between maternal education level and sexual health communication with children.[27]

Higher income level (B=1.295) was positively associated with knowledge scores, corroborating findings from Ghana and Ethiopia demonstrating that socioeconomic status shapes access to health information.[28,29] The emergence of university-based education as a stronger predictor of knowledge compared with other sources underscores the critical importance of structured health education curricula. The absence of a statistically significant difference between internet and social media users and users of other sources (p=0.053) suggests that access to information alone may not be sufficient, and that the quality of information plays a determining role. Finally, the absence of a significant effect of gender on knowledge scores may indicate that access to information has been relatively equalized for both sexes within the university setting. Taken together, and consistent with the broader literature, these findings suggest that HIV/AIDS education programs should be designed using a multidimensional approach that addresses not only individual-level factors but also the familial and socioeconomic determinants of health literacy.[27-29]

Limitations

As this study was conducted using a cross-sectional design, causal inferences cannot be made. In addition, the study was conducted at a single center. Although the sample was proportionally distributed across faculties, the use of convenience sampling may have resulted in selection bias and limited the generalizability of the findings. Furthermore, data were collected through face-to-face interviews based on self-report, which may have resulted in social desirability and recall bias.

In this study, proportional sampling was employed; however, subgroup sizes within certain faculties remained considerably small (dentistry n=12, pharmacy n=14, veterinary medicine n=14, nursing n=17). This limits the statistical power of comparisons made between these faculties. Although faculty-specific mean differences (e.g., nursing 13.41 vs. medicine 18.03) appear statistically significant, these findings should be interpreted with caution given the small sample sizes. For this reason, faculty-specific data were presented for descriptive purposes only, and primary comparative analyses were conducted on the basis of two theoretically justified groups: "health sciences" (medicine, dentistry, pharmacy, nursing, veterinary medicine) and "non-health sciences" (engineering, law, education, theology).

Convenience sampling was utilized in this study. It should be considered that students who were present at the time of data collection and willing to participate may have had higher levels of academic engagement and, consequently, higher HIV/AIDS knowledge scores. This may have resulted in an overestimation of knowledge scores relative to the true population mean. Therefore, the findings of this study should be interpreted as representative of the study sample only.

The age range of participants included in the study was determined to be 20–44 years. As the study was restricted to final-year students, the majority of senior undergraduate students at universities in Turkey would be expected to be 21 years of age or older, which accounts for the absence of 18–19-year-old students in the sample. The maximum age of 44 observed in the sample belongs to a mature/non-traditional student. It should be taken into consideration that mature students may exhibit a different profile with respect to HIV/AIDS knowledge compared to traditionally-aged students, and that this may have influenced the study findings.

CONCLUSION

This study examined HIV/AIDS knowledge levels among final-year university students across nine faculties at Dicle University and explored associations with sociodemographic characteristics. The findings suggest that knowledge levels varied across faculty groups, with health sciences students demonstrating numerically higher scores compared to non-health sciences students. Similarly, parental education level and socioeconomic status appeared to be associated with knowledge scores in univariate analyses, although the independent contribution of each factor was further examined through multivariable analysis. Furthermore, the multivariable analysis indicated that socioeconomic factors, particularly parental education and perceived income level, were more strongly associated with knowledge scores than faculty affiliation.

The observation that a considerable proportion of students reported digital platforms as their primary source of HIV/AIDS information warrants attention. Although no statistically significant difference in knowledge scores was found between students who used internet and social media versus other sources (Mann-Whitney U=13745, Z=–1.934, p=0.053), a numerical trend suggesting lower scores among digital source users was noted. This finding raises questions regarding the accuracy and reliability of health-related content available through online platforms and underscores the potential value of media literacy initiatives in university settings.

Knowledge gaps were more commonly observed among students enrolled in non-health sciences faculties. These findings suggest that broader integration of health education content into university curricula across all disciplines may be beneficial. Furthermore, targeted educational programmes for socioeconomically disadvantaged student groups may help reduce disparities in health knowledge, though causal inferences cannot be drawn from the present cross-sectional design.

It should be noted that this study measured knowledge only and did not assess risk behaviours, HIV testing rates, or disease incidence. Therefore, lower knowledge scores should not be directly interpreted as indicative of higher risk. The findings are representative of the study sample and should be generalised to broader university student populations with caution, given the use of convenience sampling and the single-institution design.

As a result, the results of this study highlight the potential role of faculty-based health education, parental educational background, socioeconomical conditions and information source quality in shaping HIV/AIDS knowledge among university students. Universities, healthcare institutions, and policymakers may consider developing coordinated strategies to improve HIV/AIDS awareness among young adults, with particular attention to students outside health-related disciplines and those from disadvantaged socioeconomic backgrounds. Future studies employing longitudinal or multi-institutional designs and incorporating behavioural outcomes would contribute to a more comprehensive understanding of HIV/AIDS awareness in this population.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study protocol was approved by the Non-interventional Clinical Researches Ethics Committee of Dicle University Faculty of Medicine (Date: 20.11.2024, Decision No: 11).

Informed Consent

Written informed consent was obtained from all individual participants prior to their inclusion in the study. Participants were fully informed about the study's aims, procedures, potential risks and benefits, and their rights—including the right to withdraw at any time without consequence. All participants voluntarily signed a written informed consent form.

Peer Review Process

This manuscript was subject to external peer review.

Conflict of Interest

The authors declare no conflicts of interest related to this study.

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Author Contributions

Concept: ZK, HK, EAB; Design: ZK, HK, EAB; Control: ZK, HK, EAB; Resources: ZK, HK, EAB; Materials: ZK, HK, EAB; Data Collection/Processing: ZK, HK, EAB; Analysis/Interpretation: ZK, HK, EAB; Literature Review: ZK, HK, EAB; Writing: ZK, HK, EAB; Critical Review: ZK, HK, EAB.

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