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Research Article

Knowledge and Attitudes of Dentists and Dental Students Towards HIV/AIDS in Turkey: A Survey Study

Aslı Başkan Önal[1*], Gülşan Atay[2], Azra Uzun[3], Serap Keskin Tunç[4], Selma Keskin[5]

[1]Health Sciences University, Hamidiye Faculty of Dentistry, Oral and Maxillofacial Surgery Department, Istanbul, Turkey, baskanasli1995@gmail.com, ORCID ID: 0000-0001-8639-1820
[2]Department of Dental Prosthesis Technology, Vocational School, Istanbul Arel University, Istanbul, Turkey, gulsanatay@arel.edu.tr, ORCID ID: 0009-0003-5353-0072
[3]Health Sciences University, Hamidiye Faculty of Dentistry, Oral and Maxillofacial Surgery Department, Istanbul, Turkey, azra.uzun.6@gmail.com, ORCID ID: 0000-0001-4346-5284
[4]Health University, Hamidiye Faculty of Dentistry, Oral and Maxillofacial Surgery Department, Istanbul, Turkey, serapkeskin0165@hotmail.com, ORCID ID: 0000-0001-5439-6598
[5]Health Sciences University, Bakırköy Sadi Konuk Research Hospital, Department of Anesthesia and Reanimation, Istanbul, Turkey, selma_keskin8765@hotmail.com, ORCID ID: 0000-0002-7614-3046

Abstract

Aim: The main aim of this study was to evaluate the knowledge and attitudes of dental students in Turkey regarding HIV/AIDS and to compare them with graduated dentists to determine current knowledge levels and educational needs.

Materials and Methods: In this survey, 340 dental students (4th-5th year) and 50 graduated dentists were included. Data were collected using an online questionnaire prepared via Google Forms. The 22-item questionnaire covered demographic characteristics, HIV/AIDS knowledge, attitudes toward HIV-positive individuals, infection control and educational needs.

Results: A total of 390 participants were included, with graduated dentists demonstrating statistically significantly higher HIV/AIDS knowledge levels than students ($p < 0.01$). Correct response rates to the statements "risk of HIV transmission through saliva" and "presence of high levels of HIV in saliva" were significantly higher among graduates ($p < 0.01$). For the question "Which of the following is not an oral manifestation of HIV/AIDS?", the correct answer "oral cancers" was selected at similar rates (students 22.1%; graduates 22.0%; $p > 0.05$). Regarding attitudes, only the statement "HIV/AIDS patients should be treated in separate clinics" showed higher agreement among students ($p < 0.05$). No significant differences were found in infection control and educational needs ($p > 0.05$).

Conclusion: Although overall HIV/AIDS knowledge among dental students and graduates appears sufficient, gaps remain in transmission routes, clinical management, and stigmatizing attitudes. Strengthening clinically oriented education and universal infection control principles in dental training is warranted.

Keywords: HIV/AIDS; Dental Students; Knowledge Level; Attitude; Survey

Türkiye'deki Diş Hekimleri ve Diş Hekimliği Öğrencilerinin HIV/AIDS Hakkındaki Bilgi ve Tutumları: Bir Anket Çalışması

Öz

Amaç: Bu çalışmanın temel amacı, Türkiye'deki diş hekimliği öğrencilerinin HIV/AIDS hakkındaki bilgi ve tutumlarını değerlendirmek ve mevcut bilgi düzeylerini ve eğitim ihtiyaçlarını belirlemek için bunları mezun diş hekimleriyle karşılaştırmaktır.

Gereç ve Yöntemler: Bu araştırmaya 340 diş hekimliği öğrencisi (4.-5. sınıf) ve 50 mezun diş hekimi dahil edilmiştir. Veriler, Google Forms aracılığıyla hazırlanan çevrimiçi bir anket kullanılarak toplanmıştır. 22 maddelik anket, demografik özellikler, HIV/AIDS bilgisi, HIV pozitif bireylere yönelik tutumlar, enfeksiyon kontrolü ve eğitim ihtiyaçlarını kapsamıştır.

*Corresponding Author: Aslı Başkan Önal, baskanasli1995@gmail.com

Bulgular: Toplam 390 katılımcı dahil edilmiş olup, mezun diş hekimlerinin HIV/AIDS bilgi düzeylerinin öğrencilerden istatistiksel olarak anlamlı derecede daha yüksek olduğu bulunmuştur ($p < 0,01$). "Tükürük yoluyla HIV bulaşma riski" ve "tükürükte yüksek düzeyde HIV bulunması" ifadelerine verilen doğru yanıt oranları mezunlar arasında anlamlı derecede daha yüksek bulunmuştur ($p < 0,01$). "Aşağıdakilerden hangisi HIV/AIDS'in ağızda görülen bir belirtisi değildir?" sorusuna verilen doğru cevap olan "ağız kanserleri" benzer oranlarda seçilmiştir (öğrenciler %22,1; mezunlar %22,0; $p > 0,05$). Tutumlar açısından, sadece "HIV/AIDS hastaları ayrı kliniklerde tedavi edilmelidir" ifadesi öğrenciler arasında daha yüksek bir mutabakat göstermiştir ($p < 0,05$). Enfeksiyon kontrolü ve eğitim ihtiyaçlarında anlamlı bir fark bulunmamıştır ($p > 0,05$).

Sonuç: Diş hekimliği öğrencileri ve mezunları arasında genel HIV/AIDS bilgisi yeterli görünse de, bulaşma yolları, klinik yönetim ve damgalayıcı tutumlar konusunda eksiklikler mevcuttur. Diş hekimliği eğitiminde klinik odaklı eğitimin ve evrensel enfeksiyon kontrolü ilkelerinin güçlendirilmesi gereklidir.

Anahtar Kelimeler: HIV/AIDS; Diş Hekimliği Öğrencileri; Bilgi Düzeyi; Tutum; Anket

Introduction

Human immunodeficiency virus/Acquired immunodeficiency syndrome (HIV/AIDS) has remained a major global public health concern since its emergence in the 1980s (1). According to estimates by the World Health Organization (WHO), approximately 40.8 million people worldwide were living with HIV at the end of 2024. The global distribution of HIV infection is not uniform, with nearly 65% of cases concentrated in the African region (2). In Turkey, data from the General Directorate of Public Health of the Ministry of Health indicate that a total of 51,469 confirmed HIV infections and 2,577 AIDS cases were reported between 1985 and 2025. Among these cases, 82.0% were male, 18.0% were female, and 15.6% were foreign nationals (3). Despite significant advances in early diagnosis and improved access to treatment, individuals living with HIV continue to face stigma and discrimination. Such social challenges may reduce healthcare-seeking behavior, resulting in delays in diagnosis and treatment. If left untreated, HIV infection can progress to AIDS, the most advanced stage of the disease, characterized by severe immunodeficiency (4).

Dental procedures are considered high-risk for occupational exposure due to the risk of infection through blood and sharp instruments. Therefore, it is crucial for dentists to use personal protective equipment such as masks, double gloves, and protective face shields when treating HIV-positive individuals to prevent occupational exposure and ensuring the safety of healthcare workers (5,6).

Oral and dental health services play a critical role in both the early diagnosis and long-term management of HIV-positive individuals. Oral manifestations associated with HIV infection may represent some of the earliest clinical signs of the disease, and many patients initially seek care from dental professionals. The literature indicates that HIV infection adversely affects oral health, and that oral lesions such as oral candidiasis, Kaposi's sarcoma, and necrotizing ulcerative periodontitis may be observed in approximately 40% of individuals living with HIV (4).

The literature reports that misconceptions regarding HIV transmission, lack of information, and professional concerns continue to contribute to hesitancy in providing care to individuals living with HIV within the field of dentistry (7). Since 1988, WHO has emphasized that all dentists obliged to provide necessary oral healthcare services to individuals living with HIV and has defined the refusal of care to these patients as unethical (8).

In Turkey, various national programs have been implemented to prevent and control HIV/AIDS. In this context, the Ministry of Health of the Republic of Turkey has developed an "HIV/AIDS Control Program" aligned with the goals of the Joint United Nations Programme on HIV/AIDS (UNAIDS) (9). The educational period of dental students represents a critical stage during which professional attitudes and knowledge are shaped. Students' knowledge and attitudes toward HIV/AIDS directly influence the quality of healthcare services they will provide in the future (7,10). Therefore, it is important to strengthen educational programs in a way that will improve HIV/AIDS awareness and clinical competencies. The aim of this study is to evaluate the knowledge and attitudes of dental students in Turkey towards HIV/AIDS and to compare these findings with those of dental graduates in order to reveal their current level of knowledge and educational needs.

Material and Methods

The study was approved by the Non-Interventional Scientific Research Ethics Committee of the University of Health Sciences (approval date: May 15, 2025; meeting no: 2025/11; decision no: 11/11; document no: 26.05.2025–39182) and was conducted in accordance with the principles of the Declaration of Helsinki. Informed consent was obtained electronically from all participants prior to the survey. Data were collected using an online questionnaire developed via Google Forms. The link was distributed to participants via e-mail and WhatsApp.

A total of 390 participants (340 dental students and 50 graduate dentists) were included in this survey study. The participants consisted of 4th and 5th-year dental students enrolled in dental faculties in Turkey, as well as dentists who had graduated from these faculties and had 0–2, 3–5, 6–10, or ≥10 years of professional experience.

Participants aged 18 and older, who were literate in Turkish, and voluntarily agreed to complete the survey in full, were included in the study.

The questionnaire consisted of a total of 22 items: 5 questions assessing demographic characteristics, 7 questions measuring HIV/AIDS knowledge levels, 5 questions evaluating attitudes towards HIV-positive individuals, and 5 questions inquiring about infection control and further education needs. The survey was administered anonymously, and no personal data was collected. The survey form was developed using similar studies in the literature and adapted to suit the purpose of this study (1,5).

Survey Questions:

Chapter 1: Demographic information

1. Age: _____
2. Gender: ☐ Female ☐ Male
3. Level of education:
   ☐ Student
   ☐ Graduate
4. What class are you in at the Faculty of Dentistry , or are you actively working in this field?
   ☐ Graduate (0-2 years)
   ☐ Graduate (3-5 years)
   ☐ Graduate (6-10 years)
   ☐ Graduates (10+)
   ☐ Student, 4th Grade
   ☐ Student in 5th Grade
5. Have you received any prior training on HIV/AIDS?
   ☐ Yes
   ☐ No
   ☐ Partially

Section 2: HIV/AIDS knowledge level

6. HIV/AIDS patients do not pose a risk of transmitting the disease to dentists. (True/False)
7. The risk of HIV/AIDS transmission through saliva is high. (True/False)
8. The ELISA test is a screening test used to diagnose HIV/AIDS. (True/False)
9. What are the most common ways HIV/AIDS is transmitted?
   ☐ Blood transfusion
   ☐ Through saliva
   ☐ Handshake or hug
   ☐ Mosquito bites
10. People with HIV/AIDS have high levels of HIV in their saliva. (True/False)
11. Hepatitis B is more contagious than HIV/AIDS. (True/False)
12. Which of the following is NOT a symptom that can be seen in the mouth of HIV/AIDS patients?
    ☐ Oral candidiasis
    ☐ Kaposi sarcoma
    ☐ Gum inflammation (Gingivitis)
    ☐ Dry mouth
    ☐ Oral cancers

Chapter 3: Attitudes towards HIV/AIDS patients

13. I have an ethical responsibility to treat HIV/AIDS patients.
    ☐ I completely agree
    ☐ I agree
    ☐ I'm undecided
    ☐ I disagree
    ☐ I absolutely disagree
14. I believe that HIV/AIDS patients should be treated in separate clinics for dental care.
    ☐ I completely agree
    ☐ I agree
    ☐ I'm undecided
    ☐ I disagree
    ☐ I absolutely disagree
15. All dental infections should be considered potentially contagious.
    ☐ I completely agree
    ☐ I agree

☐ I'm undecided
☐ I disagree
☐ I absolutely disagree

16. Working with people with HIV/AIDS makes me nervous.
☐ I completely agree
☐ I agree
☐ I'm undecided
☐ I disagree
☐ I absolutely disagree

17. Extra protective measures are necessary when treating HIV/AIDS patients.
☐ I completely agree
☐ I agree
☐ I'm undecided
☐ I disagree
☐ I absolutely disagree

Chapter 4: Infection control and training needs

18. Dental schools should provide more education on HIV/AIDS.
☐ I completely agree
☐ I agree
☐ I'm undecided
☐ I disagree
☐ I absolutely disagree

19. Which infection control measures are NOT included in the treatment of HIV/AIDS patients?
☐ Wearing gloves
☐ Continuous use of protective goggles/mask
☐ Autoclave sterilization of equipment
☐ Minimum physical contact with the patient
☐ Disposal of medical waste using special procedures

20. Would you like to receive specialized training related to treating HIV/AIDS patients?
☐ Yes
☐ No
☐ I'm undecided

21. Do you think dentists and dental assistants are taking the necessary precautions to prevent cross-infection?
☐ I completely agree
☐ I agree
☐ I'm undecided
☐ I disagree
☐ I absolutely disagree

22. I am knowledgeable about post-exposure protocols.
☐ I completely agree
☐ I agree
☐ I'm undecided
☐ I disagree
☐ I absolutely disagree

Statistical Analyses

The data were analyzed using SPSS version 27 (Statistical Package for the Social Sciences, IBM Corp., Armonk, NY, USA). Quantitative variables were summarized with mean, standard deviation, median, minimum, and maximum values; qualitative variables were summarized with frequency and percentage distributions. The normality of the data distribution was evaluated using the Shapiro-Wilk test and Box-Plot graphs. Student's t-test was used for comparisons of two groups of quantitative variables showing a normal distribution, and the Mann-Whitney U test was used for those not showing a normal distribution. Pearson Chi-square and Fisher's test were used for the analysis of qualitative data. Exact and Fisher-Freeman-Halton tests were applied. The statistical significance level was accepted as $p < 0.05$ at a 95% confidence interval. Prior to the study, a power analysis was performed using the G*Power 3.1 program to determine the adequacy of the sample size. Based on the Mann–Whitney U test, with assumptions of moderate effect size (Cohen's $d = 0.5$), $\alpha = 0.05$, and 80% power ($1\text{-}\beta = 0.80$), the minimum sample size was calculated as 64. The fact that the sample size reached in the study ($n = 390$) is above this value indicates that the analyses have sufficient statistical power.

Results

A total of 390 participants were included in the study, comprising 217 females and 173 males. Of the participants, 340 were dental students and 50 were graduate dentists. The ages ranged from 20 to 47 years, with a mean age of 23. The majority of participants were students (87.2%), with 4th-year students representing the largest proportion (63.6%). The majority of graduate participants had less than six years of professional experience. When the participants' responses to the question "Have you received any prior training on HIV/AIDS?" were analyzed, the highest percentage of responses was "Yes" (36.9%). The responses were similar between students and graduates, and no statistically significant difference was found between the groups (p>0.05) (Table 1).

Table 1. Demographic information

		n (%)
Gender	Female	217 (55.6)
	Male	173 (44.4)
Age	*Mean±Standard*	23.79±2.71
	Median (Min-Max)	23 (20-47)
Education level	Student	340 (87.2)
	Graduate	50 (12.8)
Class and/or graduation status	Graduate (0-2 years)	16 (4.1)
	Graduate (3-5 years)	25 (6.4)
	Graduate (6-10 years)	8 (2.1)
	Graduates (10+ years)	2 (0.5)
	Student 4th grade	248 (63.6)
	Student in 5th grade	91 (23.3)
Have you received any prior training on HIV/AIDS?	Yes	144 (36.9)
	No	133 (34.1)
	Partially	113 (29)

Knowledge and Attitudes Toward HIV/AIDS:

There was no statistically significant difference between groups in terms of answers to the questions “HIV/AIDS patients do not pose a risk of transmitting the disease to dentists”, “ELISA test is a screening test used for HIV/AIDS diagnosis”, “What are the most common routes of HIV/AIDS transmission?”, “Hepatitis B is a more contagious disease than HIV/AIDS” and “Which is not a symptom that can be seen in the mouth of HIV/AIDS patients?” according to education levels (p>0.05). However, the rate of correct answers to the statements “HIV/AIDS has a high risk of transmission through saliva” and “HIV/AIDS patients have high levels of HIV in their saliva” was found to be statistically significantly higher among graduates compared to students (p=0.001; p<0.01) (Table 2). Furthermore, regarding the question about the most common routes of HIV/AIDS transmission, 88.2% of participants correctly identified blood transfusion, while 10% chose transmission through saliva, marking the incorrect option (Figure 1). To the question, “Which symptom can’t be seen in the mouth of HIV/AIDS patients?”, 95% of participants answered “dry mouth”. Despite the correct answer being “oral cancers”, a high percentage of incorrect answers were observed among both students and graduates (22.1% and 22.0%, respectively; p>0.05) (Table 2, Figure 2). Additionally, graduates had statistically significantly higher HIV/AIDS knowledge scores than students (p=0.001; p<0.01) (Table 3).

Table 2. Distribution of responses to HIV/AIDS knowledge questions

		Education Level		*p*
		Students (*n*=340)	Graduates (*n*=50)	
HIV/AIDS patients do not pose a risk of transmitting the disease to dentists	True	9 (2.6)	0 (0)	[e] *0.611*
	False	331 (97.4)	50 (100)	
HIV/AIDS is highly susceptible to transmission through saliva	True	156 (45.9)	10 (20)	[a] *0.001***
	False	184 (54.1)	40 (80)	
ELISA test is a screening test used to diagnose HIV/AIDS	True	326 (95.9)	49 (98)	[e] *0.704*
	False	14 (4.1)	1 (2)	
What are the most common ways HIV/AIDS is transmitted?	Blood transfusion	297 (87.4)	47 (94)	[d] *0.325*
	Mosquito bites	5 (1.5)	1 (2)	
	A handshake or a hug	1 (0.3)	0 (0)	
	Through saliva	37 (10.9)	2 (4)	
People with HIV/AIDS have high levels of HIV in their saliva	True	139 (40.9)	8 (16)	[a] *0.001***
	False	201 (59.1)	42 (84)	
	True	266 (78.2)	45 (90)	[a] *0.053*

		Education Level		*p*
		Students (*n*=340)	Graduates (*n*=50)	
Hepatitis B is more contagious than HIV/AIDS	False	74 (21.8)	5 (10)	
Which of the following is not a symptom that can be seen in the mouth of HIV/AIDS patients?	Oral cancers	75 (22.1)	11 (22)	[a] *0.079*
	Dry mouth	79 (23.2)	16 (32)	
	Gum inflammation (Gingivitis)	54 (15.9)	13 (26)	
	Kaposi sarcoma	77 (22.6)	5 (10)	
	Oral candidiasis	55 (16.2)	5 (10)	

[a] *Pearson's Chi Square Test,* [d] *Fisher Freeman Halton Test,* [e] *Fisher Exact Test, **p<0.01.*

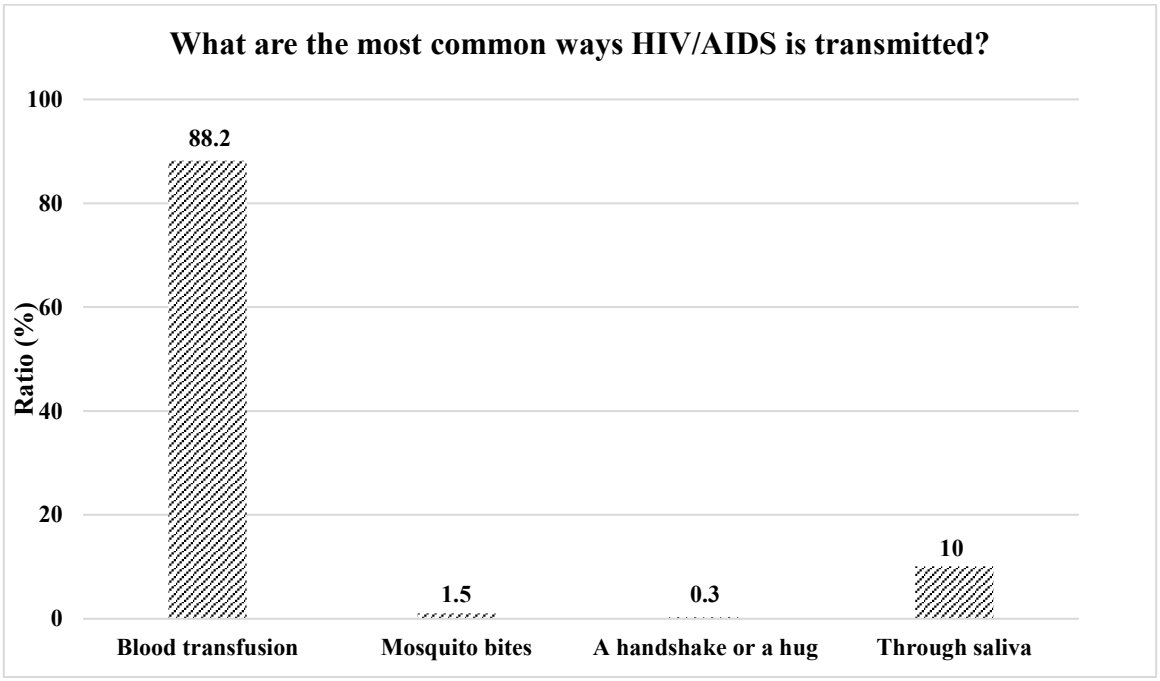

Figure 1. *Distribution of responses to the question "What are the most common routes of HIV transmission?"*

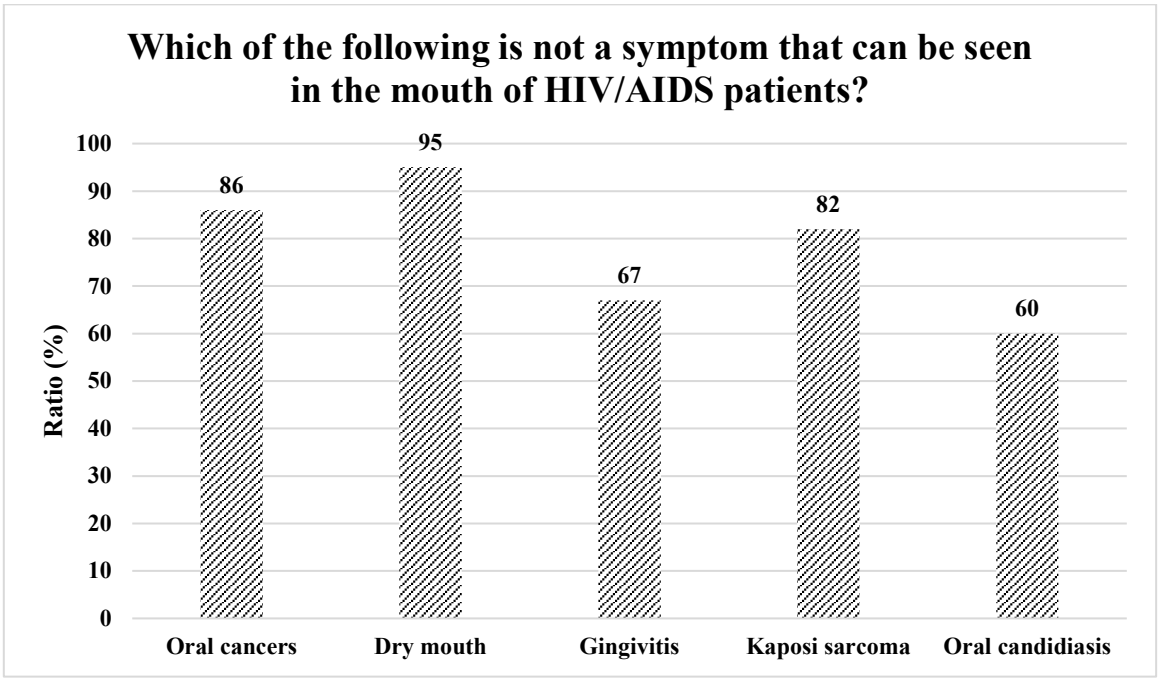

Figure 2. *Distribution of responses to the question, "Which of the following is not a symptom that can be seen in the mouth of HIV/AIDS patients?"*

Table 3. Comparison of HIV/AIDS knowledge scores according to education levels

		Education Level		*p*
		Students (*n*=340)	Graduates (*n*=50)	
HIV/AIDS knowledge score	*Mean±Standard*	70.59	81.14±14.27	[b] *0.001***
	Median (Min-Max)	71.4 (14.3-100)	85.7 (42.9-100)	

[b] *Student t Test, **p<0.01*

Attitudes Towards HIV/AIDS Patients:

When participants' attitudes towards HIV/AIDS patients were evaluated, no statistically significant difference was found in their responses to the statements "I am morally responsible for treating HIV/AIDS patients," "All dental patients should be considered potentially infectious," "Working with HIV/AIDS patients makes me uneasy," and "Extra protective measures are necessary when treating HIV/AIDS patients" according to their education level ($p>0.05$). However, responses to the question "I think HIV/AIDS patients should be treated in separate clinics for dental treatment" showed a statistically significant difference ($p=0.010$; $p<0.05$). The rate of 'disagree' responses among graduates was statistically significantly higher than among students ($p=0.002$; $p<0.01$) (Table 4).

Table 4. Distribution of responses to questions regarding attitudes towards HIV/AIDS patients

		Education Level		*p*
		Students (*n*=340)	Graduates (*n*=50)	
I have a moral responsibility to treat HIV/AIDS patients	Absolutely disagree	7 (2.1)	1 (2)	[a] *0.820*
	Disagree	17 (5)	1 (2)	
	Undecided	57 (16.8)	7 (14)	
	Agree	153 (45)	26 (52)	
	Absolutely agree	106 (31.2)	15 (30)	
I believe that HIV/AIDS patients should be treated in separate clinics for dental care	Absolutely disagree	10 (2.9)	4 (8)	[a] *0.010**
	Disagree	32 (9.4)	12 (24)	
	Undecided	81 (23.8)	9 (18)	
	Agree	118 (34.7)	13 (26)	
	Absolutely agree	99 (29.1)	12 (24)	
All dental infections should be considered potentially contagious	Absolutely disagree	0 (0)	1 (2)	[d] *0.063*
	Disagree	19 (5.6)	0 (0)	
	Undecided	22 (6.5)	3 (6)	
	Agree	125 (36.8)	15 (30)	
	Absolutely agree	174 (51.2)	31 (62)	
Working with people with HIV/AIDS makes me nervous	Absolutely disagree	4 (1.2)	1 (2)	[d] *0.916*
	Disagree	20 (5.9)	3 (6)	
	Undecided	35 (10.3)	5 (10)	
	Agree	175 (51.5)	24 (48)	
	Absolutely agree	106 (31.2)	17 (34)	
Extra protective measures are necessary when treating HIV/AIDS patients	Absolutely disagree	2 (0.6)	0 (0)	[d] *0.758*
	Disagree	4 (1.2)	1 (2)	
	Undecided	7 (2.1)	0 (0)	
	Agree	62 (18.2)	8 (16)	
	Absolutely agree	265 (77.9)	41 (82)	

[a] *Pearson's Chi Square Test,* [d] *Fisher Freeman Halton Test,* [e] *Fisher Exact Test, *p<0.05*

Infection Control and Training Needs:

When comparing participants' education levels regarding the need for education on HIV/AIDS, infection control knowledge, and attitudes, no statistically significant difference was found between the groups ($p>0.05$). 60.6% of students and 70% of graduates strongly agreed with the statement, "More education on HIV/AIDS should be provided in dental faculties." Overall, both groups showed a high level of agreement with this statement, but no significant difference was observed between the groups ($p=0.446$). Regarding the question, “Which of the following is not an infection control measure during the treatment of HIV/AIDS patients?”, the most frequently selected option in both groups was “Minimum physical contact with the patient” (students 52.6%; graduates

62.0%). No significant difference was found between the groups (p=0.289). To the question, “Would you like to receive specialized training related to treating HIV/AIDS patients?”, 81.8% of students and 76% of graduates answered “Yes”. No statistically significant difference was found between the groups in terms of willingness to receive training (p=0.562). Regarding the statement, “Do you think dentists and dental assistants take the necessary precautions to prevent cross-infection?”, the most frequent response in both groups was “Undecided” (students 39.7%; graduates 40.0%). No significant difference was found between the groups (p=0.631). Regarding the statement, “I am knowledgeable about post-exposure protocol,” 42.6% of students and 36% of graduates stated they were undecided. However, although the proportion of "Undecided" and "Agree" responses appears to be higher in the graduate group, this difference is not statistically significant (p= 0.108) (Table 5).

Table 5. Distribution of responses to questions regarding infection control and training needs

		Education Level		*p*
		Students (n=340)	Graduates (n=50)	
Dental schools should provide more education on HIV/AIDS	Absolutely disagree	3 (0.9)	0 (0)	[d] *0.446*
	Disagree	2 (0.6)	1 (2)	
	Undecided	12 (3.5)	1 (2)	
	Agree	117 (34.4)	13 (26)	
	Absolutely agree	206 (60.6)	35 (70)	
Which of the following is not an infection control measure during the treatment of HIV/AIDS patients?	Autoclave sterilization of equipment	53 (15.6)	4 (8)	[d] *0.289*
	Use of gloves	13 (3.8)	2 (4)	
	Minimum physical contact with the patient	179 (52.6)	31 (62)	
	Continuous use of protective eyewear/mask	27 (7.9)	1 (2)	
	Disposal of medical waste using special procedures	68 (20)	12 (24)	
Would you like to receive specialized training related to treating HIV/AIDS patients?	Yes	278 (81.8)	38 (76)	[a] *0.562*
	No	17 (5)	4 (8)	
	I'm undecided	45 (13.2)	8 (16)	
Do you think dentists and dental assistants are taking the necessary precautions to prevent cross-infection?	Absolutely disagree	14 (4.1)	4 (8)	[a] *0.631*
	Disagree	51 (15)	9 (18)	
	Undecided	135 (39.7)	20 (40)	
	Agree	115 (33.8)	15 (30)	
	Absolutely agree	25 (7.4)	2 (4)	
I am knowledgeable about post-exposure protocols	Absolutely disagree	16 (4.7)	1 (2)	[a] *0.108*
	Disagree	84 (24.7)	8 (16)	
	Undecided	145 (42.6)	18 (36)	
	Agree	82 (24.1)	19 (38)	
	Absolutely agree	13 (3.8)	4 (8)	

[a] *Pearson's Chi Square Test,* [d] *Fisher Freeman Halton Test*

Discussion

In the present study, the level of knowledge regarding HIV/AIDS among dental students and practicing dentists was evaluated, and the mean knowledge score of the participants was found to be 71.94±19.62. Furthermore, the significantly higher knowledge scores observed among practicing dentists compared to students (p<0.01) suggest that clinical experience may contribute to an increased level of knowledge about HIV/AIDS. This finding is consistent with results reported in the literature from survey-based studies conducted among students (4,7,11). In a study by Premadasa et al., conducted among dental students, it was demonstrated that senior students had higher levels of knowledge regarding HIV infection, its routes of transmission, and the risks of transmission in the dental setting. This may indicate that increased clinical training and patient exposure enhance awareness of HIV infection (12).

However, in our study, it was observed that a considerable proportion of participants provided incorrect responses to certain knowledge-based questions. In particular, the presence of misconceptions regarding the risk of HIV transmission through saliva is noteworthy. Similarly, previous studies have reported the existence of misconceptions among dental students regarding the routes of HIV transmission. In the study conducted by Oliveira et al.(8), it was reported that although students generally possessed adequate knowledge about the transmission routes of HIV infection, the risk of transmission in certain clinical situations could be misinterpreted. This suggests that despite the presence of theoretical knowledge about HIV infection, there may be deficiencies in the clinical interpretation of transmission risk (8).

Additionally, in our study, the rate of correct responses to the question regarding oral manifestations associated with HIV infection was found to be 22.1%. Similarly, the literature indicates that although students are more likely to recognize classical HIV-associated lesions such as Kaposi's sarcoma and oral candidiasis, the recognition rates for other oral manifestations remain below 50%, and may fall below 10% for certain lesions. This finding suggests that both dental practitioners and students have deficiencies in their clinical knowledge regarding the diagnosis of HIV-associated oral lesions (8).

In the study conducted by Premadasa et al.(12), it was reported that a substantial proportion of students believed that their health could be at risk when treating HIV-positive patients and that they harbored concerns regarding HIV infection. Similarly, Oliveira et al.(8) demonstrated that a considerable number of students perceived a high level of occupational risk related to HIV infection, which could influence their clinical attitudes. In a study carried out in Oslo by Börsüm et al.(13), it was shown that the knowledge levels of academic staff and clinical personnel were higher than those of students; however, personal fear and social anxiety toward HIV did not differ significantly between the groups. These findings suggest that there is not always a direct relationship between knowledge level and clinical attitudes, and that fear and stigma associated with HIV infection may not be entirely eliminated even as knowledge increases. Consistent with the literature, the majority of participants in our study stated that treating patients with HIV/AIDS is both a professional and ethical responsibility. Nevertheless, it is noteworthy that a considerable proportion of participants believed that dental treatment for HIV/AIDS patients should be performed in separate clinical settings. This finding indicates that although participants are aware of their professional responsibilities, their perception of infection risk remains high and stigmatizing attitudes toward HIV infection have not been completely eradicated.

In our study, more than 80% of participants reported feeling uneasy about working with HIV-positive patients, which further supports this observation. Due to the risk of exposure to blood and body fluids in dental practice, fear of HIV transmission is known to be prevalent among students and early-career dentists (4,11,12,14). However, universal infection control precautions currently implemented in clinical practice are applied as a standard for all patients and are considered effective in preventing many blood-borne infections, including HIV. Therefore, education on infection control protocols is considered essential in reducing fear related to HIV infection.

In our study, it was determined that the majority of participants believed that more comprehensive education on HIV/AIDS should be provided in dental faculties. Additionally, 81% of participants expressed a desire to receive specialized training on the management of patients with HIV/AIDS. This finding indicates a substantial need for further education on HIV infection among dental students and early-career dentists. Similarly, the literature reports that a significant proportion of dental students wish to receive more education on HIV infection and infection control (5). It is also noteworthy that the majority of participants believed that additional protective measures should be taken when treating HIV-positive patients. However, universal infection control precautions are applied as standard practice for all patients (15). Therefore, the perception that additional HIV-specific precautions are necessary suggests that infection control principles may not be fully understood. This highlights the importance of addressing universal precautions and cross-infection control more comprehensively within dental education.

Furthermore, in our study, practicing dentists were found to be more knowledgeable than students regarding post-exposure protocols. This suggests that clinical experience may enhance awareness of infection control practices and occupational safety procedures. Nevertheless, the fact that a considerable proportion of students reported insufficient knowledge about post-exposure protocols indicates that greater emphasis should be placed on this topic within dental education.

This cross-sectional study has several limitations that should be considered while interpreting the findings. The data were collected through a self-reported online questionnaire, which may have introduced response and social desirability bias. In addition, the majority of participants consisted of dental students, while the number of graduate dentists was relatively limited, which may affect the generalizability of the findings.

Conclusion

The findings of this study indicate that although the overall level of basic knowledge regarding HIV/AIDS among dental students and early-career dentists is generally acceptable, concerns related to infection risk and certain misconceptions and hesitant attitudes persist. Therefore, it is important to enhance not only theoretical knowledge but also clinically oriented training on HIV infection within dental education programs, to emphasize universal infection control principles more strongly, and to develop educational strategies aimed at reducing stigmatizing attitudes toward individuals living with HIV.

Ethics Committee Permission Statement

The study was approved by the Non-Interventional Scientific Research Ethics Committee of the University of Health Sciences (approval date: May 15, 2025; meeting no: 2025/11; decision no: 11/11; document no: 26.05.2025–39182) and was conducted in accordance with the principles of the Declaration of Helsinki. Informed voluntary consent was obtained electronically from all participants prior to the survey.

Conflict of Interest Statement

The authors declare that they have no conflict of interest.

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Authors Contribution Statement

Aslı Başkan Önal:, Design, Supervision, Data Collection and/or Processing, Literature Review, Writing

Gülşan Atay: Design, Supervision, Data Collection and/or Processing, Writing

Azra Uzun: Data Collection and/or Processing, Writing

Serap Keskin Tunç: Design, Supervision, Analysisand/or Interpretation

Selma Keskin: Analysisand/or Interpretation, Critical Review

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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