



Research Article

Knowledge and Attitudes towards behavior of HIV/AIDS Patients Management among Dental Students: Observational Study

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Abstract

In 1981, AIDS was first recognized in the United States. Every year, AIDS cases always increase. The incidence of cross-infection cases in dentists reaches 36% when managing HIV/AIDS patients. Having good knowledge and attitudes can lead to good behavior towards the management of HIV/AIDS patients. The formation of knowledge, attitudes, and good behavior will increase over time, along with the experience of a dentist. This research aims to determine the relationship between the knowledge and attitudes of dental students at RSGM UMY and the management behavior of HIV/AIDS patients. This research is an analytical observation with a cross-sectional approach that used a questionnaire instrument. The respondents of this research were 75 dental students. This research questionnaire includes knowledge, attitudes, and behavior about HIV/AIDS towards the management of HIV/AIDS patients. Data analysis used Chi-square analysis. The results of the descriptive analysis showed that 93.3% of dental students had high knowledge and positive attitudes, and 6.7% had moderate knowledge and were neutral towards HIV/AIDS patients. 77.3% of dental students fell into the good behavior category, 12% in the moderate behavior category, and 10.7% in the bad behavior category. The results of statistical tests using Chi-square obtained p value = 0.456 (> 0.05), indicating no significant relationship between research variables. Based on the results of the research, there was no significant relationship between the knowledge, behavior, and attitudes of dental students at RSGM UMY and the management behavior of HIV/AIDS patients.

Keywords: attitude; behaviour; knowledge; management; HIV/AIDS

INTRODUCTION

Acquired Immunodeficiency Syndrome (AIDS) was first recognized worldwide in 1981 in the United States and has always attracted attention in the medical world.¹ A collection of symptoms of disease due to a decrease in the body's immune system caused by infection with the Human Immunodeficiency Virus (HIV) is the definition of AIDS. Unlike AIDS, HIV is an infection that attacks the body's immune system, especially white blood cells Cluster of Differentiation 4 (CD4). The number of people living with AIDS is increasing every year.²

Based on Joint United Nations Programme on HIV and AIDS (UNAIDS) data in 2020, as many as 75.7 million people in the world are infected with HIV, and 32.7 million people die due to AIDS at the end of 2019. According to the Directorate General of Disease Control and Environmental Health of the Indonesian Ministry of Health in 2020, the number of HIV/AIDS cases in Indonesia from 1987 to March 31, 2020, has been detected as many as 511,955 people from an estimated 640,443 people. The number of HIV cases in the city of Yogyakarta continues to grow from year to year, based on data from the

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Yogyakarta Government Health Service (2020). Based on previous research, as many as 300 thousand health workers are infected with HIV, with the number of injured cases by 36% at dentists.³

As a dentist, it is important to have good knowledge of transmission methods, infection control, and how to prevent HIV/AIDS transmission.⁴ This knowledge can be used to make it easier for dentists to diagnose and manage HIV/AIDS patients and prevent cross-infection. This explanation is supported by research conducted. It is said that proper management of HIV/AIDS patients by a dentist is often associated with good knowledge of diagnosis, transmission media, understanding of modes of transmission, disease course, and oral manifestations of HIV/AIDS.⁵ Therefore, it is important for students of the dental profession to increase their knowledge about HIV/AIDS and have a positive attitude towards sufferers.⁶ When providing dental and oral care to HIV/AIDS patients, students of the dental profession are expected to be responsible and behave well.⁷

In addition to knowledge, having a positive attitude towards HIV/AIDS patients is an important thing that students of the dental profession need to have. Positive attitudes towards HIV/AIDS patients are still very rare due to the negative stigma against them. Moreover, negative stigma can prevent People living with HIV/AIDS (PLWHA) from accessing health facilities.⁶ In general, a dentist's positive attitude towards the care of HIV/AIDS patients will be more consistent and careful not to be cross-infected.⁸ However, keep in mind that having a positive attitude towards HIV/AIDS patients does not guarantee that the operator has high knowledge.⁹

Behavior becomes an important assessment in addition to knowledge and attitudes. Dental student often behaves unfavorably towards the management of HIV/AIDS

patients. This behavior can be formed due to several factors, such as knowledge, experience, environment, and ability to understand information and facilities.¹⁰

Knowledge about the oral manifestations of HIV/AIDS is basic knowledge that dental students must know. A dental student should be able to recognize oral lesions associated with oral manifestations of HIV infection that has progressed to AIDS.¹¹ Several studies have stated that 70-90% of people living with HIV have some clinical manifestations in the oral cavity.¹² Some of the oral manifestations of HIV/AIDS patients include oral candidiasis, hairy leukoplakia, Kaposi sarcoma, linear gingival erythema, necrotizing ulcerative periodontitis, aphthous ulcers, hyperpigmentation, leukoplakia, herpes zoster, xerostomia, and non-Hodgkin's lymphoma.¹³ A recent study found that the most common oral lesions in PLWHA were oral candidiasis and Kaposi's sarcoma in 50-70% of cases.¹⁴ This research aims to determine the relationship between the knowledge and attitudes of dental students at RSGM UMY and the management behavior of HIV/AIDS patients.

MATERIALS AND METHODS

This research was conducted at Rumah Sakit Gigi dan Mulut Universitas Muhammadiyah Yogyakarta (RSGM UMY) in December 2021. The type of research is an observational analytical study with a cross-sectional design. The population of this study was 188 students of the dental profession at RSGM UMY. The sample of this study were students of the dental profession class of 2020 at RSGM UMY.

The sampling technique used was a simple random sampling technique. The sample size was calculated using the Slovin formula with a minimum sample size of 75 people. The research instrument was a questionnaire filled out online using a link shared by the researcher. Questionnaires distributed to respondents have previously

been tested for validity and reliability using Cronbach's alpha. Based on the Corrected Item-Total Correlation calculation results, the value was > 0.296 ($n=30$). The reliability test results showed a Cronbach's Alpha value of 0.920; thus, the questionnaire can be said to be valid and reliable.

The inclusion criteria of this study included students of the dental profession class 2020 who were active at RSGM UMY starting from January 2021 and were willing to fill out informed consent and questionnaires completely. The exclusion criteria from this study were dental students at RSGM UMY who were unwilling to be research respondents. Analysis of the data used the Chi-square test. This research has received approval from the Research Ethics Committee number 304/EC-KEPK FKIK UMY/XI/2021.

RESULT

Research has been conducted on the relationship between the knowledge and attitudes of students of the dental profession at RSGM UMY and the management behavior of HIV/AIDS patients with 75 respondents. The results of the study are listed in the following table:

Table 1. Characteristics of Research Respondents Based on Gender of Dental Profession Students at RSGM UMY

Gender	Frequency (F)	Percentage (%)
Male	18	24
Female	57	76
Total	75	100

Table 1 shows that there are more female respondents than male respondents. Female respondents were 57 students (76%), while male respondents were 18 (24%).

Table 2. Characteristics of Research Respondents Based on Age of Dental Profession Students at RSGM UMY

No.	Age (y.o)	Number (n)	Percentage (%)
1	20	1	1.33
2	21	2	2.67
3	22	37	52.8
4	23	26	34.6
5	24	8	10.6
6	25	2	2.67
Total		75	100

Table 2 shows that the highest number of age groups is at the age of 22, with a total of 37 respondents (52.8%). The

smallest number of age groups is at the age of 20 as many as 1 respondent (1.33%).

Table 3. Distribution of Knowledge Frequency of Dental Profession Students at RSGM UMY regarding the management of HIV/AIDS Patients

Knowledge	Frequency (F)	Percentage (%)
Low	0	0%
Medium	5	6.67%
High	70	93.33%
Total	75	100%

Table 3 shows that as many as 70 professional students (93.3%) have a high level of knowledge, while 5 professional students (6.67%) have a moderate level of knowledge about HIV/AIDS.

Table 4. Frequency Distribution of Attitudes of Dental Profession Students at RSGM UMY towards HIV/AIDS Patient Management

Attitude	Frequency (F)	Percentage (%)
Negative	0	0%
Positive	5	6.67%
Neutral	70	93.33%

Table 4 shows that as many as 70 professional students (93.3%) have a high level of knowledge, while 5 professional students (6.67%) have a moderate level of knowledge about HIV/AIDS.

Table 5. Distribution of Behavioral Frequency of Dental Profession Students at RSGM UMY regarding HIV/AIDS

Behavior	Frequency (F)	Percentage (%)
Bad	8	10.7%
Medium	9	12%
Good	58	77.3%
Total	75	100%

Table 5 shows that the majority of respondents behaved, as many as 58 respondents (77.3%), and the rest had sufficient behavior by as many as 9 respondents (12.0%) and bad behavior by as many as 8 respondents (10.7%).

Table 6. Relationship between Knowledge of Dental Profession Students at RSGM UMY with Management Behavior of HIV/AIDS Patients

Knowledge	Behavior			Total n (%)	P
	Good n (%)	Med n (%)	Bad n (%)		
Good	53(70.7)	9(12)	8(10.7)	70(93)	0.456
Med	5(6.7)	0	0	5(7)	
	58(77.3)	9(12)	8(10.7)	75(100)	

Table 6 states that good knowledge on good behavior belongs to 53 respondents (70.7%). Meanwhile, enough behavior belongs to 9 respondents (12.0%), and bad behavior belongs to 8 (10.7%). Furthermore, knowledge on good behavior belongs to 5 respondents (6.7%). Based on

the analysis results, the p-value = 0.456 ($p < 0.05$), indicating no relationship between the knowledge of students of the dental profession at RSGM UMY and the management behavior of HIV/AIDS patients.

Table 7. The Relationship Between Attitudes of Dental Profession Students at RSGM UMY with Management Behavior of HIV/AIDS Patients

Attitude	Behavior			Total n (%)	P
	n (%)	n (%)	n (%)		
Positive	55(73.3)	8(10.7)	7(9.3)	70(93.3)	0.6
Neutral	3(4)	1(1.3)	1(1.3)	5(6.7)	28
Total	58(77.3)	9(12)	8(10.7)	75(100)	

Table 7 shows that 55 respondents (73.3%) have good behavior and a positive attitude. Meanwhile, the medium behavior belongs to 8 respondents (10.7%), and the bad behavior belongs to 7 respondents (9.3%). Furthermore, a neutral attitude toward good behavior belongs to 3 respondents (4.0%), while enough behavior belongs to 1 respondent or 1.3%, and bad behavior belongs to 1 (1.3%). Based on the results of the analysis, the p-value obtained = 0.628 ($p < 0.05$), indicating no relationship between the attitudes of students of the dental profession at RSGM

UMY and the management behavior of HIV/AIDS patients.

DISCUSSION

Based on the results of the Chi-square test analysis, it was found that there was no relationship between the knowledge of dental profession students at RSGM UMY and the management behavior of HIV/AIDS patients and between attitude and behavior variables. These results are not in line with the hypothesis of this study but are in line with the research conducted, where the high knowledge and positive

attitude of a dentist did not align with their behavior when caring for HIV/AIDS patients if they still have anxiety about being cross-infected.¹⁵ Anxiety about being cross-infected can lead to a refusal to treat HIV/AIDS patients.

The readiness of a dentist is an important factor in controlling anxiety. Well-prepared dentists in patient management and prevention of cross-infection will have a better knack for treating HIV/AIDS patients. The preparation can be in the form of knowledge about infection control standards, the use of Personal Protective Equipment (PPE), and anxiety control attitudes when treating the patients.¹⁶

The time of a dentist's practice experience when treating HIV/AIDS patients can be a factor that influences the results of this study, in addition to anxiety and readiness. Based on the results of the research conducted, good knowledge, positive attitudes, and good behavior will be in line with the compliance of a dentist in treating HIV/AIDS patients when they have experience in practice for 21 years.¹⁰ Dentists who have experience treating HIV/AIDS patients for 21 years have a better understanding and positive attitude toward infection control in dental clinics

In this study, female respondents were 57 (76%) and male respondents were 18 (24%). This number shows three times more female respondents than male respondents. It aligns with research revealing that women's interest in attending dental faculty is higher than men's.¹⁷ Therefore, female respondents are more in the results research on knowledge with high category. This statement is supported that women have a higher level of intelligence than men in mastering science in higher education.¹⁸

The study results showed that the level of knowledge in the high category was mostly at the age of 22-25 years, while the medium category was in the age range of 20-22 years. In adulthood, the level of knowledge will increase as the more mature

a person's age is, the easier it is to determine what is considered good and can increase knowledge about HIV/AIDS.¹⁹

Knowledge results from curiosity about an object through a sensory process and affects the formation of open behavior.¹⁰ The knowledge of students of the dental profession at RSGM UMY in this study was the knowledge of professional students about HIV/AIDS in the management of HIV/AIDS patients.

The results of the study stated that from 75 respondents, most of the students of the dental profession class of 2020 understand about HIV/AIDS with a high category, namely 70 respondents (93.33%). It is because students of the dental profession have received material related to HIV/AIDS and have been studying for almost 12 months. Education greatly influences a person to acquire knowledge, so the higher a person's education is, the easier it will be to accept knowledge that is considered good for themselves.¹⁰

In addition to high knowledge, the moderate knowledge category belongs to 5 respondents (6.67%). Knowledge of students in the medium category can be caused by many factors, one of which has received the material but has forgotten it. IQ can also influence this, and each person's stimulus can differ. Knowledge can be obtained from formal and non-formal education that is noticed and remembered.²⁰

The result of the next study is that the majority of students of the dental profession at RSGM had a positive attitude, namely 70 respondents (93.3%) towards HIV/AIDS patients. It is in line with research revealing that 80.2% of students of the dental profession had a positive attitude towards HIV/AIDS patients before being given clinical transmission prevention materials. Not only a positive attitude, but also a neutral attitude in the results of this study belongs to 5 respondents (6.67%).⁸ The incidence of neutral attitudes towards HIV/AIDS patients is more common among students of the dental profession as they have less experience than dentists.

Moreover, the neutral or negative attitudes of professional students can be caused by negative stigma towards HIV/AIDS patients. The negative stigma can be in the form of a belief that people with HIV/AIDS deserve to be ostracized as they can transmit HIV/AIDS to their community. These factors are supported by the results of research conducted where more than 80% of respondents believe that people living with HIV/AIDS should not reveal themselves to the public.²¹

Furthermore, this study revealed that the majority of professional students behaved well in the management of HIV/AIDS patients, as many as 58 respondents (77.3%). Good behavior, such as washing hands before and after treatment and using the correct Personal Protective Equipment (PPE), can be one way to prevent cross-transmission of HIV/AIDS.²² The results of this study are supported by research conducted in Brazil, namely, significantly more than 90% of dentists will use complete PPE, replace new PPE every time they take care of infectious patients, and dispose of disposable infectious materials.¹⁹

Another study stated that students behaved fairly, as many as 9 respondents (12.0%) and 8 (10.7%) behaved badly. Behavior formation can be influenced by predisposing factors such as age, beliefs, and perceptions. Besides, there are enabling factors such as health facilities, information, and abilities of an individual, as well as reinforcing factors, namely everything that is positive or negative can affect the formation of a person's behavior.¹⁰ The results of this research and theory are in line with research revealing that dentists who have experience doing their work for more than 21 years will have adherence to the guidelines for the management of HIV/AIDS patients.⁹

CONCLUSION

Based on data analysis and research that has been conducted on dental students, it was found that there was no relationship

between knowledge and attitudes toward the behavior of HIV/AIDS patient management among dental students.

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REFERENCE

1. Kusumastiwi PO, Gambaran Pengetahuan dan Kecemasan Mahasiswa Profesi Kedokteran Gigi terhadap Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) di RSGM UMY. *Insisiva Dental Journal*. 2014;3(1).
2. Priastana IKA, Sugiarto H. Hubungan Tingkat Pengetahuan tentang HIV/AIDS dengan Sikap Pencegahan HIV/AIDS pada Remaja. *Indonesian Journal of Health Research [Internet]*. 2018 Aug 28;1(1):1–5. Available from: <http://dx.doi.org/10.32805/ijhr.2018.1.1.3>
3. Utami S, Sawitri AAS, Wulandari LPL, Artawan Eka Putra I wayan G, Astuti PAS, Wirawan DN, et al. Mortality among people living with HIV on antiretroviral treatment in Bali, Indonesia: incidence and predictors. *International Journal of STD & AIDS [Internet]*. 2017 Feb 15;28(12):1199–207. Available from: <http://dx.doi.org/10.1177/0956462417692942>
4. Li R, Dong W, He W, Liu Y. Chinese dental students' knowledge and attitudes toward HIV/AIDS. *Journal of Dental Sciences [Internet]*. 2016 Mar;11(1):72–8. Available from: <http://dx.doi.org/10.1016/j.jds.2015.09.001>
5. Dhanya R, Hegde V, Anila S, Sam G, Khajuria R, Singh R. Knowledge, attitude, and practice towards HIV patients among dentists. *Journal of International Society of Preventive and*

- Community Dentistry [Internet]. 2017;7(2):148. Available from: http://dx.doi.org/10.4103/jispcd.jispcd_57_17
6. Gunardi I, Salsabila Nurina N, Marcia, Amtha R. Dentists experience influences knowledge and attitudes toward HIV patients in West Jakarta, Indonesia, and validation of a new questionnaire. *Oral Diseases* [Internet]. 2020 Aug 30;26(S1):127–32. Available from: <http://dx.doi.org/10.1111/odi.13393>
 7. Shahzeb HE, Alwaleed AA, Abdullah A, Abdulmohsen A, Omar A, Saud A, Tariq MAM, Knowledge and attitude of dental students towards the oral care of HI/AIDS patients. *Medical Science*. 2020;24(106), 4249-4257.
 8. Rostamzadeh M, Afkhamzadeh A, Afrooz S, Mohamadi K, Rasouli MA. Dentists' knowledge, attitudes and practices regarding Hepatitis B and C and HIV/AIDS in Sanandaj, Iran. *BMC Oral Health* [Internet]. 2018 Dec;18(1). Available from: <http://dx.doi.org/10.1186/s12903-018-0685-1>
 9. Alharbi G, Shono N, Alballaa L, Aloufi A. Knowledge, attitude and compliance of infection control guidelines among dental faculty members and students in KSU. *BMC Oral Health* [Internet]. 2019 Jan 9;19(1). Available from: <http://dx.doi.org/10.1186/s12903-018-0706-0>
 10. Notoatmojo S. *Promosi Kesehatan dan Perilaku Kesehatan*. Jakarta: Rineka Cipta. 2014.
 11. Pakfetrat A, Falaki F, Delavatian Z, Sanatkhani M, Marani MZ. Oral manifestations of human immunodeficiency virus-infected patients. *Iranian journal of otorhinolaryngology*. 2015;27(78), 43.
 12. Sharma G, Oberoi S, Vohra P, Nagpal A. Oral manifestations of HIV/AIDS in Asia: Systematic review and future research guidelines. *Journal of Clinical and Experimental Dentistry* [Internet]. 2015;e419–27. Available from: <http://dx.doi.org/10.4317/jced.52127>
 13. Singh VP, Osman IS, Rahmat NA, Abu Bakar NA, Abdul Razak NFN, et al. Knowledge and Attitude of Dental Students towards HIV/AIDS Patients in Melaka, Malaysia. *Malaysian Journal of Medical Sciences* [Internet]. 2017;24(3):73–82. Available from: <http://dx.doi.org/10.21315/mjms2017.24.3.9>
 14. Agarwal J. Analysis of Information, Impact and Control of HIV amongst Dental Professionals of Central India. *Journal of Clinical and Diagnostic Research* [Internet]. 2015; Available from: <http://dx.doi.org/10.7860/jcdr/2015/14300.6236>
 15. Pratiwi R, Pratiwi R, Akbar FH, Pasiga BD, Samad R, Anwar AI, Djamaluddin N, Kencana RS. Description of the level of knowledge, attitude, preparedness and willingness of the Faculty of Dentistry Faculty of Hasanuddin University in Caring for people with Hiv/Aids. *Journal of International Dental and Medical Research*. 2019;12(2), 688-694.
 16. Priyanto A. *Komunikasi dan Konseling: Aplikasi dalam Sarana Pelayanan Kesehatan Untuk Perawat dan Bidan*. Jakarta: Salemba Medika; 2014.
 17. Azwar S. *Sikap Manusia Toeri dan Oengukurannya*. Yogyakarta: Pustaka Pelajar; 2015.
 18. Ali A, Ali NS, Nasir U, Aadil M, Waqas N, Zil-E-Ali A, et al. Comparison of Knowledge and Attitudes of Medical and Dental Students towards HIV/AIDS in Pakistan. *Cureus* [Internet]. 2018 Apr 4; Available from: <http://dx.doi.org/10.7759/cureus.2426>
 19. Donsu, J. *Psikologi Keperawatan*. Yogyakarta: Pustaka Baru Press; 2017.
 20. Arsyad A. *Media Pembelajaran*. Jakarta: PT. Raja Grafindo Persada; 2016.
 21. Wongkongdech R, Chanthamath S,

- Wongkongdech A. Knowledge, attitude and prevention behavior related to HIV/AIDS among students of a college in Lao-PDR: a cross-sectional study. *F1000Research* [Internet]. 2020 Mar 11;9:181. Available from: <http://dx.doi.org/10.12688/f1000research.22306.1>
22. Silva-Boghossian CM, Boscardini BAB, Pereira CM, Moreira E JL. Evaluation of oral care protocols practice by dentists in Rio de Janeiro towards HIV/AIDS individuals. *BMC Oral Health* [Internet]. 2020 Jan 14;20(1). Available from: <http://dx.doi.org/10.1186/s12903-020-0999-7>