



# The Relationship Between Knowledge and Attitude to Prevent HIV/AIDS Transmission in Dental Students at Dental Hospital (RSGM) Universitas Muhammadiyah Yogyakarta

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**Abstract.** HIV infection is one of the ten major health problems in the world which is quite worrying and will develop into AIDS if the infection has acquired an advanced stage. In HIV/AIDS patients, the infection can manifest as lesions in the oral cavity. For health workers such as dentists, HIV/AIDS is an infectious disease which requires to beware because treatments in dental care possess a risk of transmitting HIV from sufferers to dentists. Thus, knowledge and good attitude are required as an effort to prevent HIV/AIDS transmission. The objective of this study is to examine the relationship between knowledge and attitude to prevent HIV/AIDS transmission in dental students at Dental student (RSGM), Universitas Muhammadiyah Yogyakarta. This study employed a cross sectional study. The sample of this research is dental students comprising of 65 students. Collecting data administered a questionnaire instrument about knowledge and attitude to prevent HIV/AIDS transmission. Data analysis utilized Spearman Rank Correlation test. The results revealed that 48 respondents (73.8%) owned high knowledge and 33 respondents (50.7%) possessed positive attitude about HIV/AIDS. Spearman Rank Correlation test displayed a significance value of 0.001 ( $p < 0.05$ ) with a correlation coefficient of 0.404. There is a significant relationship between knowledge and attitude to preventing HIV/AIDS transmission in dental students at Dental Hospital (RSGM) UMY and in general, dental students possess high knowledge and positive attitude.

**Keywords:** HIV/AIDS · Knowledge · Attitude · Oral manifestation

## 1 Introduction

Human Immunodeficiency Virus (HIV) is an infectious disease attacking lymphocytes or white blood cells which causes the sufferer's immune system to decrease due to HIV infection [1]. HIV infection is one of the ten prior health problems in the world which is quite worrying and will develop into AIDS if the infection has obtained an advanced stage [2]. Data from the World Health Organization (WHO) presents that as many as 36.9 million people suffer from AIDS and there are 620 thousand AIDS sufferers throughout 2017 in Indonesia. Indonesia is the fifth country most at risk of HIV/AIDS in Asia with the number of cases enhancing every year [3]. In Yogyakarta, throughout 2014, there were 2,933 cases of HIV/AIDS with the highest cases being in the city of Yogyakarta as much as 27.3%. The number of infected health workers was as many as 300 officers with the number of injuries to dentists was 36% and 4% were dental students [4].

Lesions in the oral cavity can be an indication of infection in HIV/AIDS patients. Clinical signs in the oral cavity are crucial as the primary indicator of HIV infection because the appearance of oral lesions can be a sign of the progression of infection. Human papillomavirus, recurrent aphthous ulcers, varicella zoster virus, herpes simplex virus, condyloma acuminatum, oral hairy leukoplakia, oral candidiasis, linear gingival erythema, Kaposi's sarcoma, linear gingival erythema and necrotizing ulcerative gingivitis [5].

Dentists operate the risk of contracting HIV due to their close proximity to oral cavity regions that come into direct contact with patient blood and saliva [6]. Dentists are expected to possess adequate knowledge about HIV/AIDS including its signs or manifestations in the oral cavity as it indicates HIV infection. Dentists who own knowledge associated with HIV/AIDS can play a significant role in detecting and recognizing manifestations in the patient's oral cavity, thus, dentists are more alert and can treat patients properly and safely as an effort in preventing the transmission of HIV/AIDS. Transmission of HIV/AIDS can be conducted in several ways, incorporating through sexual contact, blood, perinatal, breastfeeding, or certain body fluids that are contaminated with blood [7]. The risk of HIV transmission through needlestick injuries to dentists requires to be a concern, particularly for professional students who have just entered the practice of dentistry. The Centers for Disease Control and Prevention (CDC) argues that a dentist in practice must follow standard precautions as an effort to prevent the transmission of infectious diseases [8].

Knowledge is one of the crucial factors and can influence a person's attitude [9]. Therefore, knowledge about HIV/AIDS and its manifestations in the oral cavity is tremendously essential for a dentist, particularly for students of the dental profession to be able to take good care and avoid transmission of HIV infection. In accordance with the description of the background, the author wants to evidence whether there is a relationship between knowledge and attitudes to prevent HIV/AIDS transmission at the Dental Hospital Universitas Muhammadiyah Yogyakarta.

## 2 Research Methods

In this study, analytic observational research was employed with a cross sectional design. This research was conducted at the Dental Hospital (RSGM) Universitas Muhammadiyah Yogyakarta. There were 185 population of first year dental students at the dental hospital of Universitas Muhammadiyah Yogyakarta. Inclusion and exclusion criteria were determined in sampling. The sample size from the population was obtained as many as 65 respondents which were calculated by employing the Slovin formula.

This study administers a questionnaire instrument which is administered to obtain information from respondents. Questionnaires were employed to evaluate knowledge about HIV/AIDS and attitudes to preventing HIV/AIDS transmission. The questionnaire encompasses 16 questions which are divided into ten questions about knowledge about HIV/AIDS and six questions about attitudes towards HIV/AIDS. Before the questionnaire instrument has been evaluated for validity and reliability first. An instrument is identified to be valid if the value of  $r$  arithmetic  $>$   $r$  table and an instrument is understood to be reliable if the reliability index obtained is at least 0.60.

The statistical test in this study utilized SPSS 16.00. After the data was collected, the data will be assessed with the Spearman Rank Correlation test which is administered to determine the relationship between attitudes and knowledge towards preventing HIV/AIDS transmission in first-year dental students at Dental Hospital (RSGM) Universitas Muhammadiyah Yogyakarta.

## 3 Results

The results obtained from the questionnaire that had been filled out by 65 respondents implied the level of knowledge about HIV/AIDS, attitudes to preventing HIV/AIDS transmission, and the relationship between des and knowledge towards HIV/AIDS prevention.

In accordance with Table 1, this study displays that there are 48 respondents (73.8%) who possess high knowledge, 15 respondents (23.1%) have moderate knowledge, and 2 respondents (3.1%) have low knowledge.

Based on Table 2, it is presented that there are as many as 33 respondents (50.7%) have a positive attitude, 30 respondents (46.2%) have a neutral attitude, and 2 respondents (3.1) possess a negative attitude.

**Table 1.** Respondent's knowledge about HIV/AIDS

Knowledge	Frequency	Percentage (%)
Low	2	3.1
Medium	15	23.1
High	48	73.8
Total	65	100

**Table 2.** Attitudes to prevent HIV/AIDS transmission

Attitudes	Frequency	Percentage (%)
Negative	2	3.1
Neutral	30	46.2
Positive	33	50.7
Total	65	100

## 4 Discussion

Based on the results of this study in Table 1, it is displayed that that in general, the knowledge of dental profession students is in the high category. Knowledge in the high category indicates that the respondent comprehends the knowledge obtained and is able to interpret it in a positive and positive way. Students with high knowledge understand the modes of transmission and oral manifestations that appear in HIV/AIDS patients, while students with low knowledge do not understand it. This condition can be affected by insufficient and unclear information so that respondents cannot interpret the information correctly. A high level of knowledge can diminish a negative attitude towards HIV/AIDS infection [10].

The findings of this study are consistent with those of Rinendy's (2012) study, which revealed that 72.3% of dental school students had a high level of knowledge about infectious diseases [11]. This was further corroborated by a UNICEF presentation from 2012, which revealed that the majority of students were well-versed in the definition of HIV/AIDS, symptoms, underlying causes, preventative measures, and risks of transmission. A person's knowledge will be better and it will be simpler for them to accept new knowledge if their education level is higher. Professional students who are open to learning new things will be more in control and able to treat patients carefully, particularly those with HIV/AIDS.

Based on the results in Table 2 regarding the attitude of preventing the transmission of HIV/AIDS, it presents that most of the students possess a positive attitude in the effort to prevent the transmission of HIV/AIDS. A positive attitude implies a readiness response in efforts to prevent HIV/AIDS transmission. Professional students own readiness in treating HIV/AIDS patients by preparing complete PPE, washing hands before treatment, employing protective equipment to reduce the effects of contamination, and being careful in utilizing needles during anesthesia, and sterilizing tools after use.

The results of this study are in accordance with the results of Prabasari's research (2018) which displayed that as many as 126 (89.36%) students possessed a positive attitude 11. The positive attitude owned by students can possess a good impact in preventing the transmission of HIV/AIDS. It is because students will be more careful in treating HIV/AIDS patients by paying attention to universal precautions and SOPs during treatment procedures.

The results of the analysis of the Spearman Rank Correlation test on the relationship between knowledge and attitudes to preventing HIV/AIDS transmission (Table 3) possesses a significance value of 0.001 ( $p < 0.05$ ) which implies that there is a significant

**Table 3.** The results of the Spearman rank correlation test analysis

		Knowledge	Attitudes
Spearman's rho	Knowledge	Correlation coefficient	1.000
		Sig. (2-tailed)	.
		N	65
	Attitudes	Correlation Coefficient	0.404**
		Sig. (2-tailed)	0.001
		N	65

\*\* . Correlation is significant at the 0.01 level (2-tailed)

or significant relationship between knowledge and attitudes to preventing HIV/AIDS transmission. It is because perhaps, knowledge about HIV/AIDS plays a pivotal role in the formation of attitudes to prevent HIV/AIDS transmission [12]. The correlation coefficient obtained is 0.404, which signifies the level of strength of the relationship between knowledge about HIV/AIDS and the attitude of preventing HIV/AIDS transmission is moderate and the direction of the correlation is positive. The direction of the positive correlation presents the relationship of knowledge about HIV/AIDS with the attitude of preventing HIV/AIDS transmission in the same direction, implying that the higher the knowledge, the more positive the attitude of preventing the transmission of HIV/AIDS will be. If the direction of the correlation is negative, the lower the knowledge of a person, the more negative the attitude of preventing transmission.

The 8th World Workshop on Oral Health and Disease in HIV/AIDS which was attended by 36 countries issued a Bali Declaration on Oral Health in HIV/AIDS. The declaration elaborates that an increase in knowledge from the public and health workers is required regarding oral health of HIV/AIDS patients. It must be performed to achieve UNAIDS's goal of ending the global HIV/AIDS epidemic by 2030 [13]. Indonesia seems to have to implement the declaration in accordance with research that has been conducted by providing continuing education for dentists and enhancing the quality of education associated with attitudes, knowledge and behavior regarding HIV/AIDS, particularly to eliminate the negative stigma of HIV that still persists in Indonesia. In another study in West Java, it was revealed that the attitudes, knowledge and behavior of dentists concerning HIV/AIDS still require to be escalated and balanced. HIV/AIDS education and training programs for dentists are still demanded to increase knowledge and awareness, eliminate stigma and discrimination associated with HIV, and support disease prevention and control in the COVID-19 era [14].

The results of this study are in accordance with research conducted by Budiarto et al. (2020) which displayed a significant relationship between the level of knowledge and people's attitudes [15]. Research administered by Andriani and Sukardin (2020) also revealed a significant relationship between knowledge and attitudes with a positive correlation direction [16]. With the knowledge possessed by dental students, they are able to produce values which are believed and can be realized in the attitudes that are instilled in students to prevent the risk of HIV/AIDS transmission. The sample administered is

limited to one dental college only. Thus, it is one of the limitations and shortcomings as it does not represent real conditions in other dental collage. However, it is expected that this research can be employed as a reference in the future studies.

## 5 Conclusion

Based on the results of the research conducted, it can be concluded that there is a relationship between attitudes and knowledge to prevent HIV/AIDS transmission in professional students at the Dental Hospital (RSGM) Universitas Muhammadiyah Yogyakarta.

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## References

1. Nuzzillah, N. A., & Sukendra, D. M. Analisis pengetahuan dan sikap narapidana kasus narkoba terhadap perilaku berisiko penularan hiv/aids. *Journal of Health Education*, 9. (2017).
2. Silva-Boghossian, C. M., Boscardini, B. A. B., Pereira, C. M., & Moreira, E. J. L. Evaluation of oral care protocols practice by dentists in Rio de Janeiro towards HIV/AIDS individuals. *BMC Oral Health*, 20(1), 13. <https://doi.org/10.1186/s12903-020-0999-7>. (2020).
3. Kementerian Kesehatan RI. Laporan Perkembangan HIV AIDS & Penyakit Infeksi Menular Sexual (PIMS) Triwulan IV Tahun 2016. Kementerian Kesehatan. (2017).
4. Utami, F., Putri, K. S., & Hidayati, H. Hubungan Pengetahuan dan Sikap Dengan Tindakan Mahasiswa Program Profesi Dokter Gigi RSGMP Universitas ANDALAS terhadap Pengendalian Infeksi. *Andalas Dental Journal*, 5(2), 88–98. <https://doi.org/10.25077/adj.v5i2.74>. (2017).
5. Ramayanti, S. Manifestasi oral pada pasien terinfeksi virus hiv/aids. *Andalas Dental Journal*, 1(1), 78–89. <https://doi.org/10.25077/adj.v1i1.16> (2019).
6. Hidayat, A. M., Arbianti, K., & Wardhana, E. S. Hubungan antara pengetahuan dan tindakan dokter gigi dalam upaya pencegahan penyakit menular. *Odonto: Dental Journal*, 3(2), 118. <https://doi.org/10.30659/odj.3.2.118-122>. (2016).
7. Pujiastuti, A. T., & Murtiastutik, D Oral Hairy Leukoplakia pada Pasien HIV/AIDS. 28(1), 7. (2016).
8. Brooks C, Ballinger C, Nutbeam D, Mander C, Adams J. Nursing and allied health professionals' views about using health literacy screening tools and a universal precautions approach to communication with older adults: a qualitative study. *Disabil Rehabil*. Jun;42(13):1819–1825 (2020).
9. Langlais, R. P., Miller, C. S., & Gehrig, J. S. *Color Atlas of Common Oral Diseases* 5. 104, 182–194, 206, 335. (2017).
10. Rostamzadeh M., Afkhamzadeh A., Afrooz S., Mohamadi K., Rasouli M. A. Dentists' knowledge, attitudes and practices regarding Hepatitis B and C and HIV/AIDS in Sanandaj, Iran. *BMC Oral Health*. 2018;18(1):220–228. doi: <https://doi.org/10.1186/s12903-018-0685-1>(2018).
11. Rinendy, D. Hubungan antara Pengetahuan dan Sikap Mahasiswa Profesi dengan Tindakan Pencegahan Penyakit Menular di Rumah Sakit Gigi dan Mulut Universitas Jember. *Jember*. (2018).

12. Prabasari, N. A., Juwita, L., & Lyliana, M. A. Hubungan Pengetahuan dan Sikap Pencegahan Penularan HIV/AIDS dengan Perilaku Seks Bebas pada Mahasiswa. 6.(2). (2018).
13. Tappuni A. R., Sufiawati I. The Bali declaration on oral health in HIV/AIDS. Oral Diseases. 2020;26(S1):172. doi: <https://doi.org/10.1111/odi.13404>. (2020).
14. Sufiawati I, Rafi MA, Putri FM. Evaluating Knowledge, Attitude, and Behavior of Dentists on HIV/AIDS in West Java, Indonesia, in the COVID-19 Era. Int J Dent. Sep 23;2021:1901887. doi: <https://doi.org/10.1155/2021/1901887>. (2021).
15. Budiarto, S. A., Herin Setianingsih, & Wahyu Prasasti Mutiadesi. Hubungan Tingkat Pengetahuan dan Sikap Masyarakat dengan Upaya Pencegahan Covid-19 di Mataram. Hang Tuah Medical Journal, 19(1), 54–76. <https://doi.org/10.30649/htmj.v19i1.66>. (2021).
16. Andriani, D., & Sukardin, S. Pengetahuan dan Sikap Keluarga dengan Pencegahan Penularan Penyakit Tuberculosis (TBC) di Wilayah Kerja Puskesmas Penana'e Kota Bima. Jurnal Ilmiah Ilmu Keperawatan Indonesia, 10(03), 72–80. <https://doi.org/10.33221/jiiki.v10i03.589>. (2020).

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