

Research Article

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Assessment of knowledge and attitude-based questionnaire of HIV/AIDS by dental students**Rakesh Kumar Yadav***; Rini Tiwari

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Abstract**Aim:** The aim of this study was to assess the knowledge and attitude of dental students towards HIV/AIDS patients.**Method:** The cross-sectional survey was conducted among 100 dental students of different years at Faculty of Dental Science, King George's Medical University, Lucknow. A self-designed questionnaire of 23 questions was prepared to assess the knowledge and attitude of dental students towards HIV/AIDS patients and the data was evaluated by Student t test.**Result:** Total 100 students participated in the survey, all of them were aware of meaning of HIV and its transmission through blood. Overall, the mean knowledge score of dental students was 68.90 ± 7.43 while the mean attitude score was 69.75 ± 13.78 . On comparing the knowledge and attitude level among different classes of dental students it was found that MDS final year students had maximum mean knowledge 71.07 ± 7.18 and maximum mean attitude 76.00 ± 8.00 .**Conclusion:** The overall study concluded that the dental students had a positive attitude towards patients living with HIV/AIDS and they were willing to help these patients with oral diagnosis and treatment. They also had basic knowledge of HIV/AIDS and its mode of transmissions.**Keywords:** HIV/AIDS; dental students; knowledge; attitude.**Introduction**

Since the first report on Human Immunodeficiency Virus (HIV) and consequent AIDS appeared in the early 1980s, new infections have continued despite continued prevention-education efforts [1]. Oral health is an essential aspect of overall medical care for individuals with HIV and oral care is important for improving the quality of life of HIV-positive individuals [2,3]. However, the AIDS epidemic generated discrimination and prejudice toward HIV-infected patients. Health professionals increasingly fear the danger of infection from interactions with these patients [4].

During most dental therapeutic procedures, blood and saliva are often involved, which may contain infectious pathogens and microorganisms [5,6]. Although there is a small chance of HIV transmission during dental procedures, many dentists are reluctant to treat patients infected by HIV [7]. Surprisingly, HIV-positive patients have been refused treatment by some dentists [8,9]. The reason may be ignorance of HIV-related knowledge and the risk of transmission during dental procedures [6]. Currently, it is both unethical and unlawful for a dentist to refuse to treat an HIV-positive individual [10]. Some research indicates

that as the knowledge of HIV increases, willingness to treat HIV-positive patients may also increase [11,12]. Unfortunately, recent studies have found that the HIV/AIDS-related knowledge of dental students is low, particularly in relation to transmission. Many of these students were uninformed regarding management of HIV/AIDS patients [6,13-15]. Even in developed countries such as the U.S. and Canada, the percentage of the dentists and dental students willing to treat HIV-positive individuals was relatively low [16,17].

With improved survival rates due to the success of antiretroviral therapies, it is expected that more HIV-positive individuals will require increasingly competent and compassionate health care, including oral care, in the near future [2]. Dental students represent a dynamic and highly educated group in society. As future health care providers, they are expected to play a crucial role in the treatment of HIV-positive patients, as well as in health education. Therefore, it is important for dental students to improve their knowledge to enable diagnosis and management of HIV/AIDS patients in order to have a more positive attitude toward these patients. Furthermore, as their knowledge increases, dental students may understand methods of infection control and how to prevent HIV transmission [5,6].

In light of above background, the purpose of present study was to assess dental student knowledge of HIV/AIDS, attitudes about related issues, such as ethical obligations, and willingness to treat HIV-positive individuals.

Material and methods

The cross-sectional survey was conducted on 100 dental students from 1st & 4th year BDS & 1st & 3rd year MDS course in KGMU, Lucknow. Based on previous studies, a self-administered, structured questionnaire was used as the survey instrument. The Research and Ethical Committee of King George's Medical University approved the questionnaire (No. 2939/Ethics/R.Cell-18). All participants signed an informed consent agreement, which was approved by the ethics committee review board. The questionnaire was prepared, based on previous studies with some modifications. It had 23 questions out of which, 15 were knowledge based and 8 were attitude based. Options like "I don't know" & Not Sure answers were both counted as incorrect responses. The questionnaire was completed by the students and all returned questionnaires after attempting all questions.

The data was evaluated by Student t test (P value < 0.05 was considered statistically significant).

Result

The outcome measures for various variables were summarized as Mean ± SD (Standard Deviation) and proportion & percentages depending on the nature of the variable. Data was analyzed using Statistical Package for Social Sciences, version 18 (SPSS Inc., Chicago, IL) and MS-Excel. Proportions were compared using chi-square test. ANOVA was used to compare mean values of quantitative parameters among the groups. P-value < 0.05 was taken to be significant level.

From table 1 it can be noted that 100% students were aware about the HIV meaning, 60% knew that AIDS is not a contagious disease but only 23% knew that AIDS is a hereditary disease.

Table 1: Distribution of respondents about basic knowledge on HIV/AIDS.

Question	Response	No.	%
What is HIV	Human Immunodeficiency Virus	100	100.0
AIDS is contagious disease	Yes	33	33.0
	No	60	60.0
	Not Sure	7	7.0
AIDS is a hereditary disease	Yes	23	23.0
	No	72	72.0
	Not Sure	5	5.0

It can be clearly observed from table 2 that all the participants were aware that HIV/AIDS is transmitted through Blood & Blood Products from an infected person. For other correct options, 59% were known that HIV/AIDS is transmitted through homosexual intercourse, 74% were known that it is transmitted through Heterosexual intercourse, according to 74% respondents it is done through having tattoo, transmission by sharing injection needle was responded by 96%, by placenta 66% and having tooth extracted was responded by 92%. On the other hand, 36% were wrongly responded that it is spread by Breast milk of infected person, and 3% were wrongly responded that it is transmitted by sharing public toilet and swimming pool.

All the respondents were aware that HIV/AIDS affected part is the blood. But only 60% were truly aware that the affected age range is 21-25 years. Among the true signs of HIV/AIDS 96% were known about weight loss, 40% were known about skin rashes and 79% were known about persistent fever (Table 3).

Table 2: Knowledge of respondents about HIV/AIDS transmission.

Transmitted through (Option)	No. responds	%
Mosquito bites	6	6.0
Blood & blood products from an infected person	100	100.0
Placenta	66	66.0
Homosexual intercourse	59	59.0
Breast milk of infected person	36	36.0
Heterosexual intercourse	74	74.0
Touching an infected person	0	.0
Having tattoo done	74	74.0
Sharing public toilet & swimming pool	3	3.0
Sharing food utensil	0	.0
Sharing injection needle	96	96.0
Having tooth extracted	92	92.0
Total	100	100.0

Table 3: Knowledge of respondents about HIV/AIDS diagnosis.

Variable	Response	No.	%
Affected part	Blood	100	100.0
Affected age range	0– 5years	1	1.0
	11– 15years	1	1.0
	16 – 20years	21	21.0
	21 – 25years	60	60.0
	26years >	17	17.0
Signs & symptoms of HIV/AIDS	Persistent diarrhea	53	53.0
	Weight loss	96	96.0
	Skin rashes	40	40.0
	Persistent fever	79	79.0
	Persistent cough	58	58.0
Total		100	100.0

In table 4 all the respondents were aware about the true meaning of STI. But only 65% were truly aware that there is clinical remedy for STI. Only 42% were truly aware that there is Postexposure prophylaxis for HIV and 46% were truly aware that survival rate of HIV is longer than HBV and in table 5, 95% of the respondents were agreed that Proper history taking before dental treatment reduces risk of HIV, 32% were agreed that Autoclaving destroy HIV completely but only 8% were aware that HIV spreads via feco-oral route.

Table 4: Knowledge of respondents about HIV/AIDS treatment.

Variable	Response	No.	%
STI meaning	Sexually Transmitted Infection(s)	100	100.0
Any clinical remedy for STI	Yes	65	65.0
	No	14	14.0
	Not Sure	21	21.0
Postexposure prophylaxis for HIV	Yes	42	42.0
	No	48	48.0
	Not Sure	10	10.0
survival rate of HIV is longer than HBV	Yes	46	46.0
	No	39	39.0
	Not Sure	15	15.0

Table 5: Knowledge of respondents about HIV/AIDS in dental treatment.

Variable	Response	No.	%
Proper history taking before dental treatment reduces risk of HIV	Yes	95	95.0
	No	1	1.0
	Not Sure	4	4.0
Autoclaving destroy HIV completely	Yes	32	32.0
	No	39	39.0
	Not Sure	29	29.0
HIV spreads via feco-oral route	Yes	8	8.0
	No	79	79.0
	Not Sure	13	13.0
	Total	100	100.0

Table 6 showed only 11% of the respondents were ever been tested for HIV, 54% were agreed that they will tell others to have disease if they will have, 37% were known about any HIV Counseling and Testing (HCT) Centre of the area, 85% were have feelings for People Living with HIV/AIDS, 73% were have willing to have meals with HIV carriers/AIDS patients and 99% were agreed that people with AIDS should not be locked up or isolated. Almost all the respondents agreed that people with AIDS should have social right and must be supported/treated.

Table 6: Attitude of respondents about HIV/AIDS.

Variable	Response	No.	%
Ever been tested for HIV	Yes	11	11.0
	No	89	89.0
If have HIV/AIDS, tell others to have the disease	Yes	54	54.0
	No	23	23.0
	Not Sure	23	23.0
know any HIV counseling and testing (HCT) Centre	Yes	37	37.0
	No	58	58.0
	Not Sure	5	5.0
Feel for people living with HIV/AIDS	Yes	85	85.0
	No	8	8.0
	Not Sure	7	7.0
Willing to have meals with HIV carriers/AIDS patients	Yes	73	73.0
	No	20	20.0
	Not Sure	7	7.0
People with AIDS should be locked up or isolated	Yes	1	1.0
	No	99	99.0
People with AIDS should have social right	Yes	100	100.0
AIDS people must be supported, treated	Yes	99	99.0
	No	1	1.0
	Total	100	100.0

In table 7, the knowledge level was high in 20% respondents while 80% respondents had average knowledge level. The overall mean knowledge score of the respondents was 68.90 ± 7.43 %.

Table 7: Knowledge level of respondents about HIV/AIDS.

Category	No.	%
High	20	20.0
Average	80	80.0
Total	100	100.0

Table 8: Attitude level of respondents about HIV/AIDS.

Category	No.	%
Complete	4	4.0
High	43	43.0
Average	52	52.0
Below Average	1	1.0
Total	100	100.0

From table 8 it can be observed that, the attitude level was complete in only 4% respondents, but was high in 43% respondents, average in 52% respondents and remaining 1% respondents it was below average. The overall mean attitude score of the respondents was $69.75 \pm 13.78 \%$.

Table 9 revealed the maximum mean knowledge score to be 71.07 ± 7.18 in MDS 3rd year student's while minimum mean knowledge score to be 66.00 ± 7.26 in BDS 1st year students. However, no significant difference was observed in mean knowledge score among the different years ($p=0.071$). The maximum mean attitude score was 76.00 ± 8.00 seen in MDS 3rd year students while minimum mean attitude score was 60.00 ± 7.22 seen in BDS 1st year students. A significant difference was observed in mean attitude score among the different years ($p<0.001$).

Table 9: Comparison of knowledge & attitude score (%) of dental students about HIV/AIDS.

Year	Knowledge		Attitude	
	Mean	SD	Mean	SD
BDS 1 st	66.00	7.26	60.00	7.22
BDS 4 th	68.27	7.08	69.50	16.57
MDS 1 st	70.27	7.57	73.50	15.44
MDS 3 rd	71.07	7.18	76.00	8.00
F-value	2.419		7.854	
p-value	0.071		<0.001	

In table 10 it was seen that maximum respondents having high category knowledge level belonged to MDS 3rd year (32.0%) and MDS 1st year (28.0%). However, no significant association between the Knowledge of dental students with their education level was found ($p=0.090$).

Table 10: Association of knowledge of dental students with their education level.

Year	Category		chi sq	p-value
	High	Average		
BDS 1 st	2 (8.0%)	23 (92.0%)	6.50	0.090
BDS 4 th	3 (12.0%)	22 (88.0%)		
MDS 1 st	7 (28.0%)	18 (72.0%)		
MDS 3 rd	8 (32.0%)	17 (68.0%)		
Overall	20 (20.0%)	80 (80.0%)		

In table 11 it was observed that maximum respondents having complete/high category attitude level belonged to MDS 3rd year (84.0%) and MDS 1st year (52.0%). A significant association between the Knowledge of Dental Students with Their Education Level was found ($p<0.001$).

Table 11: Association of attitude of dental students with their education level.

Year	Category				chi sq	p-value
	Complete	High	Average	Below Average		
BDS 1 st	0 (0.0%)	2 (8.0%)	23 (92.0%)	0 (0.0%)	38.19	<0.001
BDS 4 th	2 (8.0%)	9 (36.0%)	13 (52.0%)	1 (4.0%)		
MDS 1 st	2 (8.0%)	11 (44.0%)	12 (48.0%)	0 (0.0%)		
MDS 3 rd	0 (0.0%)	21 (84.0%)	4 (16.0%)	0 (0.0%)		
Overall	4 (4.0%)	43 (43.0%)	52 (52.0%)	1 (1.0%)		

Discussion

The participants involved in the questionnaire survey were total of 100 dental students of MDS and BDS from King George's Medical University participated and they have efficiently responded 100%. The main idea to conduct this survey was to test the knowledge and attitude of dental students of different year towards patients who had HIV. There has been a continuous increment of the people with HIV/AIDS, and simultaneously the need of medical care should also be enhanced [14], and it would be mandatory for the dental practitioners to increase their knowledge of the disease and its oral manifestation [18]. In our study 100% students were aware about the HIV meaning, 60% knew that AIDS is not a contagious disease but only 23% knew that AIDS is a hereditary disease.

According to Guidelines for Infection Control in Dental Health-Care Settings-2003 the dental patient can have colonies of organisms (HBV, HCV, HIV, *Mycobacterium tuberculosis* etc) which may show pathogenic activity which do colonize in the oral and respiratory tract. The microorganisms can be transmitted through the dental settings by direct in touch with blood, oral fluids, or other patient materials, contact of conjunctival, nasal, or through oral mucosa etc [19]. In the survey all the respondents were responsive that HIV/AIDS is transmitted by Blood & Blood Products from an infected person. The students were aware of the fact of transmission Heterosexual intercourse (74%), by tattoo (74%); injection needle (96%), by placenta (66%) and the maximum respond was of tooth extraction (92%). There has been many reported cases of transmission of HIV from the patient to the dental practitioner the case has been reported which was the reported by a young women (patient) during the invasive dental procedure [20].

There was certain respondent with wrong answers responded that it is transmitted by sharing public toilet and swimming pool (3%) and maximum wrong response was by Breast milk of infected person (36%). In 1993, according to the survey that less than half of the dental students from three dental schools in Texas were willing to treat patients who were HIV-positive. The other way of these studies have been suggested that according to Society for Healthcare Epidemiology of America (SHEA) guidelines the health care professionals that have been affected with HIV infection of more than 5×10^2 GE/ml will not be permitted to have any category III activities (general surgical procedures) which may risk transmission [21]. The transmission through the aerosols is very improbable as it requires the occurrence of HIV (infected) accumulation of sufficient organism on the mucous membrane of the vulnerable host [22] but seen in a study which was transmitted by a handicap patient but is considered very rare. According to the survey, student aware of clinical remedy for STI were (65%) and about Postexposure prophylaxis were (46%).

The similar type of survey was conducted by other countries like Saudi Arabia [23], Florida [24] and Brazil [25] etc. The survey was conducted in the Jazan University of Saudi Arabia which took only undergraduate students concluded to be equivalent to other studies of Saudi [26] but reduced as compared to other countries. Our survey concluded that high level knowledge was (20%) and remaining (80%) had average knowledge with overall mean of $(68.90 \pm 7.43\%)$. We can conclude that knowledge of dental students from India on oral manifestation can be compared with the dental students of the other countries like Scotland, the United States and Saudi Arabia etc.

Patil et al [27], 2011 conducted a survey on knowledge and attitude of dental students towards HIV/AIDS patients. They prepared a questionnaire and distributed between 219 dental students of different years. Their result showed that the students had good knowledge of HIV/AIDS as 76.5% students answered correctly but the attitude of students was negative towards HIV/AIDS patients. Compared to our study Table 6 clearly shows that the students had feelings for these patients and almost everyone agreed that they should have social rights and not to be isolated, hence showing a positive attitude towards HIV/AIDS patients. Table 8 and 9 showed that maximum positive attitude was among MDS final year students.

A survey conducted by Premadasa et al [28], 2015 to assess the knowledge and attitude of dental students towards HIV/AIDS in Ajman, UAE. Total 106 students responded to the questionnaire prepared having questions on knowledge and attitude of dental students towards HIV/AIDS. The result showed that the median score of overall knowledge level of students was 67% and the attitude score was 14 out of 24. Total 4-year students were selected out of which maximum knowledge level was observed in senior students of 3rd and 4th year 44 ± 6.5 and 42.5 ± 4.7 respectively which was similar to our study where maximum knowledge was observed in MDS and BDS final year students compared to junior students.

Rani et al [29], 2017 carried out a survey to evaluate the level of knowledge and attitude of 145 dental students towards HIV/AIDS patients. They prepared a 29 questions questionnaire and were distributed among all the dental students. The result thus obtained showed 71 students had good knowledge of HIV/AIDS and 138 students had moral responsibility to treat patients having HIV/AIDS. Similar to our study the dental students showed positive attitude towards these patients.

Conclusion

The knowledge and attitude level of dental students of different years of King George's Medical University was good and positive. Out of all the years, students MDS final year students had maximum knowledge compared to their juniors. But overall, everyone responded with a positive attitude towards patients living with HIV/AIDS and agreed that these patients should have a social right and should be supported and cannot be isolated.

Declarations

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