

KNOWLEDGE AND ATTITUDE REGARDING HIV /AIDS AND ITS ORAL MANIFESTATIONS AMONG DENTAL STUDENTS IN PATNA CITY

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ABSTRACT:

Aim: The aim of the study was to assess the Knowledge and Attitude regarding HIV infection/AIDS and its oral manifestations among dental students in Patna City.

Method: A cross-sectional study was conducted among 270 dental students of the 3rd year, 4th year & house surgeons from dental colleges of Patna city. A close-ended structured questionnaire was used to assess the knowledge and attitude regarding HIV infection/AIDS. The t-test, chi-square test & ANOVA were used to do the statistical analysis for the given data and the statistical significance was set at $p < 0.05$.

Results: Majority of the students had good knowledge regarding HIV infection/AIDS and its oral manifestations and exhibited positive attitude in treating HIV infected patients. Students with higher education had better knowledge about HIV infection/AIDS as compared to others which is statistically significant ($P < 0.001$). Similarly, students with higher education showed a more positive attitude towards treating HIV infected patient which is also statistically significant ($P < 0.001$). Thus, a direct relationship exists between education level of the dental students & their knowledge regarding HIV infection/AIDS & its oral manifestations & attitude in treating the HIV infected patients.

Conclusion: The present study concluded that the knowledge regarding HIV infection/AIDS & its oral manifestations and attitude in rendering treatment to HIV infected patients is highest among house surgeons followed by the 4th year & 3rd year students.

Key words: HIV (Human Immunodeficiency Virus), AIDS (Acquired Immunodeficiency syndrome), Knowledge & Attitude, Dental Students.

INTRODUCTION:

In 1981, CDC first reported case of a rare pneumonia in young gay man. This condition was determined to be AIDS, which was due to infection with the human immunodeficiency virus (HIV).^[1] HIV attacks the immune system by destroying CD4 positive (CD4+) T cells and acquired immunodeficiency syndrome (AIDS) is the end stage of HIV infection with opportunistic infections,

such as pneumonia or tuberculosis, and has a dangerously low number of CD4+ T cells less than 200 cells per cubic millimeter of blood^[2]. 70% and 90% of HIV-infected individuals will have at least one oral manifestation. Candidiasis, Hairy Leukoplakia & Kaposi's Sarcoma are staging systems for HIV/AIDS (WHO 1990, CDC 1993, Badri and Martens, 2001).

Prevalence of HIV/AIDS in India has increased exponentially. Total number of people living with HIV (PLHIV) in India is estimated at 2.4million (*estimates released by NACO supported by UNAIDS and WHO*). The practice of dentistry exposes the oral health care workers (OHCW) and patient to microbes transmitted through blood, oral or respiratory secretions with AIDS being one of them. Occupational exposures can occur through needlesticks injury, cuts from sharp instruments contaminated with infected blood or through contact of the eye, nose or mouth with infected blood. Cross infection can be from patient to OHCW, from OHCW to patient or from patient to patient. AIDS is one of most common disease that can be transmitted at dental care setting if proper precautions are not taken risking everyone life including other patients too [3]. For health care workers on the job, the main risk of HIV transmission is through accidental injuries from needles and other sharp instruments that may be contaminated with the virus [3].

Moreover, oral manifestations of HIV/AIDS are also potential markers of the progression of the disease. Between 70% and 90% of HIV-infected individuals will have at least one oral manifestation at some time during the course of the infection, often with these manifestations being the first sign of infection (Arendorf, Bredekamp, Cloete and Sauer, 1998). A number of oral lesions such as candidiasis, hairy leukoplakia and Kaposi's Sarcoma, are

part of the World Health Organisation (WHO) and the Centers for Disease Control and Prevention (CDC) staging systems for HIV/AIDS (WHO 1990, CDC 1993a, Badri and Maartens, 2001) [3]. Hence, the dental students can play an important role in diagnosing AIDS if they are properly aware with its oral manifestations and can prevent the further deterioration of the quality of life of the people living with AIDS.

Oral lesions have a profound impact on the daily performance and quality of life of people living with AIDS. Pain, difficulties in eating, bad breath, altered taste and, occasionally, alterations in appearance predispose patients towards poor nutrition, which ultimately results in difficulties in building the body's defenses against opportunistic infections and thereby supports a cycle of deterioration and loss of hope in affected patients.

Fear among dentist regarding fear from: delete fear from contracting the infection has resulted in reluctance to treat patients including denial of treatment. (According to the World Health Organization (WHO): Delete this red line) It is imperative for all dentists to treat HIV-positive patients without discrimination. In the light of evidence that HIV/AIDS cases are continuously increasing in the developing countries like India, dental students are required to be adequately trained, so that they can play a vital role in combating this pandemic without exposing the society & themselves at an increased risk. Health

education, particularly Information Education & Communication, is the key strategy for controlling this epidemic [4].

Hence, properly aware dental students can morally take up the responsibility to provide treatment to AIDS patients without discrimination, can follow all the infection control guidelines to prevent HIV transmission among themselves to other patients & dental personnel, can help patients by reducing the discomfort caused by HIV infection and can counsel the patients to be even more specific in their oral hygiene practices and:delete and which can further prevent their poor standard of living. Hence, keeping this in mind the study was undertaken to assess knowledge & attitude regarding HIV /AIDS and its oral manifestations among dental students in Patna City”

Aim

The aim of the study was to assess the knowledge and attitude regarding HIV/AIDS and its oral manifestations among dental students in Patna City.

Objectives

The objectives were to: -

1. Assess the general and oral health specific knowledge of dental students regarding HIV/AIDS
2. Assess the knowledge about HIV transmission among dental students and to train them regarding its mode of transmission.
3. Determine the infection control practices of dental students that can

further prevent AIDS transmission among OHCW & other patients.

4. Explore the attitudes of dental students towards patients with HIV/AIDS
5. Identify areas which are important to dental students with respect to continuing education regarding HIV/AIDS and its oral manifestations.

MATERIALS AND METHODS:

Study design: The study is a descriptive, cross-sectional survey

Source of Data: Data will be obtained from the Dental Colleges in Patna City.

Study Group: Dental students of 3rd year, 4th year & housesurgeons of the dental Colleges in Patna City

Sample size: The sample comprised of 270 dental students from the dental colleges in Patna selected using “Stratified Random Sampling”.

Inclusion criteria: Students present on the day of survey

Exclusion criteria: Students not willing to fill the questionnaire

Method of collection of data: All the students were pre informed about the survey. The data is collected using a structured close-ended questionnaire in July, 2014. The questionnaire consisted of four major groups

1. Socio demographic factors, including age, gender, years of dental education.
2. Knowledge about the modes of transmission of HIV virus.
3. Knowledge about the general & oral symptoms of HIV & management of oral lesions
4. Knowledge about the infection control practices regarding HIV transmission.
5. Attitude towards infection control practices.
6. Attitude towards treating HIV patients.

The feasibility & validity was tested by a pilot study. Questionnaires were circulated after the usual lecture of the undergraduate students for 3rd & 4th year with prior permission from the dean of the institution and the aims of the study were explained. The house surgeons were given the survey form in their respective departments. The time allocated for completion of the questionnaire was 30 min.

Statistical Analysis: The collected data was analyzed using Pearson's Chi – Square test & level of significance was set at $p < 0.05$.

Ethical Considerations: The proposed study was reviewed by the ethical committee of Buddha Institute of Dental Sciences & Hospital and ethical clearance was obtained. Confidentiality was emphasized to encourage participation

and the voluntary nature of the survey was also maintained by neither forcing the respondents to answer the survey questionnaire nor any incentives were used.

RESULTS:

The present study was conducted in the dental colleges in Patna city. 270 students of 3rd & 4th year and house surgeons participated in the study. The level of knowledge was good and attitude was acceptable in this study. House surgeons had maximum knowledge and exhibited the most positive attitude regarding HIV infection/AIDS among 3 academic years with $p < 0.001$. In the present study, 228 students belonged to age group ranging from 18-28 years. Among these maximum students were of age 20-23 years of whom 71(26.3%) were male & 184(68.1%) were female (**Table 1**). In the present study, 91 (33.7%) students belonged to 3rd year, 88 (32.6%) belonged to 4th year 77(30.1%) were house-surgeons & 14 (5.2%) didn't mention their educational qualification (**Table 2**). Majority of students 165(61.1%) had good knowledge about HIV infection while only 23(8.5%) had poor knowledge (**Graph 1**). 68.89% of students answered correctly to infection control practices. 79.63% students knew correctly about oral manifestations of which maximum correct response was give to candidiasis (81.1%). Majority responded correctly to problems encountered in oral manifestation of AIDS & knew about

specific management of oral manifestations of AIDS with maximum correct response given to difficulty in eating 79.63% & antibiotic therapy (84.4%) respectively. Out of 270 students, majority of students 189 (70.0%) had medium attitude regarding HIV infection/AIDS compared to 57(21.1%) students who had high attitude and 24(8.9%) who had lower attitude. **(Graph 2)** In the present study, out of 256 students who mentioned their education qualification, maximum number of students 165(64.5%), had good knowledge regarding HIV infection/AIDS. Among this, majority of the students with good knowledge were house-surgeons 75(64.5%) while majority of the students with poor knowledge were 3rd years 6(2.3%) There is significant association between education level of students and their knowledge about HIV/AIDS & its oral

manifestations. The house surgeons had highest knowledge followed by 4th years & 3rd years least knowledge (p-value < 0.001) **(Table 3)**. In the present study, out of 256 students who mentioned their education qualification, maximum number of students 189 (73.8%), had medium attitude regarding HIV infection/AIDS while only 10(3.9%) students had poor attitude regarding HIV infection/AIDS **(Table 4)**. A significant association is observed between the educational qualification of the students & their attitude in treating the patients. House Surgeons had high attitude as compared to others (p-value < 0.001). 73.3% students agreed that all patients should be considered potentially infectious & 90% agreed that dental instruments should be sterilized. 83.7% said that it is their moral responsibility to treat HIV infected patients.

Table1: Distribution of students according to gender

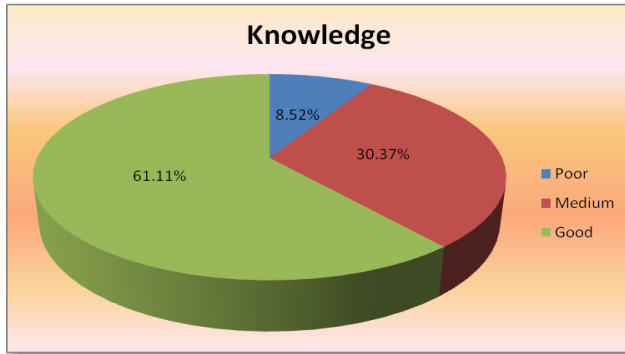
Gender	Frequency (%)
Male	71 (26.3%)
Female	184 (68.1%)
Not answered	15 (5.6%)
Total	270 (100.0)

Table 2: Distribution of students according to educational qualification

Education	No. of students (%)
3 rd year	91 (33.7)
4 th year	88 (32.6)
Housesurgeonship	77 (28.5)
Not answered	14 (5.2)

Total	270(100.0)
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Graph 1: Distribution of students according to knowledge



Graph 2: Distribution of students according to Attitude

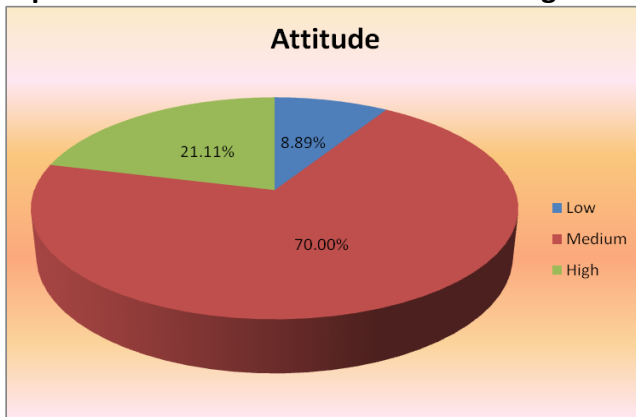


Table 3: Association between Educational qualification & knowledge about HIV/AIDS

Education	Knowledge_ Education			Total
	Poor	Medium	Good	
3rd Year	6 2.3%	40 15.62%	45 17.57%	91 35.54%
4th Year	3 1.17%	40 15.62%	45 17.57%	88 34.37%
Housesurgeonship	0 .0%	2 0.78%	75 29.29%	77 30.07%
Total	9 3.5%	82 32.0%	165 64.5%	256 100.0%

$\chi^2 = 53.547$

df = 4

P-value < 0.001

Table 4: Association between educational qualification & attitude about HIV/AIDS

Education		Attitude_Education			Total
		Poor	Medium	Good	
3rd Year		5	63	23	91
		1.9%	24.60%	8.9%	35.5%
4th Year		4	78	6	88
		1.56%	30.46%	2.3%	34.37%
Housesurgeonship		1	48	28	77
		0.39%	18.75%	10.93%	30.07%
Total		10	189	57	256
		3.9%	73.8%	22.3%	100.0%

$\chi^2 = 22.946$

df = 4

P-value < 0.001

DISCUSSION:

The present study concluded that 61.1% students had good knowledge regarding HIV infection/AIDS which is in accordance with other study conducted by Fotedar S et al [5] where 68.3% students, Prashant B Patil et al [6] where 76.5% students, Aggarwal A & Panat SR [7] where 78.8% students exhibited good knowledge regarding HIV infection/AIDS. Another study conducted by Soukaina T Ryalat et al [2] also concluded that the dental students have good knowledge regarding HIV infection /AIDS.

The result of this study is in contrast to other study conducted by Chauhan AS et al [8] among first year MBBS, BDS & BPT students where all students scored low on the overall knowledge scale & specifically knowledge was low on modes of transmission and treatment. However, the difference could be because the former study included only

1st year students while the present study is conducted among 3rd & 4th year students & the house surgeons.

In the present study, 68.8% students responded correctly to infection control practices. Another study conducted by Aizawa F et al [9] also reported that 96.6% students were aware of special precautions that should be followed while treating HIV infected patients. Good infection control practices were also found in another study conducted by Azodo et al [10] among Nigerian dental students. Similarly, moderate knowledge regarding infection control practices was reported by Prashant B Patil et al [6], Sadeghi M [11] among Iranian dental students.

The present study reported that 79.63% students responded correctly to oral manifestations of HIV infection/ AIDS which is also in accordance with other study conducted by Sadeghi M [11]

among Iranian dental students and Soukaina T Ryalat [2] among Jordanian dental students. In the present study, maximum correct response regarding oral manifestations of AIDS was given to oral candidiasis. Another similar study conducted by E. R. Oliveira et al [12] among Brazilian dental students showed that 90.3% students knew correctly about candidiasis. The study conducted by Soukaina T Ryalat [2] also reported that students have adequate knowledge regarding oral manifestations especially Kaposi sarcoma, hairy leukoplakia, and oral candidiasis. Another study conducted by Fotedar S et al [5] reported that majority of the students were aware of the association between HIV and oral candidiasis (89.1 percent)

The present study showed that knowledge score regarding HIV infection/AIDS is highest among house surgeons followed by 4th & 3rd year students with p -value < 0.001 . The results indicated that the students' knowledge on HIV/AIDS generally increased as they progressed through the curriculum. The same results have been observed in other study conducted by Prashant B Patil, et al [6] & Soukaina T Ryalat et al [2]. The study conducted by Prashant B Patil [6] reported that there was a significant difference in knowledge among the third-year, final-year students and interneers, which was found to be statistically significant ($P < 0.001$). Similarly, study conducted by Soukaina T Ryalat et al [2] also showed that 5th year students had more knowledge regarding cross-infections & barrier dentistry and

the virology of AIDS than 3rd year with $P < 0.001$. Other study conducted by Hidayathulla Shaikh [13] also concluded that though the level of knowledge & among the students from 1st to 4th year was not much different, though the final year students had highest adequate knowledge. The result of this study is similar to study done by Erasmus S et al among oral hygiene and dental students where results indicated that the students' knowledge on HIV/AIDS generally increased as they progressed throughout their curriculum

In the present study the knowledge score between male & female is not statistically significant which is in line with other study conducted by Aggarwal A & Panat SR [7]. This result is in contrast to other study conducted by E. R. Oliveira [12] where a gender difference was observed in students' knowledge of oral manifestations and infection control measures, with females having better knowledge than males ($p < 0.05$).

In the present study 83.7% students accepted that it their moral responsibility to treat HIV infected patients, 68.15 agreed to provide HIV patients elective treatment & 74% agreed to deliver emergency care to HIV patients which over all exhibited their good attitude in treating HIV infected patients. This is supported by study conducted by Aggarwal A et al [7] which stated that 77.7 % showed positive attitude. 90.7% of the respondents are willing to treat individuals with HIV/AIDS

in other study conducted by Hidayathulla Shaikh et al ^[13].

This result, however, is in huge contrast to another study conducted by Sadeghi M et al ^[11] among Iranian dental students where only 1 percent students had professional attitudes about treating patients with HIV/AIDS. 73.3% of the students in the present study agreed that all patients in a dental setting should be considered potentially infectious, 87% said that it is must to obey standard infection control measures thus showing a overall good attitude of the students regarding infection control measures. In another study conducted by Sorasun Rungsiyanont et al, 95.3 percent of all respondents answered that they use strict sterilization procedures when treating patients: delete this sentence. This is in contrast to another study conducted by Erasmus S et al ^[14] where the utilization of all barrier techniques for infection control and clinical protocol, lacked consistency and compliance among the students. Similarly the study conducted by Agarwal A et al ^[7] also concluded that the students did not show proper utilization of all barrier techniques for infection control measures.

In the present study the attitude of the students increased gradually as they progressed in their academic year with house surgeons showing the most positive attitude regarding HIV infection/AIDS followed by the final & third year students which is in line with

other study conducted by Fotedar S et al ^[5].With increasing number of HIV infected patients, the need for medical/dental care is increasing. In the present study, the knowledge of the students regarding HIV infection/AIDS is good & their attitude towards the disease is also adequate.

CONCLUSION:

The present study was conducted to assess the knowledge and attitude regarding HIV/AIDS and its oral manifestations among dental students in Patna City. The sample consisted of 270 dental students of 3rd year, 4th year & house surgeons of the 3 Dental Colleges in Patna City determined by Stratified Random Sampling. Close-ended questionnaire was used to collect data and 30 minutes were allocated to fill the questionnaire.

The questionnaire consisted of 4 major groups which included socio-demographic factors, knowledge about the modes of transmission of HIV virus & general & oral symptoms of HIV & management of oral lesions, knowledge & attitude about the infection control practices regarding HIV transmission and attitude towards treating HIV patients. 61.1% of students have good knowledge and 70% students displayed positive attitude regarding HIV infection/AIDS and its oral manifestations. 68.89% of students were aware of the universal precautions to be followed while treating patients & maximum correct response for oral manifestations was given to candidiasis (81.1%) Majority

responded correctly to problems encountered in oral manifestation of AIDS with 79.63% responding correctly to difficulty in eating & 77.78% to pain. Majority knew about specific management of oral manifestations of AIDS with 84.44% answering correctly to antibiotic therapy and 75.19% to anti-fungal therapy. 73.3% students agreed that all patients should be considered potentially infectious and 90% agreed that dental instruments should be sterilized before use. 83.7% approved that it is their moral responsibility to treat HIV infected patients. In the present study, house surgeons had highest knowledge and attitude regarding HIV infection/ AIDS and its oral manifestations followed by 4th years & 3rd years (p-value < 0.001). Similarly, students with age group 21-23 had high knowledge and attitude (p-value < 0.001). No difference was found in the knowledge among males & females students. The level of knowledge was good and attitude was acceptable but there are certain inadequacies pertaining to some areas which need special consideration and training.

Human immunodeficiency virus infection and acquired immune deficiency syndrome (HIV/AIDS) is a spectrum of conditions caused by infection with human immunodeficiency virus (HIV). HIV has been isolated from blood, semen, vaginal secretions, saliva, tears, breast milk, cerebrospinal fluid, amniotic fluid, and urine and is likely to be isolated from other body fluids, secretions, and excretions.

Epidemiologic evidence has implicated only blood, semen, vaginal secretions, and possibly breast milk in transmission. Following initial infection, a person may experience a brief period of influenza like illness. The late symptoms of the infection are referred to as AIDS. This stage is often complicated by other opportunistic infections, severe weight loss and other AIDS-defining conditions.

The health care fraternity is at increased risk for getting contaminated with the disease and spreading it especially the dentist and the dental assistants. The increasing prevalence of HIV increases the risk that health-care workers will be exposed to blood from patients infected with HIV, especially when blood and body-fluid precautions are not followed for all patients. It is the responsibility of the dentist to prevent cross-contamination of HIV virus at dental setting by abiding the universal precautions and following the infection control protocol. There are various oral manifestations of AIDS which the doctors should be aware for proper diagnosis and treatment. The elimination of malnutrition also delays the oral manifestations of AIDS. Thus, it is the duty of the dentist to take all possible measures to reduce the pain and ulceration of oral cavity so that proper nutrition can be consumed.

A well aware dental student about the etiology, virology and clinical features of AIDS not only helps in diagnosing the condition and reducing the deterioration of the quality of life of AIDS patients but

at the same time the stigma and discrimination by health care workers in treating HIV infected patients can also be curtailed. Dentists have a professional and ethical responsibility to provide oral healthcare to all individuals without discrimination. A properly aware dental student can overlook the stigma and can provide the needed treatment.

Thus, it is very important to integrate programmes in the curriculum of dental colleges that can provide basic information about the virology of AIDS,

modes of transmission of HIV virus, universal precautions to be followed, various oral manifestations of AIDS and its management to fight with AIDS epidemic. Continuing dental education sessions, panel discussions and group discussions regarding HIV/AIDS and its oral manifestations can be arranged in a college set up for training and planning development of skill among dental students who are going to be future dentist.

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