Knowledge and Attitude Towards HIV Patients among Dental Students

Gayathri. P. S[1], Krithika.C[2], Rajkumar P[3], Rehana Bee[3], Preetha D[3], Vinod Kumar A.C[4]

[1]Reader, [2]Professor and Head, [3]Intern, [4]Senior Lecturer, Department of Oral Medicine and Radiology, Thai Moogambigai Dental College and Hospital, Dr. M. G. R. Educational and Research Institute, Chennai

Abstract

Introduction: The chances of dental professionals acquiring infection from HIV infected patient is very low yet significant. Hence most of the dental practitioners often hesitate to treat such cases reflecting their attitude and behavior on understanding about the pathogenesis and various aspects of the disease. **Aim:** The present study was aimed to evaluate the knowledge and attitude towards HIV patients among dental students. **Methodology:** A cross sectional study was conducted using self-administered questionnaire, through Google forms using various social media platforms among 206 dental students from second year to interns across dental colleges in Tamil Nadu, India during COVID-19 pandemic lockdown period. Statistics was done and results were tabulated. **Results:** In the present study it was observed that 77.7% students were aware of standard protocols to be taken for treating HIV patients and 71.8% were aware of various detection and management techniques. The overall knowledge and attitude **towards HIV patients among dental students** was 86% (highest) for interns group, 79% for final years, 75% for third years and 67% for second years (low score) respectively. **Conclusion:** The present study shows that there was adequate knowledge among the dental students regarding the oral manifestations and dental treatment of patients with HIV/AIDS however lack of attitude towards disease transmission was observed. Efforts have to be taken to improve the modes of educating the students about the HIV infection and its dental effects.

Keywords: *Acquired Immuno-Deficiency Syndrome, Awareness, Dental students, Human Immunodeficiency Virus, Saliva.*

Introduction

Human immunodeficiency virus (HIV), a retrovirus that invades the body's immune system results in decreased movement of cells towards any chemical stimulus, defective granuloma formation and impaired antigen production with generalized loss of CD4+ T helper cells [1]. Over a period of time, with progressive failure of the entire immune system, a life-threatening spectrum of disease known as Acquired immunodeficiency syndrome (AIDS) develops. Recent data suggests that AIDS as a globally emerging public health concern with approximately 38.8 million people are affected worldwide accounting for a massive 1.2 million death in 2015 [2] and 7.7million deaths in 2018 [3]. Numerous studies have shown that the average survival period following infection is only 11 years without appropriate management. In India alone HIV accounts for 2.5 million people with an estimated prevalence rate of 0.91% however the actual prevalence can be more than that because of the deliberate reporting in the subcontinent owing to social, cultural, religious and various other psychological factors [4, 5].

The probability of health care professionals and workers getting exposed to blood borne pathogens like Hepatitis B (HBV), Hepatitis C (HCV) and HIV is high. Among these health care professionals, dental professional's risk of occupational transmission of this virus has been estimated at 0.3% after a single exposure to HIV-infected blood. Dental professionals including practitioners, academicians and dental students should realize that they are ethically liable to treat their patients' with HIV/AIDS [6]. Conversely, HIV-positive patient's face challenges in disclosing their oral health status while seeking emergency or routine dental care. Engaging in such unacceptable behavior could be attributed to the lack of HIV-related knowledge on pathogenesis, modes

of transmission with subsequent fear of acquiring the infection while handling HIV infected cases [7].

In India, Bachelors program in Dentistry (B.D.S) is a five year course which includes compulsory one year training. Dental Students are introduced to the clinical practice only around 3rd year and are taught about various pathogenic blood borne infections including HIV/AIDS and its critical management. The exposure to handling HIV infected patients in a clinical scenario is very low owing to its low prevalence rate [8]. However, it is mandate that students should possess sufficient knowledge of HIV including its pathogenesis, related transmission, clinical and oral manifestations with positive attitudes in order to deliver their responsibility of treating patients with HIV/AIDS. It is indeed important to assess the knowledge and attitudes of dental students which helps in understanding their preparedness for treating HIV/AIDS patients and if any modifications have to be incorporated into the dental curriculum to inculcate positive attitudes in dental students. Thus, the present study was aimed to evaluate the knowledge and attitude towards HIV patients among dental students. In addition, we compared the differences in HIV/AIDS related knowledge and attitudes between the years of study.

Methodology

This study was designed to evaluate the knowledge and attitude towards HIV patients among dental students. A cross sectional study was conducted among dental students from second year to interns across dental colleges in Tamil Nadu, India during COVID-19 pandemic lockdown period. A total of 206 individual participated, in this study. The participants were informed about the study and assured that their participation was purely voluntary.

The self-administrated structured questionnaire consisting of 15 questions, in English, which is simple and easily understanding questions which helps the respondents. The questionnaire had a combination of selected response to the questions and closed ended questions (Yes/No/don't know). It took 5-10 minutes to complete the questionnaires for participants. The questions were converted into Google forms and shared to participants through social media platforms. The purpose and aim of the study were explained with requesting for participation, to the participants.

Statistical Analysis

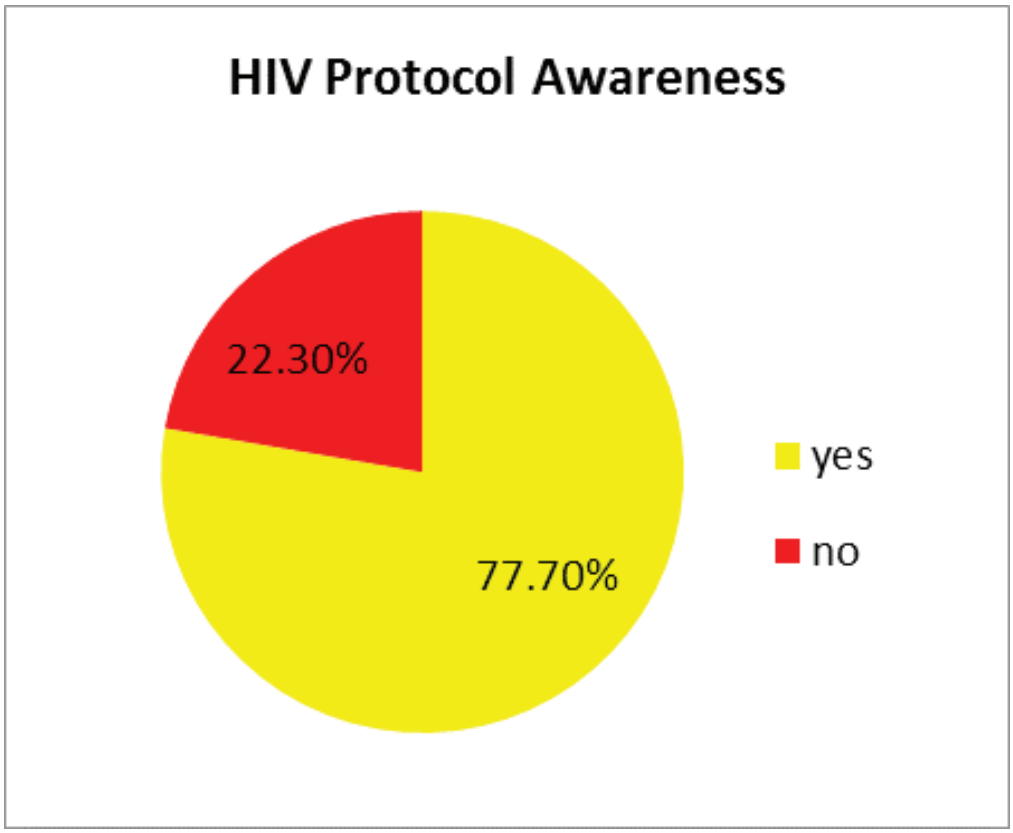
On statistical evaluation using SPSS version20.0 (Ilanos, NY, USA) it was observed all the 206 samples were valid for the study with Cronbach's alpha reliability score of 0.7836 (significant score).

Results

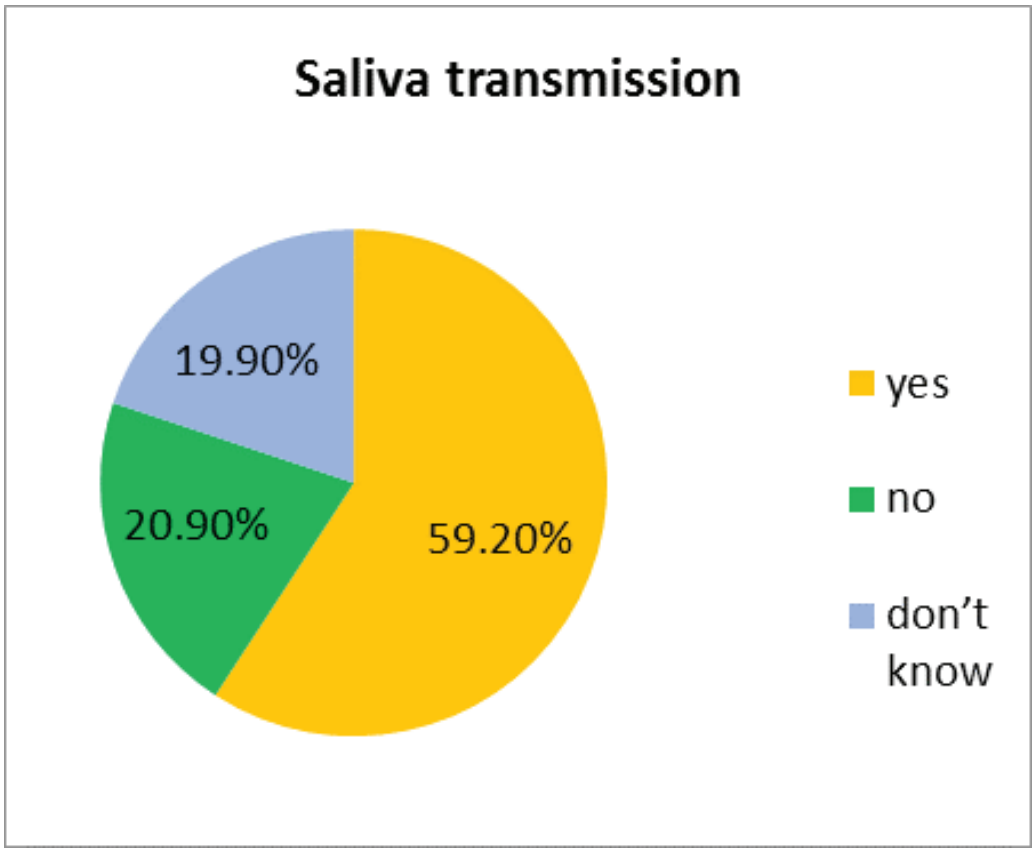
On analysis of the given data it was observed 31.55% of the study participants pursue second year followed by 30.58% final year students, 23.2% interns and 14.56% 3rd year students. On assessing the knowledge and attitude towards treating HIV patients, it was observed 77.7% students were aware of standard protocols to be taken for treating HIV patients (**Graph 1**). 54.9% respondents feel double gloving technique can prevent HIV transmission, and 59.2% consider saliva as a key vehicle in transmission of infection (**Graph 2**). About 56.8% of the participants are aware that needle prick injury is a route of transmission of infection apart from saliva and vertical transmission (43.2%). Only 46% participants were self-assured to consider aerosols generated from hand-piece can also cause HIV transmission (**Graph 3**). 63.1% believe infection control methods for hepatitis-B is adequate protection against transmission of HIV and only 34% opted for sterilization using autoclave for destruction of HIV.

On evaluating the knowledge about detection and management protocols for HIV patients 71.8% are aware of P24 screening test diagnosis of HIV infection (**Graph 4**). Most of the students were aware of oral manifestations which include xerostomia, Oral Hairy Leukoplakia, Necrotizing ulcerative periodontitis and candidiasis (**Graph 5**) and also agree that CD4+ count can be used as a marker to identify the progression of HIV and stage of immune suppression. Though 31.6% feel antiviral drug regime is effective against HIV/AIDS, 80.6% suggest educating the patient can prevent the spread of HIV. The overall knowledge and attitude **towards HIV patients among dental students** was 86% (highest) for interns group, 79% for final years, 75% for third years and 67% for second years (low score) respectively (**Graph 6**).

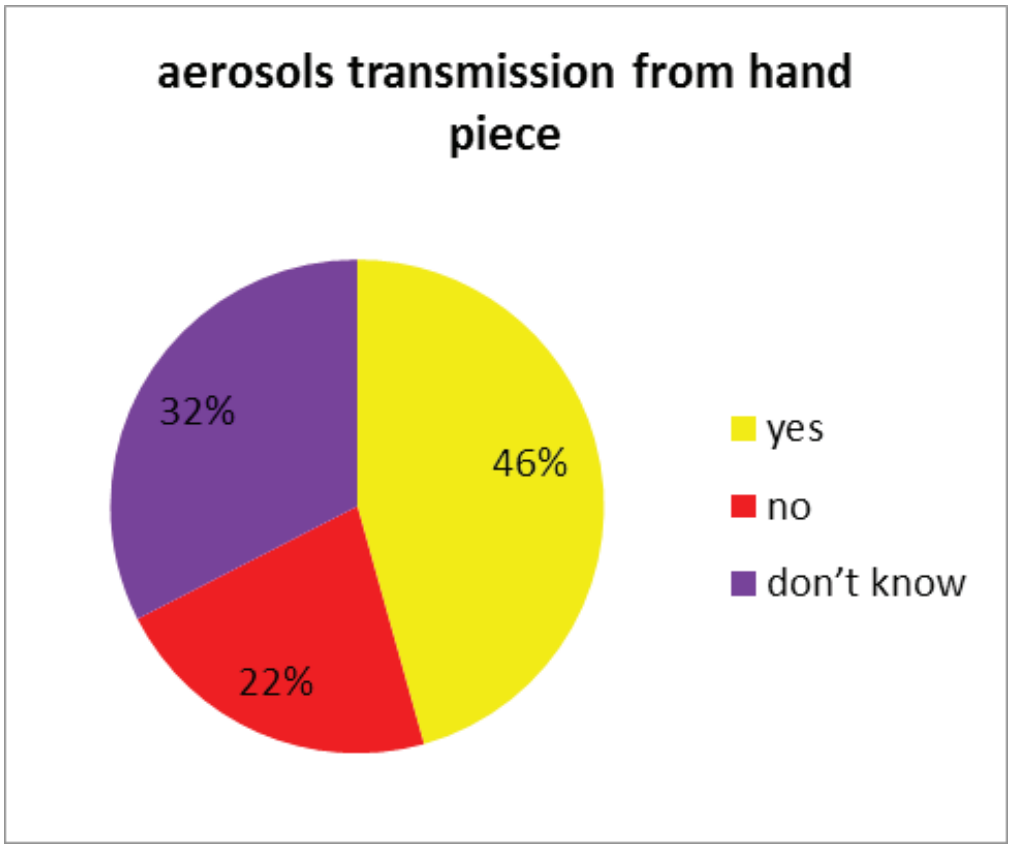
Graph 1: Awareness about the protocols to be taken for HIV patients



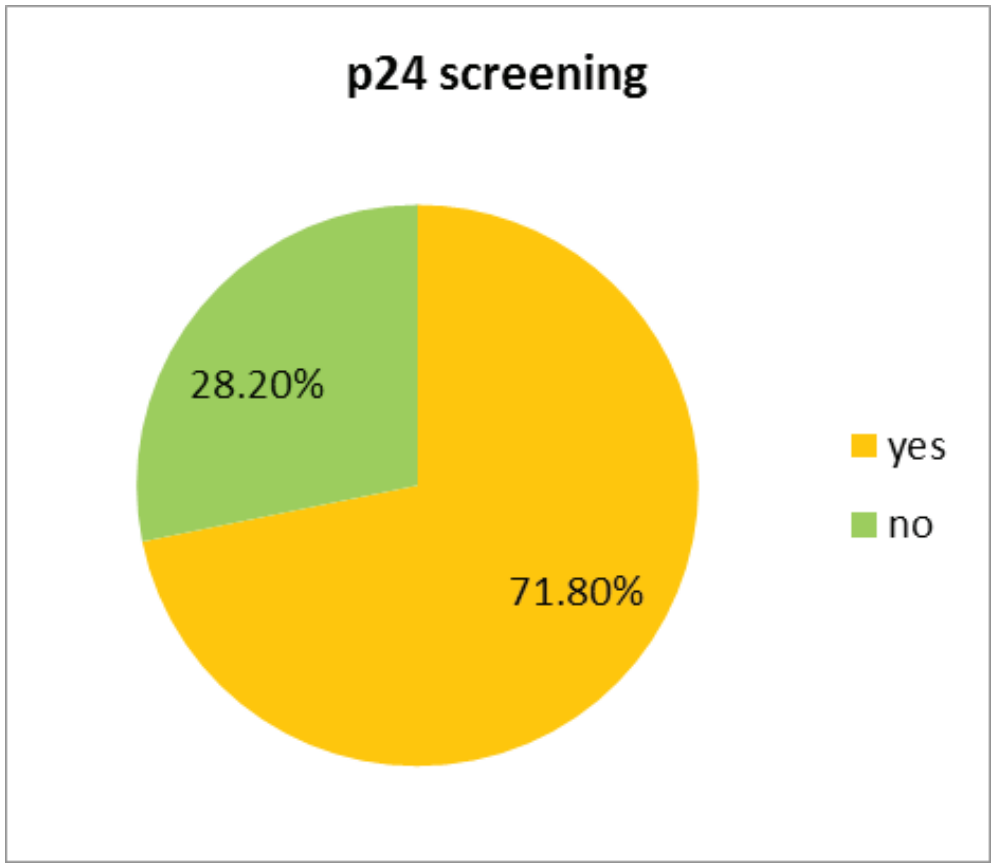
Graph 2: Saliva can be a vehicle of transmission for HIV infection



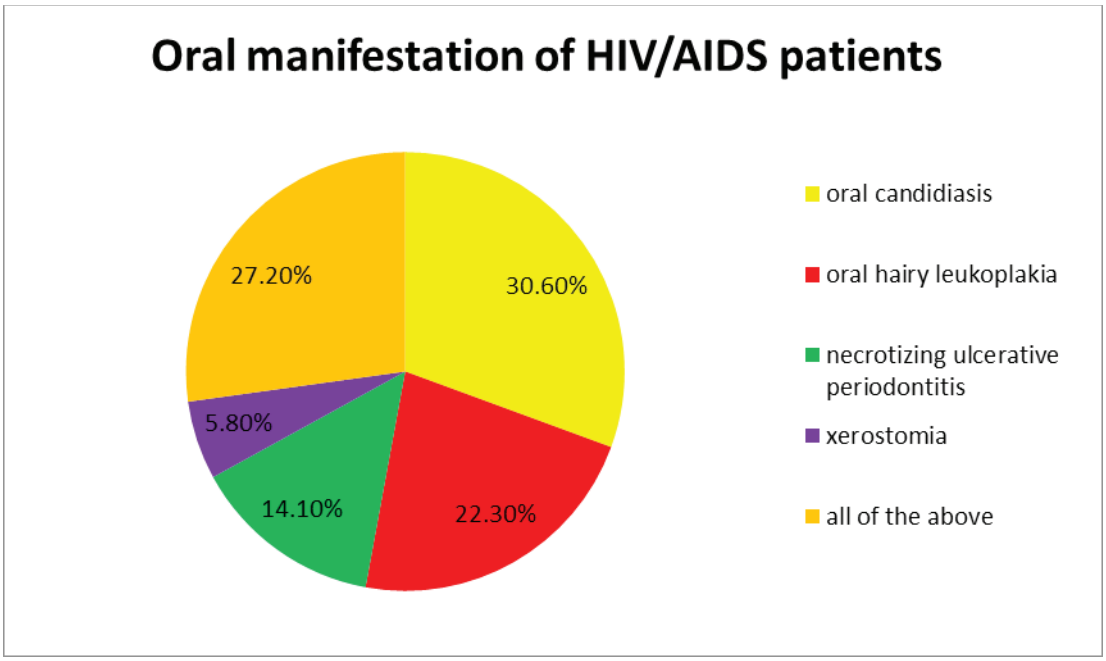
Graph 3: Aerosols from hand piece can cause HIV transmission



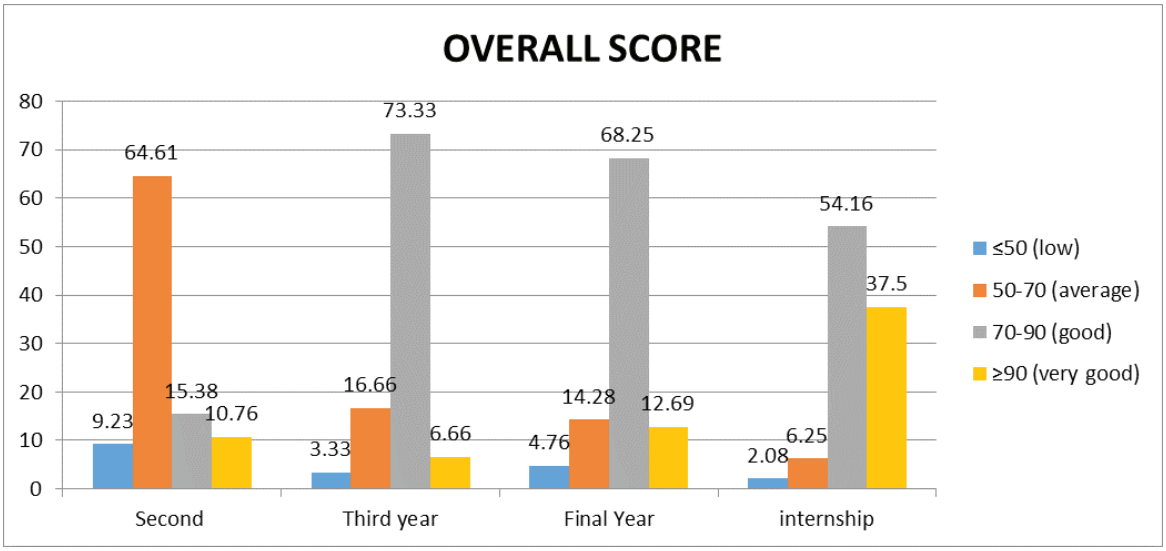
Graph 4: P24 screening test diagnosis of HIV infection



Graph 5: oral manifestation of HIV/AIDS patients



Graph 6: The overall Knowledge and Attitude scores among dental students and interns, n (%)



Discussion

In the present study it was observed that 77.7% students were aware of standard protocols to be taken for treating HIV patients. A similar study by Kumar S et al (93%) [6], Singh et al (78%) [9] also agreed that HIV/AIDS patients can infect a dental worker which suggests that most students were aware of disease transmission. However only 54.9% respondents feel double gloving technique can prevent HIV transmission which is slightly higher than study by Jain et al (37.2%) [10] and Champa et al [11]. These results suggest that lack of sufficient knowledge about standard protocols on double gloving has to be addressed in-order to provide protection from HIV transmission.

More than half of the students believed that saliva as a Key vehicle for AIDS transmission (59.5%) similar to Kumar S et al (57%) [6], Saheer et al (51.95%) [12], Rani et al (53.8%) [13], Oberoi et al [14], Sheikh et al [15] and Patil et al [16]. Various literature study also shows evident that exposure to saliva is a highly infectious source for transmission of HIV infection to the treating dentist.

About 56.8% students correctly responded to the question on needle-stick injury risk of contracting HIV

infection from an HIV-contaminated patient. A much higher results were shown by Oberoi (88%) [14], Kumar et al (73%) [6], Singh et al (98.5%) [9] and Saheer et al (92.65%) [12]. These findings clearly demonstrate that students were aware that sharps injuries as the more likely route of transmission as recommended by Centre for disease control (CDC) (1992).

About 43.2% of the participants were aware of various routes of transmission of HIV infection. Our study results are positively correlated to the studies done by Dhanya et al [7] among Indian students, Li et al among Chinese students [17], and negatively correlated with the study done by Rehan et al among Pakistani students [18]. Dentists should be taught that various transmission routes along with universal precautions since dentists and patients themselves will not always be aware of HIV-positive cases.

Around 63.1% believe infection control methods for hepatitis-B is adequate protection against transmission of HIV and only 34% opt for sterilization using autoclave for destruction of HIV which is similar to study done by Kumar S et al (28%) [6] and Jain et al [10]. Only 46% participants were self-assured to consider aerosols generated from hand-piece can also cause HIV transmission which is in accordance with the study by Rani et al (46.9%) [13] and Singh et al (19%)[9]. 80.6% suggest need for better understanding of various infection protocols can prevent the spread of HIV. This may be due to less or rare reported cases of aerosol HIV transmission. If the aerosol contains the infected blood of the HIV-positive patient, then there are likely chances of aspiration of oral fluids and blood from an infected patient into a dental unit waterline that could expose the microbes to the practitioner or the subsequent patient.

Most of the students were aware of oral manifestations which include xerostomia, Oral hairy leukoplakia, Necrotizing ulcerative periodontitis and candidiasis and also agree that CD4+ count can be used as a marker to identify the progression of HIV and stage of immune suppression which is similar to the study done by Kumar S et al (86%) [6], Oberoi et al [14], Sharma et al [19] but contrast to study by Singh et al (10.2%) [9] who were unaware that HIV/AIDS patients can be diagnosed with oral manifestations.

In our study 71.8% students were aware of various detection and management techniques which is high when compared to the study done by Kumar S et al [6], Singh et al [9] and Oberoi et al [14]. However the knowledge regarding the drugs to be taken under the antiretroviral therapy (ART) was found to be poor (31.6%) and our study is negatively correlated to the study done by Oberoi et al (72%) [14].

In the present study the overall knowledge and attitude **towards HIV patients among dental students** was 86% (highest) for interns group, 79% for final years, 75% for third years and 67% for second years (low score) respectively. Similar results were reported by Sadeghi and Hakimi (82.1%) [20], Aggarwal and Panat (78.8%) [21]. However studies by Kumar et al (74%) [6], Sharma et al (60%) [19], Saheer et al (55.87%) [12] and Singh et al (56.2%) [9] showed lesser percentage of knowledge/ attitude scores. This wide range of differences suggests knowledge and attitude depends on various factors like gender, ethnicity, age, and geographical locations apart from improved knowledge attained as one observes through the curriculum and also wide-range of aspects covered in the study curriculum.

Conclusion

The present study shows that there was adequate knowledge among the dental students regarding the oral manifestations and dental treatment of patients with HIV/AIDS, however lack of attitude towards disease transmission was observed. We recommend training should emphasize on problem-based techniques rather than conceptual understanding by incorporating experimental methods or affective module to improve self-esteem and also to include social activities in the curriculum to improve their empathic character and well-being.

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References

1. Simon V, Ho DD, Karim QA. HIV/AIDS epidemiology, pathogenesis, prevention, and treatment. The Lancet. 2006 Aug 5;368(9534):489-

504.

2. Fettig J, Swaminathan M, Murrill CS, Kaplan JE. Global epidemiology of HIV. Infectious Disease Clinics. 2014 Sep 1;28(3):323-37.
3. Slogrove AL, Sohn AH. The global epidemiology of adolescents living with HIV: time for more granular data to improve adolescent health outcomes. Current Opinion in HIV and AIDS. 2018 May;13(3):170.
4. Prashant P, Sreenivasan V, Ankit G. India knowledge of HIV/AIDS and attitude of dental students towards HIV/AIDS patients: A cross-sectional survey. J Educ Ethics Dent 2011;1:59-63.
5. Lakhashe S, Thakar M, Godbole S, Tripathy S, Paranjape R. HIV infection in India: epidemiology, molecular epidemiology and pathogenesis. Journal of biosciences. 2008 Nov 1;33(4):515-25.
6. Kumar S, Tadakamadla J, Areeshi AYBH, Tobaigy HAWM. Knowledge and attitudes towards HIV/AIDS among dental students of Jazan University, Kingdom Saudi Arabia. Saudi Dent J. 2018 Jan;30(1):47-52.
7. Dhanya RS, Hegde V, Anila S, Sam G, Khajuria RR, Singh R. Knowledge, Attitude, and Practice towards HIV Patients among Dentists. J Int Soc Prev Community Dent. 2017 Mar-Apr;7(2):148-153.
8. Kalra D, NaveenKumar PG, Prashant GM, Sakeenabib B, Sushanth VH, Patel VB, AllamaPrabhu CR. Assessment of knowledge and attitude regarding treatment of HIV IAIDS patients among dental students in Davangere City, Karnataka: A cross-sectional questionnaire based study. Journal of Indian Association of Public Health Dentistry. 2013 Jan 1;11(1):65.
9. Singh VP, Osman IS, Rahmat NA, Bakar NAA, Razak NFNA, Nettem S. Knowledge and Attitude of Dental Students towards HIV/AIDS Patients in Melaka, Malaysia. Malays J Med Sci. 2017 May;24(3):73-82.
10. Jain M, Mathur A, Kumar S, Dagli RJ, Prabu D, Kulkarni S. Knowledge and attitude among dental students of Udaipur, India towards HIV/AIDS. Journal of Oral Health & Community Dentistry. 2008;2(2):30-5.
11. Champa Dutta, Debabrata Bandyopadhyay : Knowledge and attitude in relation to HIV/AIDS among in-service nurses of Calcutta. JIMA 1997;95:75-77.
12. Saheer P A, Fabna K, Febeena P M, Devika S, Renjith G, Shanila A M. Knowledge and attitude of dental students toward human immunodeficiency virus/acquired immunodeficiency syndrome patients: A cross-sectional study in Thodupzha, Kerala. J Indian Assoc Public Health Dent 2019;17:66-9.
13. Rani V, Dumpala S, Shyamala R. Knowledge and attitude among students towards HIV/AIDS patients at a dental college, Suraram, India. Int J Basic Clin Pharmacol 2017;6:2646-50.
14. Oberoi SS, Sharma N, Mohanty V, Marya C, Rekhi A, Oberoi A. Knowledge and attitude of faculty members working in dental institutions towards the dental treatment of patients with HIV/AIDS. International scholarly research notices. 2014.
15. Sheikh H, Shankar S, Vinay S. Knowledge and attitudes of undergraduate dental students in the Oxford Dental College Hospital and Research Centre, Bangalore toward patients with HIV/AIDS. J Acquir Immune Defic Syndr 2011;2:1-5.
16. Patil PB, Sreenivasan V, Goel A. Knowledge of HIV/AIDS and attitude of dental students towards HIV/AIDS patients: A cross-sectional survey. J Educ Ethics Dent 2011;1;2:59-63.
17. Li X, Lin C, Gao Z, Stanton B, Fang X, Yin Q, Wu Y. HIV/AIDS knowledge and the implications for health promotion programs among Chinese college students: geographic, gender and age differences. Health promotion international. 2004 Sep 1;19(3):345-56.
18. Rehan M, Waheed U, Sarwar M, Arshad M, Satti HS, Zaheer HA. Knowledge, attitude, practices and awareness regarding HIV/AIDS among university students of Islamabad and Rawalpindi, Pakistan. Annals of PIMS ISSN. 2016;1815:2287.
19. Sharma A, Sharma S. Assessment of Knowledge and Attitude among Dental Care Workers towards Patients Affected with HIV/AIDS in a Private Dental College in India. BJMMR 2016;11:1-7.
20. Sadeghi M, Hakimi H. Iranian dental students knowledge of and attitudes towards HIV/AIDS patients. J Dent Educ. 2009;73(6):740–745.
21. Aggarwal A, Panat SR. Knowledge, attitude, and behavior in managing patients with HIV/AIDS among a group of Indian dental students. J Dent Educ. 2012;77(9):1209–1217.