ORIGINAL RESEARCH ARTICLE

Comparison of knowledge, attitude and concern about HIV/AIDS patients among dental students: A cross sectional survey

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Abstract

HIV/AIDS has taken a pandemic form affecting 40 million people around the world. The present study aimed to determine the knowledge, attitude, and concerns of dental students towards HIV/AIDS infected individuals. A cross sectional study was conducted among 224 subjects, among them 112 final year (FY) students and 112 interns. Subjects were selected from 10 dental colleges in Bangalore city, India. Data was collected through a self-administered questionnaire. The mean knowledge score of FY students and interns was 73.66±5.9 and 80.4±7.2 respectively; the mean attitude score was 71.25±1.707 and 87.75±1.8 and the mean concern score was 92±2.645 and 97.75±3.171 respectively. Differences in the mean score were significant. Dental interns had slightly higher knowledge, attitude, and concern than the FY students. There is a need to add HIV/AIDS patient's infection control measures in the dental curriculum. *(Afr J Reprod Health 2021; 25[3]: 113-120).*

Keywords: AIDS, attitude, dental students, HIV, knowledge

Résumé

Le VIH/SIDA a pris une forme pandémique touchant 40 millions de personnes dans le monde. La présente étude visait à déterminer les connaissances, l'attitude et les préoccupations des étudiants en médecine dentaire envers les personnes infectées par le VIH/SIDA. Une étude transversale a été menée auprès de 224 sujets, dont 112 étudiants de dernière année (FY) et 112 stagiaires. Les sujets ont été sélectionnés dans 10 collèges dentaires de la ville de Bangalore, en Inde. Les données ont été recueillies au moyen d'un questionnaire auto-administré. Le score de connaissance moyen des étudiants et des stagiaires FY était respectivement de 73,66+5,9 et 80,4+7,2 ; le score moyen d'attitude était de 71,25+1,707 et 87,75+1,8 et le score moyen de préoccupation était respectivement de 92+2,645 et 97,75+3,171. Les différences dans le score moyen étaient significatives. Les stagiaires dentaires avaient des connaissances, une attitude et des préoccupations légèrement plus élevées que les étudiants de l'AF. Il est nécessaire d'ajouter les mesures de contrôle de l'infection des patients atteints du VIH/SIDA dans le programme d'études dentaires. *(Afr J Reprod Health 2021; 25[3]: 113-120).*

Mots-clés: SIDA, attitude, etudiants en médecine dentaire, VIH, connaissances

Introduction

HIV/AIDS has been spreading around the world and has taken into pandemic form affecting about 40 million people[1,2]. The key population category in the low and middle-income countries still has a chance of acquiring this infection[3]. India standing second on the grounds of population density with a diversity of culture, religion, and ethnicity which makes the country itself very prone to this syndrome. India sharing its borders with countries which are also having a high prevalence of HIV and AIDS. Along with prevailing ethical and political conflicts makes India much more vulnerable[4].

With the widespread implementation of antiretroviral therapy (ART) people are living

longer who acquired HIV[5]. Nearly 1.2% of HIV-positive patients seeking dental treatment go undiagnosed[6]. HIV-positive patients are at much higher risk of oral health problems because of compromised immunity and consumption of retroviral drugs, hence making them in need of improved dental care. As the count of such a number is increasing daily, it is also directly increasing the urgency of dentists to understand their special oral health needs[7,6].

Since 1988, the World Health Organization (WHO) has made it mandatory for dental practitioners to do the treatment for HIV patients. However, the high risk of transmission during a dental procedure makes many of the dentists reluctant and refuses to do treatment to such patients. Research in countries like Brazil, South Africa, Japan, and Sudan have reported that dental students because of lack of knowledge regarding HIV/AIDS make them refuse for treatment of such patients[8,9].

Sound knowledge about HIV infection and AIDS is essential for students to prepare themselves with adequate and precautions to treat such patients. This basic training and knowledge will boost their confidence and help them in rendering better treatment[10,11]. It is important to develop a dental curriculum to treat HIV/AIDS infected patients[12]. The present study aimed to determine the knowledge, attitude, and concerns of dental students and interns towards HIV and AIDS infected individuals.

Methods

A comparative cross-sectional study was conducted to assess the knowledge, attitude, concern among dental students and interns towards HIV/AIDS infected individuals by using a structured questionnaire. 112 final year (FY) dental students and 112 interns from ten different dental colleges of Bangalore city took part in the study and demographic details as shown in (Figure 1).

The sample size of 224 was derived from using the following formula:

$$N = Z^2 * P\,(1-P) * D/E^2$$

Z=1.96, P=0.5, D=1, CI=95, E=10%

Inclusion criteria

- Dental students who attended clinical postings.
- Dental students who gave consent.

Exclusion criteria

- Dental students who were not willing to give consent.

The self-administered questionnaire consisted of 20 questions related to participant's knowledge, attitude, and concern regarding HIV/AIDS like common oral lesion, transmission, post-exposure prophylaxis, current updates from mass media, the difference between HIV and AIDS (K-1 to K-12). Questions regarding attitude (A-1 to A-4) and concern (C-1 to C-4) of students towards HIV/AIDS patients were also assessed.

Test-retest reliability of the questionnaire was measured using Pearson product-moment correlation coefficient (r),

$$r = \frac{\Sigma\left(x-\bar{x}\right)\left(y-\bar{y}\right)}{\sqrt{\Sigma\left(x-\bar{x}\right)^2\left(y-\bar{y}\right)^2}}$$

r =0.9, which is a high correlation; very dependable relationship.

The study was approved by the ethical board, The Oxford Dental College and Hospital, Bangalore. A pilot study was undertaken on 20 undergraduate students, which helped to check the feasibility of the study and the relevance of the questionnaire. Following this, data was collected over one month allowing the flexibility to accommodate any unforeseen circumstances. Before administering the questionnaire, the investigator introduced himself to all the students and appraised them about the study. For participants who had queries, oral instructions were given. After the completion of the questionnaire, the interviewer acknowledged the participated students and assured confidentiality.

A descriptive statistical analysis was carried on. The continuous variable measure is presented with mean±SD and categorical variables are presented with the number (%). The level of significance is assessed at 5%. The following assumptions on data are made, dependent variables should be normally distributed, samples drawn from the population should be random, cases of the samples should be independent. Student t-test (unpaired) has been used to find the significance of study parameters on a continuous scale between each group. The statistical software SPSS 25 was used for the analysis of the data.

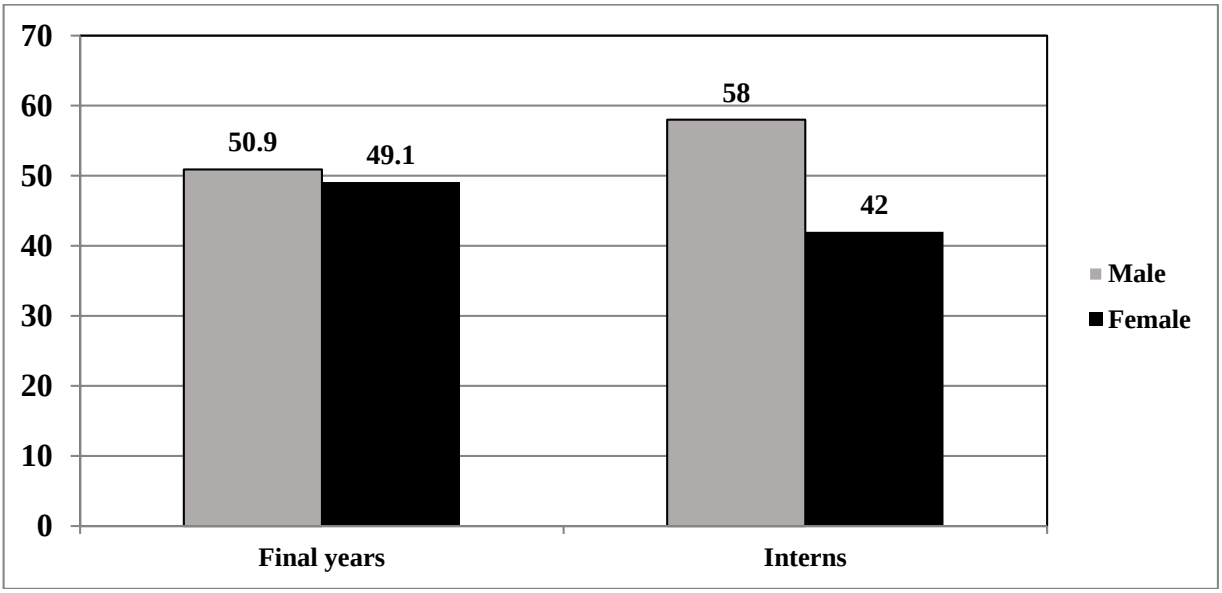
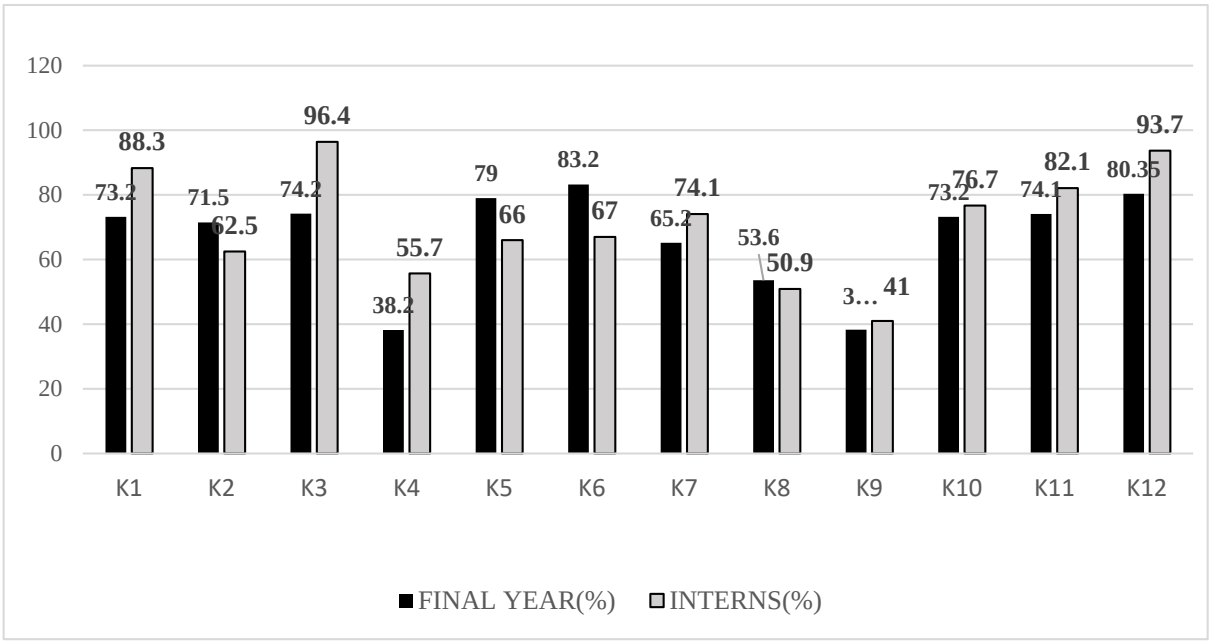


Figure 1: Gender distribution of study subjects

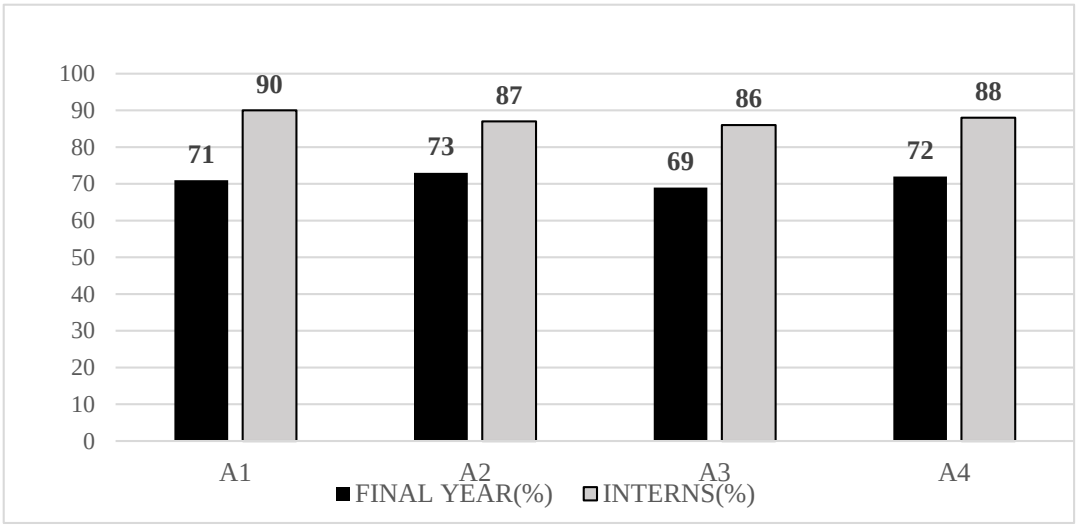
Results

Assessment of knowledge among the FY and interns about HIV/AIDS are shown in (Figure 2). The subjects were questioned (K-1) that "Is there any difference between HIV and AIDS?" 73.2% and 88.3% reported "yes" among FY dental students and interns, respectively. For the question (K-2) "Which of the following is the most common lesion of oral cavity associated with HIV?". 71.5% and 62.5% reported "Candidiasis", 8.9% and 19.6% reported, "Melanic hyperpigmentation",19.6% and 17.8% reported "Oral hairy Leukoplakia" among FY dental students and interns, respectively. For the question (K-3) "Which of the following cells are affected in HIV?". 74.2% and 96.4% reported "CD4" among FY dental students and interns, respectively. For the question (K-4) "Correct order from high to low-risk chance of transmission of HIV infection". 38.2% and 58.7% reported "Blood and blood product > mother to baby > sexual intercourse > cross injection", 12.4% and 4.5% reported "Mother to baby > Blood and blood product > sexual intercourse > cross injection", 33% each reported "Sexual intercourse > cross injection > Mother to baby > Blood and blood product" and 16.1% and 4.9% reported "Blood and blood product < mother to baby < sexual intercourse < cross injection" among FY dental students and interns, respectively. For the question (K-5) "Which is the first antigen that appears first in the process of HIV infection?". 79% and 66% reported "P24" among FY dental students and interns, respectively. For the question (K-6) "Inhalation of aerosol containing the blood of HIV positive will cause HIV?" 83.2% and 67% reported "no" among FY dental students and interns, respectively. For the question (K-7) "The broken skin in contact with saliva contaminated with the blood of HIV positive patient will cause HIV?". 65.2% and 50.9% reported "yes" among FY dental students and interns, respectively. For the question (K-8) "Have you heard of post-exposure prophylaxis for HIV?".53.6% and 50.9% reported "yes" among FY dental students and interns, respectively. For the question (K-9) "How HIV can be transmitted perinatally from mother to newborn infant?" 33% and 27.6% reported "Trans placentally during pregnancy", 18.7% and 10.7% reported "During delivery as the infant passes through the birth canal", 9.8% and 20.5% reported "Postnatally during breastfeeding" and 38.3% and 41% reported, "All the above" among FY dental students and interns. For the question (K-10) "Which of the following are the comorbidities associated with HIV/AIDS disease?". 8.05% and 4.4% reported "Hyperlipidaemia", 12.5% and 8.9% reported "Diabetes", 6.25%, and 9.8% reported, "Cardiovascular disease", 73.2% and 76.7% reported, "All the above" among FY dental students and interns. For the question (K-11) "Which is the organization that approves teaching AIDS curriculum?". 74.1% and 82.1% reported, "National AIDS control organization (NACO)



K= Knowledge

Figure 2: Assessment of knowledge among final year dental students and interns about HIV/AIDS

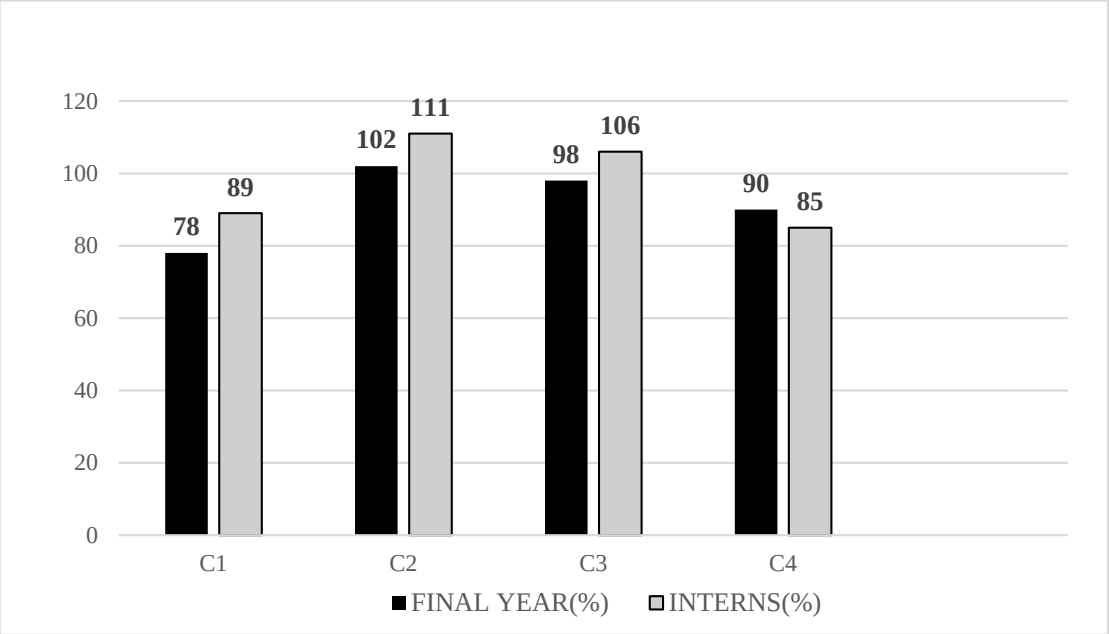


A=Attitude

among FY dental students and interns. For the question (K-12) that World AIDS day is celebrated on 80.35% and 93.7% reported, "1st December" among FY dental students and interns.

Assessment of attitude among FY dental students and interns about HIV/AIDS are shown in (Figure 3). When the respondents were questioned (A-1) that "I feel comfortable with patients expressing their HIV concern?". 63.4% and 80.4% were in agreement among FY dental students and interns. For the question (A-2) "Opinion on undergoing HIV testing" 65.2% and 77.6% were "Disagree" among FY dental students and interns. For (A-3) that "HIV patients should be quarantined to stops spread of infection?" 61.7% and 76.7% "Agree" among FY dental students and interns. For the question (A-4) "Has your professional education provided you enough information to work safely with HIV patients?". 64.2% and 78.5% agreed among FY dental students and interns.

Assessment of concerns among the FY and interns about HIV/AIDS are shown in (Figure 4).



C=Concern

Figure 4: Assessments of concern among final year dental students and interns about HIV/AIDS

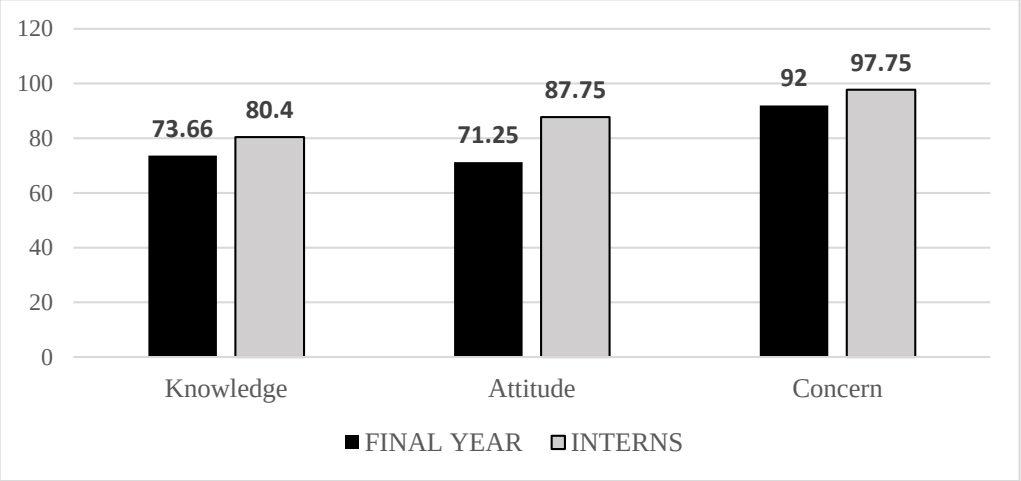


Figure 5: Comparative analysis of knowledge, attitude and concern between interns and final year of HIV/AIDS

When the respondents were questioned (C-1) that "You believe that you may refuse to treat an AIDS patient?". 69.6% and 79.5% "Disagree" among FY dental students and interns. For the question (C-2) statement "HIV positive patient must inform the dentist of their status?". 91.1% and 99.1% "Agree" among FY dental students and interns. For (C-3) that "Will you keep the status of HIV-positive patients as a secret?" 87.5% and 94.6% "Agree" among FY dental students and interns. For (C-4) that "Disclosure of HIV positive status is geared towards cross infection prevention". 80.4% and 75.9% "Agree" among FY dental students and interns.

Analysis of knowledge, attitude, and concern among FY dental students and interns about HIV/AIDS are showed in (Table 1 and Figure 5). The mean knowledge score of FY students and interns was 73.66$\pm$5.9 and 80.4$\pm$7.2 respectively; the mean attitude score of FY and interns was 71.25$\pm$1.707 and 87.75$\pm$1.8 respectively; mean concern score of FY and interns was 92$\pm$2.645 and 97.75$\pm$3.171 respectively. Differences in the mean score were significant.

Discussion

Oral health care provider's knowledge and attitude determine the quality of dental care provided to any HIV-positive patient. In this study knowledge, attitude regarding HIV/AIDS patients was assessed using 20 questions. In our study, 73.2% of the FY students and 88.3% of the interns reported that there is a difference between HIV/AIDS. This can be compared to a study conducted by Agarwal A *et al*., where 70% of dental students also reported a similar difference. In our study, 74.2% of the FY students and 96.4% of interns reported that CD4 lymphocytes cells are most commonly affected in HIV, which is also comparable to the same study where 98.6% of dental students also reported such a finding[13].

In the present study, 71.5% of the FY students and 62.5% of the interns reported that candidiasis is the most common lesion of the oral cavity associated with HIV. This was contradictory to the study reported by Oliveiraa *et al*., where a much higher percentage of 90.3% of the dental students reported such a finding[14]. For Inhalation of aerosol containing the blood of HIV positive being a route of infection transmission for HIV, in our study, 83.2% of the FY students and 67% of the interns reported 'No', which can be compared to a study conducted by Soukaina *et al*., where the 73.7% of FY students also reported "no". FY students were found to have more knowledge than the interns[15].

In a study conducted by VP Singh *et al*., in Malaysia on dental student's knowledge about oral manifestations of AIDS-like oral candidiasis was found to be 99.3% but in our study among FY students it was only 71.5%, and in interns was 62.5%; the difference noted might be attributed to the difference in question framing. In the same study, questioning aerosols as a route of transmission; only 19% possessed the knowledge in contrast to our study, where 83.2% among the FY students and 67% interns agreed to the same. In the same study for the question, whether dentists have a right to know the HIV infection status, 59.8% strongly agreed and 30.7% just agreed, contrary to our study where 91.1% among FY students and 99.1% among interns agreed to the same[16].

In the present study, 65.2% of the FY students and 74.1% of interns reported that broken skin in contact with contaminated saliva with the blood of HIV-positive patients will cause HIV. The knowledge about this question was less when compared to the study conducted by Arjuna *et al*., where 97% of the students possessed this knowledge[8]. The difference observed may be because of the improper stress given on this topic in the curriculum. In our study, the knowledge about post-exposure prophylaxis (PEP) among FY dental students was about 53.6% and in interns, it was about 50.9% but this cannot be compared with the study by Oboro *et al*., where 32.7% of dental students had PEP knowledge, as it was conducted on pre-clinical dental students as they were not exposed to clinical practice[17]. In the present study, 74.1% of the FY students and 82.1% of interns knew that NACO is the organization that approves teaching AIDS curriculum in India. 91.9% of the FY students and 93.7% of interns knew that 1st December is celebrated as World AIDS day. The knowledge about this was high because of nationwide propaganda as a public health program through social media, celebrities, sportspersons, etc.

A study conducted by Magalhaes *et al*. showed that 50% of 8th semester and 57.1% of 10th-semester dental students believed that they will be competent enough to treat AIDS patients after graduation. However, in our study, 64.2% among FY and 78.5% of interns believe that professional education has provided them enough information to work safely with HIV patients[18]. In the present study, 34.8% of the FY and 22.4% of interns did not agree to undergo HIV testing. compared to the study conducted by Azodo *et al*., where half of the students had undergone HIV testing, however, the sample size of the study was very less. Although in Iran it is compulsory to check the HIV status[19], in India it is not mandatory to undergo HIV testing. In the present study, 87.5% of the FY and 94.6% of the interns kept the status of HIV-positive patients as a secret. On contrary, Azodo et al., found it to be only 32.8%.

In our survey, 80.4% of the FY students and 75.9% of the interns agreed that disclosure of HIV positive results by patients is geared towards cross-infection prevention. Enhance self-confidence in a patient living with HIV, the public health programs directed towards the welfare of HIV patients to lead a normal life must be encouraged. In our study, 30.4% of the FY students and 20.5% of interns believed that a dentist may refuse to do treatment of HIV-infected patients. A study conducted in Canada among dentists showed

that 16% will refuse to treat HIV-infected patients. The major reasons to refuse treatment are fear of loss of patients, more cost consuming in infection control measures, and about safety[20].

A study conducted by Patil PB *et al*. reported that mean knowledge about HIV/AIDS among FY students and interns was found to be 17.62% and 17.67%. But the results were in contrast to our study 73.66% and 80.4% respectively, the reason may be preparation for postgraduate entrance test during internship but not enough evidence to justify. In the same study attitude among the FY was found better compared to the internees in contrast to the result of our study[21]. The drawback of the present study was, subjected were selected only from Bangalore city and generalization of the results can't be made.

Conclusion

In our study, the mean knowledge about HIV/AIDS patients among interns and FY students was satisfactory, though with some flaws with interns displaying slightly better knowledge. Thus, an increase in knowledge was found to be directly associated with an increase in a dental professional attitude having a positive impact on treating patients with HIV. Given the fact that professional attitudes affect the provider's behaviors towards at-risk patients and patients infected with HIV, it seems crucial to assess how dental education can be improved. Hence, it is recommended to focus on assessing the needs of dental faculty to best prepare them to deliver better educational experiences. Also integrate both the clinical and behavioral skills necessary in managing HIV/AIDS patients.

Conflicts of interest

The author(s) declare(s) that there is no conflict of interest regarding the publication of this paper.

Acknowledgment

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Authors' contributions

Madhuniranjanswamy MS, Naik S, Divakar DD, contributed to the conception and design of the study. Al-Kheraif AA, Khanagar SB, Patel II contributed substantially to the acquisition and interpretation of data. Naik S drafted the manuscript. All the authors contributed to its critical revision, approval of the final version submitted for publication, and take responsibility for the statements made in the published article.

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