

# Knowledge of dental students regarding hepatitis B, hepatitis C and HIV

## Original Article

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## Abstract

**Introduction:** The aim of this study was to evaluate the knowledge of senior dental students about Hepatitis B, Hepatitis C and Human Immunodeficiency Viruses (HIV).

**Materials and methods:** This was a cross-sectional, descriptive, questionnaire-based study. In the study, a researcher-made questionnaire was used. The questionnaire had 2 sections. First section recorded demographic data of participants (age, gender), the type of faculty ( Dentistry faculty of Guilan University of Medical Science (GUMS) or Dentistry faculty of International Campus-Guilan University of Medical Science (IC-GUMS)) and students' semester (11th or 12th). The second section included 13 questions. Validity and reliability were determined. For each correct answer, score one was considered and for each wrong answer, score zero was determined. Their knowledge was categorized as poor (0-4), moderate (5-9), and good (10-13) Data obtained from research questionnaires was analyzed by SPSS software version 21 using chi-square, kruskal-wallis test and Mann Whitney. Significant value was set as  $p < 0.05$ .

**Results:** The study results showed that , the effects of age, gender, type of faculty and semester on the knowledge of students in dental faculty of GUMS and IC-GUMS were not significant. The mean score of students' knowledges was  $5.47 \pm 1.63$ .

**Conclusion:** Students' knowledge was moderate in the current study. Efficacious training programs should be prepared for dental students to increase their knowledge, regarding hepatitis B, hepatitis C and HIV.

### Key words:

•HIV •Hepatitis B •Hepatitis C

## Introduction

According to the World Health Organization (WHO), 34.3- 41.4 million people are infected with HIV globally and 130 to 170 million and 2 billion people worldwide are infected by HCV and HBV respectively. [1-2] "Cross infections" is defined as the transmission of infectious agents among patients and healthcare workers. [3-4] In dentistry, cross infection can occur through direct or indirect contact with blood and saliva, air-water spray and droplets, contaminated instrument and surfaces. [5] Risk of transmission of HBV, HCV and HIV in dental clinics are reported to be 30%, 10% and 0.4% respectively. [3] However, healthcare professionals are at higher risk for getting injured with infectious sharp instruments and needle stick. It is estimated that 37.6%, 39% and 4.4% of healthcare workers diagnosed with HBV, HCV and HIV respectively, were infected through needle stick injury. [6-7]

Improving the knowledge of students and professional workers in the field of dentistry about HBV, HCV and HIV, helps them to effectively protect themselves from getting infected by the viruses. Also, better knowledge about post-exposure protocols, make dentists capable of better management if they were injured by contaminated needle sticks. [3,5] Besides, better knowledge, increases dentists' courage and attitude in treatment of infected patients so that, dentists can provide better care for these patients through improved education. [2,6,8] For these reasons, this study was designed to assess the knowledge of senior dental students about HBV, HCV and HIV.

## Materials and Methods

In this cross-sectional, descriptive, questionnaire-based study, 51 senior general dental students of dentistry faculty of GUMS and IC-GUMS, participated.

The students were fully informed about the purpose of the current study and their voluntary participation. Written consents were obtained from those students willing to participate. Anonymity of the participants was maintained throughout the study.

Senior general dental students who accepted to participate were enrolled in the current study. Incomplete questionnaires were excluded from the

study.

In the study, a questionnaire made by Rabiee et al. was used. The questionnaire had 2 sections. First section recorded demographic data of participants (age, gender), the type of faculty (GUMS or IC-GUMS) and students' semester (11th or 12th). The second section included 13 questions.

The content validity of the questionnaire was approved by 10 experts, and its Content Validity Rate (CVR) and Content Validity Index (CVI) were determined. CVR coefficient of every single question was in the range of 0.8-1. This range indicates acceptable validity based on the minimum CVR in Lawshe table (Lawshe, 1975). Questions with  $CVR \leq 0.6$  were modified to achieve CVR in the acceptable range of 0.8-1. To evaluate the validity, the CVI coefficient was used. CVI obtained for each question was more than 80%. To determine the reliability of these 13 questions, 20 dentistry students answered the questions. These students were not included in the study. Based on test-retest method, the order of questions was changed and the same students answered to the questions immediately. The internal consistency of the questions was 79%. Correlation of scores was statistically significant based on Kappa coefficient. ( $p \leq 0.05$  for each question) For each correct answer, score one was considered and for each wrong answer, score zero was determined. Based on the acquired score, their knowledge was categorized as poor (0-4), moderate (5-9), and good (10-13). Participants were given an anonymous questionnaire and filled the questionnaire in the presence of the researcher. Data obtained from research questionnaires was analyzed by SPSS software version 21 using chi-square, kruskal-wallis test and Mann Whitney. Significant value was set as  $p < 0.05$ .

## Results

In the current study 51 senior dental student participated. The mean age of participants was  $24.20 \pm 1.04$ . 43.1% (22) of participants were male and 56.9% (29) were female. 49% (25) of the students were studying in IC-GUMS dentistry faculty and 51% (26) of participants were students of GUMS dentistry faculty. Data distribution is presented in table 1

Table 1. Data distribution

Category		Percent (number of participants)
Age	≤24	68.6% (35)
	24<	31.4% (16)
Gender	Female	56.9% (29)
	Male	43.1% (22)
Type of faculty	Dentistry faculty of GUMS	51.0% (26)
	Dentistry faculty of IC-GUMS	49.0% (25)
Semester	11 <sup>th</sup>	39.2% (20)
	12 <sup>th</sup>	60.8% (31)

Results showed that, the effects of age, gender, type of faculty and semester on the knowledge of students in dentistry faculty of GUMS and dentistry faculty of IC-GUMS were not significant. (Table 2,3,4 and 5)

Table 2: The relation of age and knowledge of students in dentistry faculty of GUMS and dentistry faculty of IC-GUMS

Type of faculty	Age	Knowledge				P value
		Poor	Moderate	good	Total	
Students of dentistry faculty of GUMS	≤24	66.7% (16)	33.3% (8)	0% (0)	100% (24)	P=0.94
	24<	50% (1)	50% (1)	0% (0)	100% (2)	
Students of dentistry faculty of IC-GUMS	≤24	90.9% (10)	9.1% (1)	0% (0)	100% (11)	
	24<	71.4 (10)	28.6% (4)	0% (0)	100% (14)	
Total	≤24	74.3% (26)	25.7% (9)	0% (0)	100% (35)	
	24<	68.8% (11)	31.5% (5)	0% (0)	100% (16)	

Table 3: The relation of gender and knowledge of students in dentistry faculty of GUMS and

		Knowledge				P value
		poor	Moderate	good	Total	
Students of dentistry faculty of GUMS	Female	64.3% (9)	35.7% (5)	0% (0)	100% (14)	0.425
	Male	66.7% (8)	33.3% (4)	0% (0)	100% (12)	
Students of dentistry faculty of IC-GUMS	Female	73.3% (11)	26.7% (4)	0% (0)	100% (15)	
	Male	90% (9)	10% (1)	0% (0)	100% (10)	
Total	Female	74.3% (26)	25.7% (9)	0% (0)	100% (35)	
	Male	68.8% (11)	31.5% (5)	0% (0)	100% (16)	

Table 4. The relation of type of faculty and knowledge of students

	Knowledge				P value
	poor	Moderate	good	Total	
Students of dentistry faculty of GUMS	65.4% (17)	34.6% (9)	0% (0)	100% (26)	0.696
Students of dentistry faculty of IC-GUMS	80% (20)	20% (5)	0% (0)	100% (25)	
Total	72.5% (37)	27.5% (14)	0% (0)	100% (51)	

Table 5: The relation of semester and knowledge of students

Type of semester	poor	Moderate	good	Total	P value
12 <sup>th</sup> semester	71.0% (22)	27.5% (14)	0% (0)	100% (31)	
Total	72.5% (37)	27.5% (14)	0% (0)	100% (51)	

The total mean score of students' knowledges was 5.47±1.63. the mean score was 5.32±1.35 for students studying in dentistry faculty of IC-GUMS and 5.32±1.35 for students studying in dentistry faculty of GUMS.

Comparison of students' knowledge about HBV, HCV and HIV is presented in table 6 . Student of dentistry faculty of GUMS, mostly answered correctly to question 1 while students of dentistry faculty of IC-GUMS mostly answered correctly to question 11. Student of dental faculty of GUMS , mostly chose the wrong answer for question 12 while students of dentistry faculty of IC-GUMS mostly chose the wrong answer to question 3.

Table6: Comparison of students' knowledge about hepatitis and AIDS

	Correct answer	Wrong answer
Question 1	84.3% (43)	15.7% (8)
Question 2	45.1% (23)	54.9% (28)
Question 3	11.8% (6)	88.2% (45)
Question 4	27.5% (14)	72.5% (37)
Question 5	25.5% (13)	74.5% (38)
Question 6	74.5 (38)	25.5% (13)
Question 7	39.2 (20)	60.8% (31)
Question 8	56.9% (29)	43.1% (22)
Question 9	49% (25)	51% (26)
Question 10	37.3% (19)	62.7% (32)
Question 11	60.8% (31)	39.2% (20)
Question 12	13.7% (7)	86.3% (44)
Question 13	21.6 % (11)	78.4% (40)

## Discussion

This study aimed to assess the knowledge of dental students about infectious diseases such as hepatitis B, hepatitis C and HIV.

According to the results of the current study, knowledge of students had no significant relation with age. In contrary, Richmond et al. and Joukar et al. stated that dentists older than 40 years were more knowledgeable. [9-10] Souza et al. revealed that older dental students had more knowledge about HCV compared to younger students. [1] The difference can be explained by the variation in participants' age of the above-mentioned studies. In the current study, students aged from 23 to

27. But in the study of Richmond et al. and Joukar et al. there were no limitation for the age of participants. Souza et al. enrolled first year and last year dental students who had greater age gap compared to the current study. [1,9-10]

The association of knowledge with gender was not significant in the current study. In accordance to the current study, Sadeghi et al., Li et al., Enabulele et al. and Alrahma et al. found no significant difference in the knowledge of students in terms of gender. [11-14] Contrastingly, in the study of Singh et al. female participants had better knowledge. [15] It should be considered that in the study of Singh et al., the proportion of female participants (75%) were notably higher compared to the male participants (25%) which can explain the controversy.

In the current study, the difference between students of 11th and 12th semester was not statistically significant. However, Souza et al. stated that higher level of knowledge was significantly influenced by advancement in students' year of study. [1] The reason for this divergency is that, the current study only included students of 11th and 12th semester and these students are not much different in terms of clinical experience and the courses they have attempted. But, in the study of Souza et al. first year and last year dental students were included who have significant different knowledge score regarding HCV. [1]

In this study, participants had satisfactory knowledge about post-exposure protocol if they were injured with the infected needle of an HBV positive patient. While their knowledge was not ad-

equated about the post exposure to the infected needle of a patient who is suspected to be HBV positive. Only, 37.3% of participant had correctly answered to the question about HIV post-exposure protocol. Leon et al. showed that 93% of dentists had no or little knowledge about the standard post-exposure protocol. [16] Hammond et al. also found that only 16% of the dentists applied standard post-exposure protocol. [17]

Participants were asked about the oral manifestation of HIV in the current study, and 56.9% of participants had answered correctly. Singh et al., Ab Murat et al., Ellepola et al., Aggarwal and Panat, Kumar et al. and Lorosa et al. reported the same findings. [15,18-22] They stated that their participants were aware of the major oral manifestations of HIV and AIDS.

Results of the current study, revealed that 13.7% and 27.5% of participants were aware of transmission mode of HBV and HCV, respectively. According to Koseoglu et al. and Hamideh et al. 76% and 89% of dentists had chosen the correct answers about HBV, HCV and HIV infections, respectively. [5,23] Ab Murat et al., Azodo et al. and Kumar et al. stated that students had a satisfactory knowledge about transmission mode of HIV. [18,21,24] While Crossley et al. found that there were lacking in the knowledge regarding transmission of HIV. [25] Different curriculum in different countries can explain the variation in the knowledge of participants about transmission mode of HBV, HCV and HIV.

Overall knowledge of participants about HBV, HCV and HIV in the current study was 5.47 which was moderate. Hu et al., Khanghahi et al., Singh et al. and Alrahmah et al. found that overall knowledge of participants regarding HBV, HCV and HIV was poor. [14-15, 26-27] Al Shamiri et al. reported fair level of knowledge regarding HBV among dental students and interns. [28] While Amin et al., Tahir et al. and Roostamzadeh et al. claimed that majority of participants had adequate level of knowledge about HBV, HCV and HIV. [2,3,6] Amin et al. studied the knowledge, attitude and stigma of dental students towards HIV-positive patients. In the study of Tahir et al. the knowledge and practice of senior dental students about cross infection of HBV, HCV and HIV, and immunization against HBV in Pakistan were assessed. And Roostamza-



deh et al. evaluated the knowledge and practice of dentists regarding HBV, HCV and HIV. Variation in the countries and study curriculum of the above-mentioned studies along with differences in the methodology of the studies such as different questionnaires and study population can explain the divergency of the results. [2,3,6]

## Conclusion

Students' knowledge was moderate in the current study. Efficacious training programs should be prepared for dental students to increase their knowledge, regarding hepatitis B, hepatitis C and HIV

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