

## Awareness regarding hepatitis B&C amongst undergraduates and graduates of Baqai dental college

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### Abstract

**Introduction:** Hepatitis B (HBV) and C (HCV) are highly infectious and contagious which is a major cause of chronic hepatitis, cirrhosis and hepatocellular carcinoma. They are considered as an important occupational hazards especially for dental surgeons and other health care workers as dental treatment often includes direct exposure to patients' body fluids.

**Materials and Methods:** A cross sectional- KAP survey was conducted from November 2017 to February 2018 amongst undergraduates and graduates of Baqai dental college. The study population included undergraduates (third year BDS, Final year BDS) and graduates (house surgeons and faculty members) of Dental College. The sample size was calculated by using Open epi software version 3.01 with estimated prevalence rate of 13%, margin of error 5% and 95% confidence interval. The calculated sample size was 165.

**Result:** A total of 165 undergraduates and graduates participated in the study. Regarding Hepatitis B transmission through saliva, 25(83.3%) of third year students, 43(72.9%) of the final year students, 35(76.1%) of house surgeons and 23(76.7%) of faculty members were aware of salivary transmission.

**Conclusion:** The present study was conducted to evaluate awareness regarding transmission of Hepatitis B and C amongst the dental students (third year and final year), dental house surgeon and faculty members.

**Keywords:** Awareness, Hepatitis B virus, Hepatitis C virus, Infection control.

### Introduction

Hepatitis B (HBV) and C (HCV) are highly infectious and contagious which is a major cause of chronic hepatitis, cirrhosis, and hepatocellular carcinoma.<sup>1,2</sup> They are considered as an important occupational hazards especially for dental surgeons and other health care workers as dental treatment often includes direct exposure to patients' body fluids.<sup>3,4</sup> The prevalence of HBV ranges between 5-10% in South East Asia and one per cent in Northern Europe and America, the situation in India is somewhere in between with nearly 3-4% of the population infected by the virus.<sup>5</sup> HCV is highly endemic in Pakistan, where a national survey, conducted in 2007-2008, estimated HCV prevalence at 4.8%.<sup>6</sup> Doctors and Dentists are also at risk of getting HCV infection because they deal with HCV positive patients, syringes, infected surgical instruments and apparatus.<sup>7</sup>

In dentistry, the possible routes by which hepatitis infection is transmitted by drawing blood, giving anesthesia, suturing, and needle stick injuries sustained from infected patients during dental procedures.<sup>8,9</sup> Dental surgeons and other health workers who do not wear gloves while performing procedures are at a higher risk of acquiring hepatitis B infection.<sup>10</sup>

Needle stick injuries are dangerous that can accidentally pierce the skin of dental surgeons or other health care workers at any time of use, disassemble, or disposing of the needles.<sup>11</sup> The risk of transmission of HCV (3%), HBV (30%) from patient to the dental surgeons and other health care workers.<sup>11-13</sup> The dentists use sharp cutting instruments and high speed drills that expose them to a mixture of blood and saliva and often they sustain minor cuts or abrasions on their hands due to the use of instruments, which may serve as a

point of entry for the patient's infected blood. Since a very little amount (1 x 10<sup>-7</sup>ml) of contaminated blood may transmit the virus, a dentist's minor cutaneous breaks subsequently may transmit the disease to other patients.<sup>14</sup>

Studies have shown that non immunized dental professionals and surgeons are 3-4 and 6 times, respectively, at greater risk of exposure to HBV infection than the general population.<sup>15</sup> In a dental clinical setup, lapse in the sterilization technique of instruments or improper hospital waste management can lead to the transmission of HBV infection to dental professionals.<sup>16</sup>

Medical and health science students, being part of the health care delivery system, are exposed to the same size of risk as other health care workers when they come in contact with patients and contaminated instruments. They are the first level of contact between patients and medical care. They are expected to undertake activities related to patient care with the beginning of their clinical years.<sup>17</sup> Therefore the aim of the present study was to assess the awareness regarding Hepatitis B and C amongst undergraduates and graduates.

### Materials and Methods

A cross sectional- KAP survey was conducted from November 2017 to February 2018 amongst undergraduates and graduates of Baqai dental college. The study population included undergraduates (third year BDS, Final year BDS) and graduates (house surgeons and faculty members) of Dental College. Ethical approval was obtained from institutional ethical board committee. The sample size was calculated by using Open epi software version 3.01 with estimated prevalence rate of 13%, margin of error 5% and 95% confidence interval. The calculated sample size was

165. All undergraduates and graduates present at the day of study were included in the study. Those who were not present at the day of study were excluded from the study. A sample frame list was obtained from the Administration office and then sample was selected by using simple random sampling method.

Data was collected by using self-administered questionnaire with closed ended questions. The questionnaire comprised of 10 questions regarding awareness of Hepatitis B and C amongst undergraduates and graduates.<sup>18</sup> Categorical variables were analyzed for frequency and percentages and data was analyzed by IBM SPSS version 22.  $P < 0.05$  was considered to be statistically significant.

**Result**

A total of 165 undergraduates and graduates participated in the study. Table 1 showed the distribution of the participants.

Table 2 showed the results related to the questions that were asked. Regarding Hepatitis B transmission through saliva, 25(83.3%) of third year students, 43(72.9%) of the final year students, 35(76.1%) of house surgeons and 23(76.7%) of faculty members were aware of salivary transmission. This variable did not showed statistically significant differences ( $p= 0.751$ ). Regarding transmission of hepatitis Band C from patient to dentist, majority of undergraduates and graduates were aware of the transmission. This variable also did not showed statistically

significant differences ( $p=0.613$ ). Question regarding transmission of hepatitis B and C from dentist to patient, 28(93.3%) of third year students, 50(84.7%) of final year BDS students, 44(95.7%) of the house surgeons and 29(96.7%) of faculty members were aware of transmission from dentist to patient. This variable also did not showed statistically significant differences ( $p=0.130$ ). Regarding transmission from patient to patient, 27(90%) of the third year BDS students, 55(93.2%) of the final year BDS students, 45(97.8%) of the house surgeons and 28(93.3%) of the faculty members were aware of transmission from patient to patient. This variable also did not showed statistically significant differences (0.550). Question regarding needle stick injury, 28(93.3%) of the third year BDS students, 54(91.5%) of the final year BDS students, 44(95.7%) of the house surgeons and 28(93.3%) of faculty members were aware of the needle stick injury. This variable also did not showed statistically significant differences ( $p=0.87$ ). Question regarding prevention by wearing gloves only, 9(30%) of the third year BDS students, 23(30%) of the final year BDS students, 16(34.8%) of house surgeons and 5(16.7%) of faculty members replied ‘yes’. This variable also did not showed statistically significant differences ( $p=0.189$ ). Regarding universal precautions, 26(86.7%) of the third year students, 54(91.4%) of the final year students, 38(82.6%) of house surgeons and 26(86.7%) of the faculty members replied ‘yes’. This variable also did not showed statistically significant differences ( $p= 0.597$ ).

**Table 1: Distribution of the participant’s categories**

Variable	Frequency	Percent
Third year BDS students	30	18.2
Final year BDS students	59	35.8
House surgeons	46	27.9
Faculty members	30	18.2
Total	165	100

**Table 2: Awareness regarding Hepatitis B, C amongst undergraduates and graduates**

Variables	Options	Third year BDS	Final year BDS	House surgeons	Faculty members	p- value
Is HBV transmitted through saliva	Yes	25(83.3%)	43(72.9%)	35(76.1%)	23(76.7%)	0.751
	No	5(16.7%)	16(27.1%)	11(23.9%)	7(23.3%)	
Can HBV and HCV transmitted from patient to dentist	Yes	30(100%)	58(98.3%)	46(100%)	30(100%)	0.613
	No	0	1(1.7%)	0	0	
Can HBV HCV transmitted from dentist to patient	Yes	28(93.3%)	50(84.7%)	44(95.7%)	29(96.7%)	0.130
	No	2(6.7%)	9(15.3%)	2(4.3%)	1(3.3%)	
Can HBV HCV transmitted from patient to patient	Yes	27(90%)	55(93.2%)	45(97.8%)	28(93.3%)	0.550
	No	3(10%)	4(6.8%)	1(2.2%)	2(6.7%)	
Are you aware that risk of HBV and HCV is transmitted through dental treatment	Yes	28(93.3%)	58(98.3%)	45(97.8%)	30(100%)	0.366
	No	2(6.7%)	1(1.7%)	1(2.2%)	0	
Are you aware that majority of dentists frequently experience needle stick injury	Yes	28(93.3%)	54(91.5%)	44(95.7%)	28(93.3%)	0.871
	No	2(6.7%)	5(8.5%)	2(4.3%)	2(6.7%)	
Are you aware that dentists are at high risk of HBV HCV	Yes	28(93.3%)	52(88.4%)	43(93.5%)	29(96.7%)	0.508
	No	2(6.7%)	7(11.9%)	3(6.5%)	1(3.3%)	

infection than general population						
Are aware that high risks of HBV HCV is transmitted through needle stick injury	Yes	28(93.3%)	52(88.1%)	44(95.7%)	28(93.3%)	0.531
	No	2(6.7%)	7(11.9%)	2(4.3%)	2(6.7%)	
Can HBV and HCV transmission prevented by gloves only	Yes	9(30%)	23(30%)	16(34.8%)	5(16.7%)	0.189
	No	21(70%)	36(61%)	30(65.2%)	25(83.3%)	
Are aware regarding universal precaution	Yes	26(86.7%)	54(91.4%)	38(82.6%)	26(86.7%)	0.597
	No	4(13.3%)	5(8.5%)	8(17.4%)	4(13.3%)	

## Discussion

The present study was done to assess awareness of hepatitis Band C amongst undergraduates and graduates. Dental surgeons and Dental auxiliary staff are one of the most vulnerable groups that acquire hepatitis Band C transmission.<sup>19</sup> The majority of the undergraduates and graduates in the present study reported high or average rate of awareness concerning hepatitis B and C transmission and prevention. Anam Siddiqui et al<sup>20</sup> in a study reported that almost all of the third year BDS students and final year BDS students had awareness regarding Hepatitis B. Tirupati et al<sup>21</sup> reported that 86.6% of the students were aware of hepatitis B.

Abdal M et al<sup>22</sup> Reddy RS et al<sup>23</sup> and Kadeh H et al<sup>24</sup> reported similar results assessing awareness amongst undergraduates and graduates. Dissimilar results were reported by Khalid F et al<sup>25</sup> that undergraduates showed poor awareness about hepatitis B. Kasetty et al<sup>25</sup> in a study reported moderate to good awareness of Hepatitis B. Mahesh R et al<sup>18</sup> in a study reported that overall awareness of Hepatitis B and C amongst undergraduates and graduates was found to be fairly satisfactory. Sudhakara R et al<sup>27</sup> in a study reported that 81.3% showed positive response when asked about transmission of hepatitis through saliva of patients. The present study reported that third year BDS students had more awareness of transmission through saliva when compared to final year BDS students, house surgeons and faculty members. Mahesh R et al<sup>18</sup> in a study reported dissimilar results that third year BDS students had less awareness regarding transmission through saliva.

LI X et al<sup>28</sup> in a study reported that 84.55% and 66.36% of dental undergraduates and graduates, respectively, correctly estimated HBV transmission from dentist to patient.

Mahesh R et al<sup>18</sup> in a study reported that 27 (18%) of third year BDS students, 27 (18%) of final year BDS students, 38 (25.3%) of house surgeons and 92 (61.3%) of the faculty members had awareness regarding transmission of hepatitis from dentist to patient.

The present study reported that 28(93.3%) of third year BDS students, 50(84.7%) of final year BDS students, 44(95.7%) of house surgeons and 29(96.7%) of faculty members were aware that hepatitis can be transferred from dentist to patient.

Polakoff S et al<sup>29</sup> and Cottone J<sup>30</sup> reported that the risk of exposure for general dentists is about three to four times greater and for non-immunized surgical specialists about six times greater than that of general population. The present study reported that 28(93.3%) of the third year BDS students,

52(88.4%) of final year BDS students, 43(93.5%) of the house surgeons and 29(96.7%) of the faculty members were aware that dentists are at high risk of infection than general population. Mahesh R et al<sup>18</sup> in a study reported that 24(16%) of the third year BDS students, 40(26.7%) of final year BDS students and 41(27.3%) of the house surgeons were aware regarding high risk of hepatitis B infection for dentists than general population.

Proper hand washing and use of barriers such as gloves, gowns and mask are the main components of standard precautions which can minimize mucocutaneous exposures.<sup>31</sup> The present study reported that 26(86.7%) of the third year BDS students, 54(91.4%) of the final year BDS students, 38(82.6%) of the house surgeons and 26(86.7%) of the faculty members were aware of the universal precautions. Mahesh R et al<sup>18</sup> in study reported that 20 (13.3%) of the third year students, 4 (2.7%) of the final year students, and 4 (2.7%) of the interns were following an executable protocol for universal precaution.

## Conclusion

A study was conducted to evaluate the magnitude of awareness regarding transmission of Hepatitis B and C amongst the dental students (third year and final year), Dental house surgeon and faculty members. This study also focused on the practice of dental health care professionals regarding the protective and preventive measures to prevent the transmission of hepatitis and infection control.

**Conflict of Interest:** None.

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