

# Evaluation of Knowledge Levels of Ordu University Faculty of Dentistry Students about Hepatitis B: Cross-Sectional Survey Study

Cigdem Guler <sup>1</sup>([ID](#)), Ihya Cakmakci <sup>1</sup>([ID](#))

<sup>1</sup>Department of Pediatric Dentistry, Faculty of Dentistry, Ordu University, Ordu, Turkey.

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## Abstract

**Objective:** To evaluate the knowledge levels of Ordu University Faculty of Dentistry students about Hepatitis B Virus (HBV), preventive measures, and compare differences between academic classes.

**Methods:** Students from Ordu University Faculty of Dentistry (1th to 5th year from 2019-2020 academic year) were asked to respond a one-page questionnaire form measuring their knowledge about HBV. The questionnaire was created online and a total of 417 students were asked to respond. Data were analyzed using descriptive statistics, chi-square test and Fischer's exact test. Significance level was set at a  $P < 0.05$ .

**Results:** In this study, 318 of 417 students participated. In total, 97.8% of 318 students knew that HBV can be transmitted through dental treatments. In addition, 85.2% of students stated that HBV can be transmitted through saliva. 94.7% of students who answered the questionnaire knew that HBV vaccination program consisted of 3 doses. In the question of standard universal precautions for HBV contagiousness, 28% of students selected the option 'I do not know', and there was a statistically significant difference between academic classes in this question ( $P < 0.05$ ).

**Conclusion:** According to the results of this study, although students had better knowledge about HBV when compared to similar studies, it is recommended that knowledge of students, especially on standard universal measures, should be reviewed. In addition, the vaccination and immune status of the students should be followed regularly.

**Key words:** Hepatitis B virus, Dental students, Questionnaire

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## Address for correspondence/reprints:

Ihya Cakmakci

**Telephone number:** +90 (507) 687 05 10

**E-mail:** [ihyagundogdu@hotmail.com](mailto:ihyagundogdu@hotmail.com)

## Introduction

Hepatitis B is a serious life-threatening liver infection caused by Hepatitis B virus (HBV), which is one of the DNA viruses (1). Hepatitis B is both highly contagious and can turn into a chronic infection that can cause fatal diseases such as cirrhosis and hepatocellular carcinoma (2).

HBV can be transmitted in many ways. Some of these include contact with infected blood and body fluids, mother to baby at birth, with parenteral route, and with sex with an infected partner (3). According to 2015 data, there are more than 2 billion infected

people in the world and 257 million of them are chronic hepatitis patients (1). Epidemiological studies reveal that Hepatitis B surface antigen (HBsAg) positivity in Turkey has been reported between 4% and 5% (4). Although there is an effective vaccine, the current numbers show that there is still a considerable number of patients in our country and in the world.

Dentists are at higher risk of HBV infection compared to both general population and other healthcare professionals (5). Likewise, dentistry students are at higher risk than other health care students. When all these risks are combined with the lack of protective measures, the situation becomes even more serious, considering the greater possibility of occupational injury compared to other professions in dentistry.

The main preventive measure against Hepatitis B infection is vaccination. HBV vaccine is highly effective and safe. Currently, 3-dose HBV vaccine routine has reached 85% worldwide (1, 6). In particular, the dental community should pay attention to immunity of Hepatitis infections.

HBV vaccination of health care workers in Turkey has been implemented since 1987. As a result, HBV carrier rates approximately decreased by half. Immunization rates by vaccination in health care workers have up to 75% in Turkey (7). It is known that similar rates are observed in dentistry students.

It is very important to raise awareness of dentistry students about the measures to be taken against the transmission of Hepatitis B infection. Before starting a clinical practice, the vaccinations of students should be applied fully and immunization follow-ups should be done. In addition, sufficient information should be obtained about the precautions to be taken in the dental clinic.

The aim of this study is to evaluate the knowledge level of dental students of Ordu University Faculty of Dentistry about HBV and preventive measures and compare the differences between academic classes.

### Methods

This study was a cross-sectional survey study of Ordu University Faculty of Dentistry students in the 2019-2020 academic year. The questionnaire form in our study was prepared based on another previous study and applied online via the Google Forms application (8). Participants were able to access this online questionnaire via their e-mails. A total of 417 dentistry students in the 2019-2020 academic year were invited online to participate in the questionnaire and participation was voluntary. Considering the target audience of the survey (417), the sample size

was calculated as 301 at the level of 95% confidence and 3% margin of error. While 318 of students participated in our survey, 99 did not.

The questionnaire form consisted of three parts. In the first part, demographic information of the participants such as age, gender, and classes were questioned. The second part questions aim to measure the students' knowledge about HBV, transmission routes and vaccination. There were 15 questions in this section and 13 of them were yes / no questions. There were four options in one question and participants were asked to choose their level of knowledge. In the third and last part, there were six questions and the protective measures against HBV and the vaccination status of participants were questioned.

### Statistical analysis

The database collected in the Google forms application were converted to Excel format (Microsoft Corp., Redmond, WA, USA) for further analysis. The data were analyzed using IBM SPSS Statistics Package (Version 22.0. Armonk, NY: IBM Corp.).

Descriptive analysis, chi-square test and Fischer's exact test were used to analyze the data. Statistical significance level was set at  $P < 0.05$ .

### Ethics of the Study

This study was approved by Ordu University Clinical Research Ethics Committee with the 2020/35 numbered decision. All participants were informed in detail about the objective of the study and gave written consent. The study was performed in accordance with the ethical principles of the Declaration of Helsinki.

### Results

Demographic data were obtained in the first part of the questionnaire. Table 1 presents the distribution of demographic data of participants. In this study, 35.5% of participants were male and 64.5% were female. While 17% of students were in the 16-20 age range, 56.6% were in the 20-22 age range and 26.4% were over 22 years old. The distribution of participating students according to the years was as follows (Table 1): 65 students in the 1st year (20.4%), 59 students in the 2nd year (18.6%), 75 students in the 3rd year (23.6%), 62 students in the 4th year (19.5%), 57 students in the 5th year (17.9%). Table 2 presents the distribution of gender according to years. Male participating students (113) according to the years were as follows (Table 2): 22 students in the 1st year (19.5%), 22 students in the 2nd year (19.5%), 31

students in the 3rd year (27.4%), 22 students in the 4th year (19.5%), 16 students in the 5th year (14.2%). Female participating students (205) according to the years were as follows (Table 2): 43 students in the 1st year (21%), 37 students in the 2nd year (18%), 44 students in the 3rd year (21.5%), 40 students in the 4th year (19.5%), 41 students in the 5th year (20%).

**Table 1.** The distribution of demographic data of the participants

<b>Age</b>	16-20	54 (17%)
	20-22	180 (56.6%)
	>22	84 (26.4%)
<b>Gender</b>	Male	113 (35.5%)
	Female	205 (64.5%)
<b>Year</b>	1	65 (20.4%)
	2	59 (18.6%)
	3	75 (23.6%)
	4	62 (19.5%)
	5	57 (17.9%)

**Table 2.** The distribution gender of the participants according to year

Year	Male	Female	Total
1	22 (19.5%)	43 (21%)	65 (20.4%)
2	22 (19.5%)	37 (18%)	59 (18.6%)
3	31 (27.4%)	44 (21.5%)	75 (23.6%)
4	22 (19.5%)	40 (19.5%)	62 (19.5%)
5	16 (14.2%)	41 (20%)	57 (17.9%)
<b>Total</b>	113 (%100)	205 (%100)	318 (%100)

In the second part of the questionnaire, students' knowledge about HBV was tested with 15 questions. According to the data of the first question, 85.2% of students knew that HBV could be transmitted by saliva. In the second question, 301 students (94.7%) knew that HBV could be transmitted from the dentist to the patient. In addition, students correctly answered that HBV could be transmitted from patient to patient and from patient to dentist with 98.4% and 97.8%, respectively. The answers and statistical information of the questions in the second part according to the years were shown in Table 3. In the second part of the questionnaire, the 7th question was 'A considerable proportion of dentists experience needlestick injuries frequently' and 86.8% of participating students marked 'yes'. There was a statistically significant difference between the preferences of 1st and 5th year students ( $P=0.001$ ).

Another important question of the second part was 'Level of knowledge about standard universal precautions'. While 26.1% of students stated that they were educated, 28% of students stated that they did not have information about standard universal measures. In the comparison between years, the answers of the 4th and 5th years were significantly

different from the 1st and 2nd years separately ( $P<0.005$ ).

In the first question of the third part, 83% of students stated that they always wore gloves as protective equipment. This rate was determined to be 53.8% for 1st year students and a statistically significant difference was found when compared to other years ( $P<0.005$ ). Preferences for the use of protective equipment were shown in Table 4.

In the second question of the third part, 214 students stated that they were always recapping the needles after they used it (67.3%). The answers of the 4th and 5th years were significantly different from the 1st and 2nd years separately ( $P=0,001$ ) (Table 5). Regarding the approach to patients with HBV infection, 42 students (13.2%) stated that they did not treat HBV-infected patients, 236 students (74.2%) stated that there was no difference between HBV infected patients and other patients, 40 students (12.6%) stated that infected patients delayed their treatment (Figure 1). In the comparison between years, it was seen that 5th year students' preferences showed a statistically significant difference compared to 1st year and 2nd year students' preferences ( $P<0.005$ ).

On the other hand, 94.7% of the students participating in the questionnaire knew that the HBV vaccine consisted of 3 doses and 195 students (61.3%) had 3 doses of vaccine. In terms of administered vaccination dose, a statistically significant difference was found between the 2nd year students and the other years, and the 1st year students and the 4th and 5th years separately ( $P<0.005$ ). Only 157 (80.5%) of the students who completed 3 doses of vaccine stated that they controlled their immunity. While 76.4% of these students had antibody titers of 100 and above, 15.9% of them were between 10 and 100, and 7.6% were between 0 and 10 (Table 6).

When the answers were compared according to gender, a statistically significant differences were found in some questions. In the first question of the second part (HBV can be transmitted through saliva), 79.6% of male participants marked yes, while 88.3% of female participants marked yes, and this was a statistically significant difference ( $P = 0.038$ ). The questions with a statistically significant difference when compared according to gender, were shown in Table 7.

Table 3: Students' knowledge of HBV infection-related topics, by year and total

Question (Q)	Answers	1th Year N%	2nd Year N%	3th Year N%	4th Year N%	5th Year N%	Total N%	P-Value
Q1-HBV can be transmitted through saliva	Yes	56 (86.2%)	45 (76.3%)	66 (88%)	53 (85.5%)	51 (89.5%)	271 (85.2%)	.281
	No	9 (13.8%)	14 (23.7%)	9 (12%)	9 (14.5%)	6 (10.5%)	47 (14.8%)	
Q2-HBV can be transmitted from dentist to patient	Yes	59 (90.8%)	55 (93.2%)	71 (94.7%)	59 (95.2%)	57 (100%)	301 (94.7%)	.248
	No	6 (9.2%)	4 (6.8%)	4 (5.3%)	3 (4.8%)	0	17 (5.3%)	
Q3-HBV can be transmitted from patient to patient	Yes	64 (98.5%)	57 (96.6%)	74 (98.7%)	61 (98.4%)	57 (100%)	313 (98.4%)	.701
	No	1 (1.5%)	2 (3.4%)	1 (1.3%)	1 (1.6%)	0	5 (1.6%)	
Q4-HBV can be transmitted from patient to dentist	Yes	61 (93.8%)	58 (98.3%)	74 (98.7%)	61 (98.4%)	57 (100%)	311 (97.8%)	.170
	No	4 (6.2%)	1 (1.7%)	1 (1.3%)	1 (1.6%)	0	7 (2.2%)	
Q5-There is a confirmed risk of HBV transmission through dental treatments	Yes	62 (95.4%)	57 (96.6%)	74 (98.7%)	61 (98.4%)	57 (100%)	311 (97.8%)	.437
	No	3 (4.6%)	2 (3.4%)	1 (1.3%)	1 (1.6%)	0	7 (2.2%)	
Q6-Dentists are at higher risk of HBV infection than the general population	Yes	53 (81.5%)	53 (89.8%)	70 (93.3%)	59 (95.2%)	55 (96.5%)	290 (91.2%)	.024*
	No	12 (18.5%)	6 (10.2%)	5 (6.7%)	3 (4.8%)	2 (3.5%)	28 (8.8%)	
Q7-A considerable proportion of dentists experience needlestick injuries frequently	Yes	47 (72.3%)	50 (84.7%)	68 (90.7%)	56 (90.3%)	55 (96.5%)	276 (86.8%)	.001*
	No	18 (27.7%)	9 (15.3%)	7 (9.3%)	6 (9.7%)	2 (3.5%)	42 (13.2%)	
Q8-There is a higher risk of HBV than HIV transmission through needlestick injury	Yes	44 (67.6%)	47 (79.6%)	64 (85.3%)	55 (88.7%)	50 (87.7%)	260 (81.8%)	.012*
	No	21 (32.3%)	12 (20.3%)	11 (14.6%)	7 (11.2%)	7 (12.2%)	58 (18.2%)	
Q9-There is a higher risk of HBV than HCV transmission through needlestick injury	Yes	45 (69.2%)	45 (76.2%)	63 (84%)	50 (80.6%)	42 (73.6%)	245 (77%)	.275
	No	20 (30.7)	14 (23.7)	12 (16%)	12 (19.3%)	15 (26.3%)	73 (24.2%)	
Q10-HBV can persist in plastery casts for up to 7 days	Yes	55 (84.6%)	50 (84.7%)	62 (82.6%)	46 (74.1%)	32 (56.1%)	245 (77%)	.001*
	No	10 (15.3%)	9 (15.2%)	13 (17.3)	16 (25.8%)	25 (43.8%)	73 (24.2%)	
Q11-HBV transmission from dentist to patient can be prevented with the use of gloves	Yes	58 (89.2%)	46 (79.3%)	63 (84%)	51 (82.2%)	50 (87.7%)	269 (84.5%)	.557
	No	7 (10.7%)	12 (20.6%)	12 (16%)	11 (17.7%)	7 (12.2%)	49 (15.4%)	
Q12-HBV transmission from patient to dentist can be prevented with the use of gloves	Yes	57 (87.6%)	49 (83%)	65 (86.6%)	53 (85.4%)	53 (92.9%)	277 (87.1%)	.594
	No	8 (12.3%)	10 (16.9%)	10 (13.3%)	9 (14.5%)	4 (7%)	41 (12.8%)	
Q13-Level of knowledge about standard universal precautions	Don't know	30 (46.1%)	21 (35.5%)	16 (21.3%)	11 (17.7%)	11 (19.2%)	89 (27.9%)	.000*
	Have heard something	32 (49.2%)	37 (62.7%)	40 (53.3%)	16 (25.8%)	8 (14%)	133 (41.8%)	
	Being educated	3 (4.6%)	1 (1.6%)	19 (25.3%)	29 (46.7%)	31 (54.3%)	83 (26.1%)	
	Following an educatable protocol	0	0	0	6 (9.6%)	7 (12.2%)	13 (4%)	
Q14-What is the risk of HBV transmission to a healthy person when a HBV infected needle is sank? (%)	0.1	6 (9.2%)	18 (30.5%)	6 (8%)	9 (14.5%)	16 (28%)	55 (17.2%)	.000*
	3	22 (33.8%)	17 (28.8%)	36 (48%)	27 (43.5%)	29 (50.8%)	131 (41.1%)	
	30	37 (56.9%)	24 (40.6%)	33 (44%)	26 (41.9%)	12 (21%)	132 (41.5%)	
Q15-Hepatitis B vaccination program consists of 3 doses	Yes	56 (86.1%)	55 (93.2%)	72 (96%)	62 (100%)	56 (98.2%)	301 (94.6%)	.005*
	No	9 (13.8%)	4 (6.7%)	3 (4%)	0	1 (1.7%)	17 (5.3%)	

Table 4: Students' use of personal protective equipment, by year

	Year	Always	Mostly	Sometimes	Rarely	Never	P-value
<b>Gloves</b>	1	35(53.8%)	9(13.8%)	9(13.8%)	11(16.9%)	1(1.5%)	<b>.000*</b>
	2	47(79.6%)	11(18.6%)	1(1.6%)	0	0	
	3	65(86.6%)	10(13.3%)	0	0	0	
	4	61(98.3%)	1(1.6%)	0	0	0	
	5	56(98.2%)	1(1.7%)	0	0	0	
	Total	264 (83%)	32(10.1%)	10(3.1%)	11(3.5%)	1(0.3%)	
<b>Face Masks</b>	Year	Always	Mostly	Sometimes	Rarely	Never	P-value
	1	29(44.6%)	15(23%)	11(16.9%)	9(13.8%)	1(1.5%)	<b>.000*</b>
	2	41(69.4%)	14(23.7%)	1(1.6%)	3(5%)	0	
	3	61(81.3%)	12(16%)	2(2.6%)	0	0	
	4	58(93.5%)	2(3.2%)	0	1(1.6%)	1(1.6%)	
	5	53(92.9%)	4(7%)	0	0	0	
Total	242(76.1%)	47(14.7%)	14(4.4%)	13(4%)	2(0.6%)		
<b>Protective Gowns</b>	Year	Always	Mostly	Sometimes	Rarely	Never	P-value
	1st	21(32.3%)	13(20%)	10(15.3%)	15(23%)	6(9.2%)	<b>.004*</b>
	2nd	23(38.9%)	13(22%)	15(25.4%)	5(8.4%)	3(5%)	
	3th	27(36%)	13(17.3%)	27(36%)	5(6.6%)	3(4%)	
	4th	21(33.8%)	31(50%)	8(12.9%)	2(3.2%)	0	
	5th	17(29.8%)	27(47.3%)	13(22.8%)	0	0	
Total	109(34.2%)	97(30.5%)	73(22.9%)	27(8.4%)	12(3.7%)		
<b>Protective Shields</b>	Year	Always	Mostly	Sometimes	Rarely	Never	P-value
	1st	18(27.6%)	10(15.3%)	16(24.6%)	16(24.6%)	5(7.6%)	<b>.041*</b>
	2nd	32(54.2%)	16(27.1%)	8(13.5%)	3(5%)	0	
	3th	27(36%)	12(16%)	23(30.6%)	11(14.6%)	2(2.6%)	
	4th	15(24.1%)	20(32.2%)	16(25.8%)	8(12.9%)	3(4.8%)	
	5th	10(17.5%)	21(36.8%)	18(31.5%)	7(12.2%)	1(1.7%)	
Total	102(32%)	79(24.8%)	81(25.4%)	45(14.1%)	11(3.4%)		

Table 5: Students' practice of recapping needles, by year

Year	Rarely	Mostly	Always
1	11 (16.9%)	20 (30.7%)	34 (52.3%)
2	9 (15.2%)	20 (33.8%)	30 (50.8%)
3	5 (6.6%)	20 (26.6%)	50 (66.6%)
4	1 (1.6%)	9 (14.5%)	52 (83.8%)
5	1 (1.7%)	8 (14%)	48 (84.2%)
<b>Total</b>	27 (8.4%)	77 (24.2%)	214 (67.2%)

The answers of the 4th and 5th years were significantly different from the 1st and 2nd years separately (P=0.001)

### Discussion

HBV is one of the leading infectious diseases. Although has a long history and has been effectively tackled by both vaccines and preventive measures, HBV is still an important issue for dentistry (9). As mentioned in previous studies, percutaneous injuries are more common in dental students than in other healthcare fields. In addition, dental students are among the riskiest occupational group in terms of transmission risk of HBV infections (5,10). When we looked at the literature, we saw that this issue was not studied much, especially for dental students in Turkey. Therefore, in this study, we aimed to measure the knowledge of our school's dental students about HBV and preventive measures.

Considering the findings of our study, we can say that students of Ordu University Faculty of Dentistry have satisfactory knowledge about HBV and preventive measures. It was observed that most of the questions in the second part of the questionnaire were given correct answers to a large extent. However, our students, who gave highly correct answers to most questions, gave contradictory answers to some questions.

As it is known, saliva, which is one of the transmission routes of HBV, has a moderate level of infectiousness (7). In our questionnaire, 85.2% of the students stated that HBV could be transmitted by saliva. In a similar study conducted with Iranian students, the same rate was found to be 81.7% (8). Our students gave a high rate of the correct answer

and it was compatible with the literature. On the other hand, 79.6% of male participants and 88.3% of female participants marked the correct answer. Difference between the rates of the correct answer according to gender was statistically significant ( $p=0,038$ ). In recent study, 5th year students had the highest number of correct answers with 89.5%. This outcome may have resulted from the increase in the knowledge level of the students as the last period of education approaches. In a similar study, final year students of the Tehran University of Medical Sciences stated the correct answer in the same question with 81.7% and this was lower than junior students' rates of the correct answer (8). The sample size of the study was smaller than ours, and the academic years studied were not similar, which may be the reason for this result.

It is a known fact that HBV can be transmitted by dental treatments. In our study, 97.8% of students gave the correct answer this question. In similar studies conducted with Iranian students and Italian dentists, the same rate was found to be 74,6% and 44.1%, respectively (8,11). Based on these rates, we can say that our students are well aware of the importance of HBV in dentistry.

Healthcare workers are always faced with infection by bloodborne pathogens due to their occupational contact with blood and infected body fluids. Needlestick injuries are frequently encountered in dentistry. HBV transmission through injuries during dental procedures ranges from 6% to 30% (11). In our study, there was a question stating that 'A considerable proportion of dentists frequently experience needlestick injuries', and 86.8% of the participating students answered 'yes' to this question. When we look at the similar study, only 59.9% of Iranian students answered yes to the same question (8). The difference between the current rates is remarkable and the students included in our study think that needlestick injuries are more common among dentists.

In serological studies, it has been found that HBV infection in healthcare personnel is approximately 10 times higher than in the general population (12). Our students gave the correct answers at the rate of 91.2%, in line with the rates in similar studies. The risk of developing clinical hepatitis in needlestick injuries contaminated with HBV-containing blood has been reported as 22-31%, and it has been determined that these injuries are mostly caused by re-capping the needle tips in dentistry (13,14). Unfortunately, only 41.5% of our students correctly answered the HBV transmission rate as a result of an infected needlestick. Because of this rate, we can say that more

than half of our students do not know the HBV transmission rates through needlestick injuries.

On the other hand, 67.3% of our students answered the question 'Would you recap the needle tips again after use?' as 'always'. In a study conducted with Egyptian health care workers, it is stated that 40% of the reported needlestick injury cases were related with behaviour of manipulation of the needle after injection (15). It is clear that our students should refresh their knowledge on this subject. The risk of Hepatitis C Virus (HCV) and Human Immunodeficiency Virus (HIV) contamination after percutaneous contact is 1.8% and 0.3%, respectively (15,16). In related questions, we can see that 77% of our students knew that HBV can be transmitted at a higher rate than HCV, and 81.8% of the students knew that HBV can be transmitted at a higher rate than HIV. The correct answer rates of Iranian students to the same questions were 95.8% and 72.5%, respectively (8). Therefore, we can say that the rates are satisfactorily correct in these questions.

Vaccination is the most effective and easiest method of protection against HBV. The vaccine is usually given as 3 or 4 injections in 6 months. With vaccination, protection is provided against HBV as well as from diseases such as liver cancer and cirrhosis caused by HBV (6). Our students knew that HBV vaccine consisted of 3 doses (94.7%). In the study conducted with Brazilian students, 87.9% of the students chose the 3 dose option, and our results were almost similar to this study (17). In addition, 61,3% of our students had completed 3 doses of vaccine, and these results were similar to the study conducted with Brazilian students (62.2%) (17). In a study conducted with Turkish dentists, 87.9% of the participating clinicians stated that they were completely vaccinated according to the schedule (18). If an anti-HBs antibody level of 10 mIU / ml is achieved after three doses of vaccine, there is no need for booster doses or monitoring of antibody titers (19). Antibody titers of 92.3% of the students participating in our survey who completed 3 doses of vaccines were found to be 10 mIU / ml or more.

In the first question about the use of protective equipment, 83% of our students stated that they always wore gloves as a protective measure. It is thought provoking that the options such as 'never', 'rarely', 'sometimes' were marked, even if there were a small number of participants. Rates of the glove use was 89.4% in Iranian students, 90.9% in Canadian students, and 95% in Turkish dentists (8,18,20). In the question of face mask use, 76.1% of our students selected the 'always' option and it was observed that

they used it at a higher rate than similar publications (8).

In the Ordu University Faculty of Dentistry, dental students are given training on infectious diseases and preventive measures starting from the first year. HBV, which is the most common source of cross infection especially in dentistry, is taught in all academic years. In the question about standard universal precautions related to HBV contagion, 28% of our students ticked 'I don't know' and 41.8% marked 'I heard something'. These rates are similar to analogous studies and unfortunately reducing the reliability of the answers given to other questions.

This study was conducted under limited conditions as it was a single center study and could not ensure the participation of all students studying in Turkey. It is recommended that a similar survey is conducted countrywide among dental students to evaluate and define Turkish dental students' knowledge on hepatitis b infections.

### Conclusions

Our students, who gave highly correct answers to most questions, gave contradictory answers to some questions. In this situation, we cannot say that dental students of Ordu University Faculty of Dentistry have a very good level of knowledge about HBV infections and preventive measures. The education curriculum should be developed and students' knowledge should be tried to be increased with questioning and inquiry education methods. In addition, it will be safer to follow the vaccination and antibody levels of the students more closely to protect against HBV.

**Ethics Committee Approval:** Clinical Research Ethics Committee of Ordu University, Decision number: 2020-35 Date: 12 March 2020

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### References

- Trépo, Christian; Chan, Henry L. Y.; Lok, Anna (2014): Hepatitis B virus infection. In *The Lancet* 384 (9959), pp. 2053–2063. DOI: 10.1016/S0140-6736(14)60220-8.
- Te HS, Jensen DM. Epidemiology of hepatitis B and C viruses: a global overview. *Clin Liver Dis.* 2010;14(1):1-21, doi:10.1016/j.cld.2009.11.009
- Marcellin P. Hepatitis B and hepatitis C in 2009. *Liver Int.* 2009;29 Suppl 11–8. doi:10.1111/j.1478-3231.2008.01947.x Cited in: PubMed; PMID 19207959.
- Gurakar M, Malik M, Keskin O, Idilman R. Public awareness of hepatitis B infection in Turkey as a model of universal effectiveness in health care policy. *Turk J Gastroenterol.* 2014;25(3):304–8. doi:10.5152/tjg.2014.6718 Cited in: PubMed; PMID 25141320.
- Mahboobi N, Agha-Hosseini F, Safari S, Lavanchy D, Alavian S-M. Hepatitis B virus infection in dentistry: a forgotten topic. *J Viral Hepat.* 2010;17(5):307–16. doi:10.1111/j.1365-2893.2010.01284.x Cited in: PubMed; PMID 20196802.
- van Damme P, van Herck K. A review of the long-term protection after hepatitis A and B vaccination. *Travel Med Infect Dis.* 2007;5(2):79–84. doi:10.1016/j.tmaid.2006.04.004 Cited in: PubMed; PMID 17298912.
- Salman E, Karahan ZC. Infection Risks for Healthcare Workers and Protection I: Infections Transmitted By Blood and Body Fluids. *Journal of Ankara University School of Medicine.* 2014;67(2):43–9.
- Seyed Moayed Alavian, M. D., Nima Mahboobi DDS, Nastaran Mahboobi MD, Maryam Mohammadi Savadrudbari, Pardis Soleimanzade Azar, Sedigheh Daneshvar DDS. Iranian Dental Students' Knowledge of Hepatitis B Virus Infection and Its Control Practices. *Journal of Dental Education.* 2011;75(12).
- Anders PL, Fabiano JA, Thines TJ. Hepatitis: still a concern? *Spec Care Dentist.* 2000;20(5):209–13. doi:10.1111/j.1754-4505.2000.tb00021.x Cited in: PubMed; PMID 11203900.
- Gillcrist JA. Hepatitis viruses A, B, C, D, E and G: implications for dental personnel. *J Am Dent Assoc.* 1999;130(4):509–20. doi:10.14219/jada.archive.1999.0245 Cited in: PubMed; PMID 10203901.
- Kocabay C., Akar V, Akarşlan Z., Özkaynak Ö., Kahraman S. Diş Hekimliği Fakültesinde Kan Kaynaklı Patojen Testlerinin Yapılması İle İlgili Anket Çalışması. *GÜ Diş Hek Fak Derg.* 2007;24(2):83–7.
- West DJ. The risk of hepatitis B infection among health professionals in the United States: a review. *Am J Med Sci.* 1984;287(2):26–33. doi:10.1097/00000441-198403000-00006 Cited in: PubMed; PMID 6369984.

13. Werner BG, Grady GF. Accidental hepatitis-B-surface-antigen-positive inoculations. Use of e antigen to estimate infectivity. *Ann Intern Med.* 1982;97(3):367–9. doi:10.7326/0003-4819-97-3-367 Cited in: PubMed; PMID 7114632.
14. Talaat M, Kandeel A, El-Shoubary W, Bodenschatz C, Khairy I, Oun S, Mahoney FJ. Occupational exposure to needlestick injuries and hepatitis B vaccination coverage among health care workers in Egypt. *American Journal of Infection Control.* 2003;31(8):469–74. doi:10.1016/j.ajic.2003.03.003 Cited in: PubMed; PMID 14647109.
15. Mitsui T, Iwano K, Masuko K, Yamazaki C, Okamoto H, Tsuda F, Tanaka T, Mishiro S. Hepatitis C virus infection in medical personnel after needlestick accident *Hepatology*, 16(5), 1109-1114. *Hepatology.* 1992;16(5):1109–14. doi:10.1002/HEP.1840160502
16. Bell DM. Occupational risk of human immunodeficiency virus infection in healthcare workers: An overview *The American Journal of Medicine*, 102(5), 9-15. *The American Journal of Medicine.* 1997;102(5):9–15. doi:10.1016/S0002-9343(97)89441-7
17. Sacchetto MSLdS, Barros SSLV, Araripe TdA, Silva AM, Faustino SKM, da Silva JMN. Hepatitis B: knowledge, vaccine situation and seroconversion of dentistry students of a public university. *Hepat Mon.* 2013;13(10):e13670. doi:10.5812/hepatmon.13670 Cited in: PubMed; PMID 24348639.
18. Koseoglu M, Toptan H, Altindis S. Knowledge, attitude, and behaviour of Turkish dentists regarding contamination and prevention of Hepatitis B, Hepatitis C and HIV infection. *Padjadjaran J Dent.* 2018;30(3):198. doi:10.24198/pjd.vol30no3.19305
19. Poland GA, Jacobson RM. Clinical practice: prevention of hepatitis B with the hepatitis B vaccine. *N Engl J Med.* 2004;351(27):2832–8. doi:10.1056/NEJMcp041507 Cited in: PubMed; PMID 15625334.
20. Gillian M. McCarthy, Jonathan E. Britton. A Survey of Final-Year Dental, Medical and Nursing Students: Occupational Injuries and Infection Control. *Journal of the Canadian Dental Association.* 2000;66(10):561.