



PREVALENCE OF HEPATITIS B AND C AWARENESS AMONG DENTAL STUDENTS IN JEDDAH, SAUDI ARABIA

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ABSTRACT

Introduction: Dentistry is a susceptible environment for infection because dental practitioners have direct contact with patients' saliva and blood. In fact, dentists are at three to four times higher risk of exposure to hepatitis B (HBV) and hepatitis C (HCV) than the general population.

Objective: To assess the level of knowledge about and attitudes regarding HBV and HCV among dental students in Jeddah, Saudi Arabia.

Subjects and methods: This cross-sectional study assessed the knowledge about and attitudes toward HBV and HCV among 453 clinical dental students in Jeddah public and private colleges. A self-administrated, hard copy questionnaire included four sections with a total of 29 questions was utilized for data collection.

Results: The mean total correct answers of participants were 5.35 out of 9 questions, with a standard deviation of ± 1.54 . The mean of attitude questions ranged from 2.04 ± 1.18 to 3.9 ± 1.5 . By comparing total knowledge scores to GPAs, it was noticed that students with a 4.1 or greater GPA scored significantly better than others. The study showed that 53.33% of fourth-year students, 71.92% of fifth-year students, 78.03% of sixth-year students, and 76.47% of interns had been vaccinated.

Conclusions: It is recommended that more educational courses be included to improve dental students' knowledge about HBV and HCV. In addition, colleges should enforce students to be vaccinated before admitting to clinics.

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INTRODUCTION

Hepatitis is a liver inflammation that is potentially life-threatening due to serious complications, mainly cirrhosis and hepatocellular carcinoma⁽¹⁾. Although 50–80% of patients are cured of hepatitis C (HCV), approximately 399,000 HCV patients die each year⁽²⁾, while 780,000 people die due to hepatitis B (HBV), which can be avoided by HBV vaccination⁽³⁾. Dentistry is a potential environment for cross infections, and dentists have three to four times higher risk of exposure to HBV and HCV than the general population⁽⁴⁾. HBV was once considered hyper-endemic in the Kingdom of Saudi Arabia (KSA), where infection was acquired mainly through horizontal transmission early in life and less commonly by vertical transmission like that was observed in other HBV-endemic countries^(5,6). HBV is considered a health risk to healthcare workers who are approximate to infected individuals and their body fluids. The HBV vaccine was brought in 1989 because the Kingdom of Saudi Arabia was an HBV-endemic nation, after that in 1997 there was a significant

lower in HBV seroprevalence, from 7% before vaccination program to 0.3%⁽⁷⁾. Recent studies provide information relating reduced of HBV among many groups in the Saudi society included military personnel⁽⁸⁾, primary healthcare physicians⁽⁹⁾, and medical students^(10,11). A study take in a specified way in King Abdulaziz University in Jeddah, reported an 80.5% compliance rate for HBV vaccination; however, more than half (57.5%) of those vaccinated were not screened for HBV antibodies, these may be due to group high risk who have contact with blood and fluids during dental procedures⁽¹²⁾.

There is no grate society-based study inform on the real predominance of HCV in the KSA. Therefore, characterization of HCV epidemiology in the KSA relies with difficulty upon HCV sero-prevalence studies. These studies are typically cross-sectional in design and are done in select people such as blood donor^(13,14). Prevalence of HCV estimated from Saudi blood donor screening centers reference HCV infection average from 0.4 to 1.1%^(15,16). The literature indicates that the knowledge and attitudes of dental practitioners regarding hepatitis vary around the world. In Lahore, 80-90% of medical and dental students were found to have positive knowledge

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about hepatitis, mode of transmission, and how to prevent infection⁽¹⁷⁾. In another study, about 54% of Libyan dental students were shown to have inadequate levels of knowledge about hepatitis⁽¹⁸⁾. However, one study showed that regardless of the knowledge level of many dental practitioners, 42.6% of Bulgarian dental students had not received the HBV vaccine, and only 13.9% of the vaccinated students had HBV antibodies⁽¹⁹⁾.

To the best of the authors' knowledge, no study has ever been conducted in Saudi Arabia to estimate knowledge levels about HBV and HCV among dental students in Jeddah colleges, even though the incidence of HBV has been shown to have tragically increased in Saudi Arabia over the last 20 years⁽²⁰⁾. In addition, 48.5% of dentists have been reported to have needlestick injuries, which increases the risk for hepatitis infection⁽¹²⁾. Thus, knowledge and awareness among dental clinical practitioners is crucial for their safety.

The aim of this study was to assess the knowledge levels and attitudes about HBV and HCV among dental students in Jeddah and to estimate the percentage of students who had received the HBV vaccine.

SUBJECTS AND METHODS

This cross-sectional study assessed the knowledge about and attitudes toward HBV and HCV among 453 clinical dental students in Jeddah public and private colleges. A self-administrated, hard copy questionnaire included four sections with a total of 29 questions was utilized for data collection.

RESULTS

Data were taken from 453 participants. Females represent 65.6% of them. Almost half of the students (51.4%) had high GPA (4.1-5). Nearly one-third of the (32.2%) were recruited from the fifth academic level. Table 1.

Regarding the knowledge and awareness about HBV/HCV, the answers of the students were variable, only 15% of the participants knew the risk of HCV after needle stick, 54% of participants knew that vaccination against hepatitis B is an efficient protection against infection after an infected needle stick, and 65% of participants knew that hepatitis B virus and hepatitis C virus-infections can result in chronic hepatitis and liver cancer. Most of participants knew the routes of disease transmission either through sexual contact, blood or skin injury. The mean total knowledge of corrected answers from participants was 5.35 out of 9 questions, with standard deviations ± 1.54. The percentage of correct answers for each knowledge question is displayed in Figure 1.

Regarding the vaccination against HBV; in total, 70.86% were vaccinated against HBV female students were more likely to be vaccinated compared to male students (75.7% versus 61.5%). The difference was statistically significant, p=0.002. The fully vaccinated participants when viewed from their academic year, we found that sixth year students were more than those in the other academic years, the interns and fifth year students were slightly lesser, while the fourth year students were the least ($\chi^2=18.6$, p<0.001) Regarding the participants attitude toward the infected individuals a scale ranging from (1:5) for the means of answers to the attitude questions were shown in Table 3. The mean of attitude questions ranged from 2.04 ± 1.18 to 3.9 ± 1.5. The attitude of participants was variable, but in total the most of students were

agree with the questions. The questions that had been related to stoppage treatment of infectious patients were the least acceptable among the students, while the most acceptable question that considered all the patients to be potentially infectious. In total, the students' attitude toward HBV/ HCV infected patients averaged to the middle. In general, by comparing total knowledge scores with GPAs (ANOVA test), it was shown that students who had a GPA of 4.1 and above scored significantly higher than other students (p<0.05). There was significant difference in knowledge between different colleges as Ibn Sina students had significantly lower knowledge than Alfarabi (p=0.023) and KAU. Sixth year students were higher in knowledge significantly than 4th (p-value<0.001) and 5th year (p-value= 0.43) students.

Table 1 Demographic data of the participants (n=453)

Variable	Frequency	Percentage	
Gender	Male	156	34.4%
	Female	297	65.6%
GPA	4.1-5	233	51.4%
	3.1-4	171	37.7%
	2.1-3	48	10.6%
	2 or less	1	0.2%
College Attending	Al Farabi	207	45.7%
	Ibn-Sina	77	17.0%
	KAU	107	23.6%
	BMC	62	13.7%
Academic Year	Fourth Year	90	19.9%
	Fifth Year	146	32.2%
	Sixth Year	132	29.1%
	Intern	85	18.8%

Table 2 comparison between vaccinated male and female participants

	Hepatitis B vaccination	
	Yes (N=320)	No (N=132)
Males (n=156)	96 (61.5)	60 (34.5)
Females (n=296)	224 (75.7)	72 (75.7)

$\chi^2=9.88$, p=0.002

Table 3 Student attitude about HBV& HCV infected patients.

Variable	Attitude score Mean±SD
Patients with hepatitis should receive dental treatment in specialized clinics.	3.15±1.61
Because of an increased risk of infection, I would prefer not to treat patients with hepatitis.	2.25±1.30
Because of an increased risk of infection, I would prefer not to treat intravenous drug users.	2.38±1.24
If I found out that my longtime patient had hepatitis, I would stop treating him.	2.09±1.24
If patient informed me about having an infectious disease, I would stop treating him.	2.04±1.18
Dentists should have the opportunity to refuse to treat patients with hepatitis.	2.54±1.40
All patients should be considered potentially infectious.	3.89±1.49
All health care professionals should go for mandatory hepatitis testing once a year.	3.72±1.47
Standard protection equipment (gloves, mask, glasses) provide sufficient safety against infection.	3.68±1.40
I believe that routine dental treatment carries significant risk of hepatitis infection.	3.48±1.34
In case of infection in the workplace, I would accept partial responsibility.	3.44±1.26
Nowadays, there are 100% efficient methods of disinfection and sterilization of instruments used on patients with HBV and HCV.	3.53±1.32
Dentists with hepatitis should cease their occupational activity.	3.25±1.40

SD: Standard deviation

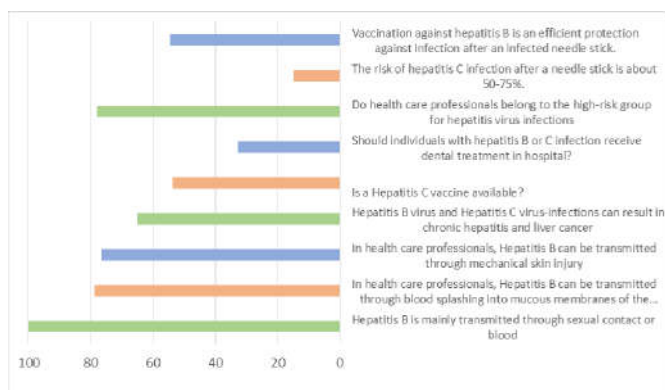


Figure 1 Correct answers to HBV & HCV knowledge questions (%).

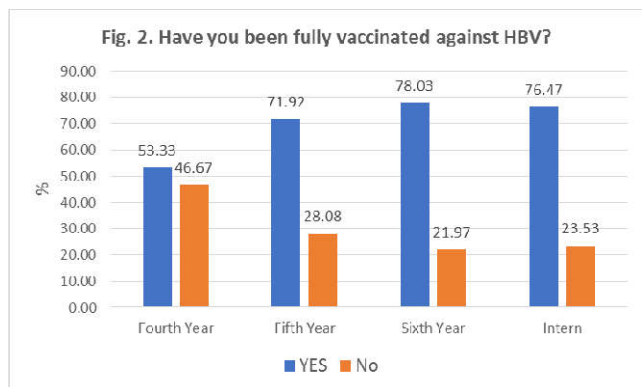


Figure 2 Distribution of fully vaccinated against HBV students, by academic year.

DISCUSSION

The knowledge of HBV vaccination among the students in this study was acceptable. There were differences between them according to the academic levels, with the highest number of participants had high levels of awareness in the sixth year. However, the knowledge and awareness scores for fifth year students and interns were not far of that among the sixth year students whereas the fourth year students had the least awareness score compared to the others. This difference in the knowledge could be attributed to the fact that students of fifth and sixth years have been given more instructions and obtained more experiences through clinical situation. However, more studies are needed to determine the causes for these variations. Currently there is no effective vaccine for HCV and shortage of effective post-exposure prophylaxis for HCV, therefore, HBV infection can be prevented by vaccination (22, 23). HCV infection could be a major concern to dental practitioners in Saudi Arabia and it may be due to the prevalence of infected people and risk of transmission. Therefore, the amount of information and self-rated learning of HCV and HBV infection in dental students are suggested to need more perfection and education.

In the present study, only 70% of the participants completed the recommended doses of an HBV vaccine in spite of its availability, while the other authors who were less inclined to agree with others either forget to complete their dose or were too working. Fulfillment of multi-doses vaccinations as HBV vaccine is considered a constant challenge for medical society. Advanced countries such as the UK and Australia offer changing monetary incentives to its object population, which has clearly become better dealing with the HBV vaccine doses, leading to full perfecting (24,25). Meanwhile, dental students' compliance and awareness could not be increased due to

financial incentives, as HBV vaccination is considered one of the important safety precautions among dental workers and it would be enough of a reward.

Previous surveys were conducted on dental students in other countries regarding the information levels and attitude to treat infected patients. In a survey of dental school seniors in the United States concerning knowledgeable about risk of HBV/HIV infection, 80% of the students considered they capable of treating HBV/HIV patients (26). Another survey of third and fourth year dental students in Quebec found that their overall information of HBV was to quit have a high degree good (27). Other studies showed that lower HBV knowledge among Arab medical students in countries such as Syria (28), and similar levels in dental students in Iran (29). In a previous study connected with medical students in Saudi tertiary hospital in Riyadh, it was reported that the awareness and knowledge of HBV and vaccination among the students were modest (30).

There are many limiting rule in the present study such as the cross sectional nature of the survey which limits the determination of any causality relationships. Therefore, more specific surveys should be included in further investigations. The average of accidental exposure and possibility HCV/HBV risk should be also to determine which increase the attitude of students who were may not learn of the risk for HBV/HCV exposure.

Finally, the present study was the first to investigate the awareness of HBV/HCV among dental student in Jeddah and highlights the importance of HBV vaccine and knowledge about HBV/HCV infections to avoid the risk of them.

In conclusion, students correctly answered around half of the questions related to HBV and HCV. Also, students with higher GPAs demonstrated more knowledge than others. Their HBV and HCV attitudes averaged to the middle. Results showed two-thirds of the participants were vaccinated against HBV. It is recommended that more educational courses be included in Saudi Arabian schools to improve dental students' knowledge about HBV and HCV.

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