

Research Paper: Knowledge and Behavior of General Dental Practitioners about hepatitis B virus in Qazvin city



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Citation: Elmi Rankouhi Z, Maleki D, Agha Mohamadi M. Knowledge and Behavior of General Dental Practitioners about hepatitis B virus in Qazvin city. Journal of Dentomaxillofacial Radiology, Pathology and Surgery. 2020; 9(2):14-18. <http://dx.doi.org/>

<http://3dj.gums.ac.ir>



Article info:

Received: 2020/04/28

Accepted: 2020/06/08

ABSTRACT

Introduction: Hepatitis B is a major public health problem globally affecting two billion people. Assessing knowledge and increasing awareness about HBV are part of the main actions against hepatitis B. This research was intended to assess the knowledge and awareness regarding hepatitis B among dentists.

Materials and Methods: This cross-sectional, descriptive, questionnaire-based study was conducted among 105 general dentists in Qazvin using a structured questionnaire containing two sections. In the first section, recorded data was about age, gender, and the number of years that the participant was graduated. The second section contained 22 questions of which 18 questions assessed the knowledge of dentists about HBV. Their knowledge was scored from 1 to 18 and then categorized as good, moderate, and poor. Data obtained from research questionnaires were analyzed by SPSS software version 21 using Mann-Whitney and Kruskal-Wallis tests. Values of $p < 0.05$ were considered statistically significant.

Results: Effect of gender, age, and number of years that the participants were graduated, were not significant on the awareness of participants. ($P=0.928$ and $P=0.822$, $P=0.938$, respectively) The mean of their knowledge was 6.37 ± 2.44 . 77.1% (54) of participants had poor knowledge and 18.6% (13) of participants had moderate knowledge. Only 4.3% (3) of participants had good knowledge about HBV

Conclusion: Overall knowledge of dentists about HBV was poor in the current study. It is essential to improve the knowledge of dentists about HBV and Hepatitis B.

Keywords:

Vaccination,
Hepatitis B,
Knowledge,
Dentists

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Introduction

Hepatitis B is a major public health problem globally. Hepatitis B is caused by the hepatitis B virus (HBV) and is a potentially life-threatening liver infection leading to liver cirrhosis and liver cancer.(1-3)

About two billion people have been found to be infected with HBV around the world, of which 350 million patients are facing chronic liver diseases and 600,000 are dying because of hepatitis B, annually. This fact leads hepatitis B to be the 10th cause of death worldwide.(3-5)

Transmission of Hepatitis B is through infected blood and body fluids; which can occur through direct contact with blood and saliva or through indirect contact (contaminated instruments and environments). This makes medical, surgical, and dental procedures to be a common route for HBV transmission.(4-8) Dentists among the other co-medical workers are more vulnerable to hepatitis B for frequently getting exposed to blood and saliva in daily practice. (1,4)

A recent study in Laos demonstrated that 86% of students in the healthcare professions had poor knowledge about Hepatitis B.(9) World Health Assembly addresses that assessing knowledge and increasing awareness is part of the main actions and cornerstones in the prevention of hepatitis B along with effective vaccination.(1-2,5-6) Therefore, this research was intended to assess the knowledge and awareness regarding hepatitis B among dentists.

Materials and methods

This cross-sectional, descriptive, questionnaire-based study was conducted among 105 general dentists in Qazvin to assess their knowledge and awareness regarding this Hepatitis B Virus (HBV). The study subjects were fully informed about the purpose of the current study. They were also provided information about their voluntary participation and the right to refuse to participate. From those willing to participate in the study, informed consent was obtained. The anonymity of the participants was maintained throughout the study.

General dentists who wanted to participate in the study were included in the study. A structured questionnaire containing two sections were used. In the first section, recorded data was about age, gender, and the number of years that the participant was graduated. The second section contained 22 closed-ended questions of which 18 questions assessed the knowledge of dentists about prevention, diagnosis, and epidemiology of HBV, and the 4 remaining questions evaluated the vaccination status of participants. Therefore, the knowledge score of the participants was calculated from 18. This questionnaire was designed by Kia et al (10) in which of 22 questions, two questions were designed as Yes/ No questions; three questions were assessed as Yes/No/I don't know, and 17 questions were five-option questions.

Non-randomized sampling was performed. And 105 general dentists were enrolled in the current study. The printed copies of the questionnaire were given to the general dentists to fill. The following day, those questionnaires were returned to the researcher.

Their knowledge was scored from 1 to 18 based on questions 1 to 13 (as question 3 had 4 sections and question 13 had 3 sections). The knowledge was categorized as "good" if the participant had 11 to 18 correct answers. The knowledge was considered as "moderate" and "poor" if the participants had 9 to 10 and 1 to 8 correct answers, respectively.

Data obtained from research questionnaires were analyzed by SPSS software version 21 using Mann-Whitney and Kruskal-Wallis tests. Values of $p < 0.05$ were considered statistically significant.

Results

A total of 105 general dentists voluntarily participated in the study. Among them, 100 general dentists returned the questionnaire. However, only 70 questionnaires were completely filled and considered for analysis.

Demographic distribution is presented in table1. The mean age of participants was 37.46 ± 8.07 . The youngest participant was 25

years old and the oldest was 62 years old. 40% (28) of participants had graduated for 1-5 years; 24.3% (17) had graduated for 5-10 years; 14.3% (10) had graduated for 10-15 years and 21.4% (15) of participants had graduated for more than 15 years.(table1)

Table 1: Data distribution of participants

Characteristic		Percentage (Number)
Gender	Female	40.6% (28)
	Male	59.4% (42)
Age	Younger than 30	22.8% (16)
	30-39 years	42.9% (30)
	40-49 years	25.8% (18)
	Older than 50	8.5% (6)

The effect of gender and age was not significant in the awareness of participants. (P=0.928 and P=0.822) Relation of awareness about HBV and the number of years that the participants were graduated were not significant, as well. (P=0.938) (Table2)

Table 2: knowledge of participants according to gender, age and years after graduation

	Knowledge score			Total	P value	
	Poor	Moderate	Good			
Gender	Female	75% (21)	17.9% (5)	7.1% (2)	100% (28)	0.928
	Male	78.6% (33)	19% (8)	2.4% (1)	100% (42)	
Age	Younger than 30	87.5% (14)	6.3% (1)	6.3% (1)	100% (16)	0.576
	30-39 years	66.7% (20)	26.7% (8)	6.7% (2)	100% (30)	
	40-49 years	83.3% (15)	16.7% (3)	0% (0)	100% (18)	
	Older than 50	83.3% (5)	16.7% (1)	0 (0)	100% (6)	
Years after graduation	1-5 years	78.6% (22)	14.3% (4)	7.1% (2)	100% (28)	0.938
	5-10 years	76.5% (13)	23.5% (4)	0% (0)	100% (17)	
	10-15 years	70.0% (7)	20.0% (2)	10.0% (1)	100% (10)	
	More than 15 years	78.6% (11)	21.4% (3)	0% (0)	100% (14)	

Table 3: Comparison of knowledge about hepatitis B infection among general dentists.

	Correct answer	Incorrect answer	I don't know	
1.Which HBV antigen and antibody can not be found in blood?	42.99% (30)	38.6% (27)	18.6% (13)	
2.Existence of which antigen or antibody in an HBV-infected patient indicate higher infection?	42.9% (30)	44.3% (31)	12.9% (9)	
3.What is the most probable diagnosis in a patient with antigens and antibodies described as below?	AgHBs-, AgHBe-, AbHBs+, AbHBe-, AbHBe-	21.4% (15)	25.7% (18)	
	AgHBs+, AgHBe+, AbHBs-, AbHBe-, AbHBe-	14.3% (10)	40.0% (28)	45.7% (32)
	AgHBs+, AgHBe+, AbHBs-, AbHBe+, AbHBe-	12.9% (9)	37.1% (26)	50% (35)
	AgHBs+, AgHBe-, AbHBs-, AbHBe+, AbHBe+	5.7% (4)	40.0% (28)	54.3% (38)
4.Which one is higher in the blood serum of healthy carrier of HBV?	12.9% (9)	15.7% (11)	71.4% (50)	
5.How likely is it that HBV-infected patients to be carrier?	8.6% (6)	12.9% (9)	78.6% (55)	
6.What is the most important was of HBV transmission?	81.4% (57)	1.4% (1)	17.1% (12)	
7.If the first hepatitis B vaccine was given on January 1st, what day is suggested for the second hepatitis B vaccination?	54.3% (38)	2.9% (2)	42.9% (30)	
8.If the first hepatitis B vaccine was given on January 1st, what day is suggested for the third hepatitis B vaccination?	52.9% (37)	2.9% (2)	44.3% (31)	
9.How long after the third hepatitis B vaccination, antibody titer should be checked?		18.6% (13)	44.3% (31)	
10. With injection of Hepatitis B vaccine:		18.6% (13)	40.0% (28)	
11.Are dentistry patients in the high-risk group of Hepatitis B?		5.7% (4)	15.7% (11)	
12.If exposed to an HBV-infected needle, when should the necessary actions be taken?		8.6% (6)	80.0% (56)	
	The dentist is not immunized against Hepatitis B	1.4% (1)	91.4% (64)	
	The dentist is immunized against Hepatitis B and the antibody titer is around 7 mlp/ml.			
	The dentist is immunized against Hepatitis B and the antibody titer is around 40 mlp/ml.	5.7% (4)	71.4% (50)	
13.If a dentist is exposed to an HBV-infected needle, what should be done?		25.7% (18)	30.0% (21)	

The question about dentists previously getting infected by HBV revealed that among the participants, one participant was infected by Hepatitis B; one participant didn't know his health status and other participants stated that they were not infected by HBV.

According to the question about dentists' vaccination status, 95.7% (67) of participants were vaccinated against hepatitis B and 3.4 % (3) had not received vaccination against hepatitis B.

The question which assessed whether the dentists had completed their vaccination or not showed that 95.7% (67) of participants were completely vaccinated by taking all three dosages of HBV vaccine. And no one was partially vaccinated. And 3.4 % (3) had not received HBV vaccine at all.

The question which asked whether the dentists had checked their post-vaccination antibody titer, revealed that among 70 participants, 65.7% (46) participants had checked their HBs Ab and 34.3% (24) had not checked their antibody titer after vaccination.

The comparison of knowledge about hepatitis B infection among general dentists is presented in table 3. (Table3)

The mean of their knowledge was 6.37 ± 2.44 . 77.1% (54) of participants had poor knowledge and 18.6% (13) of participants had moderate knowledge. Only 4.3% (3) of participants had good knowledge about HBV. Participants mostly answered correctly to question 6 and their knowledge about question 3 part 4 was mostly not correct. (Chart 1)

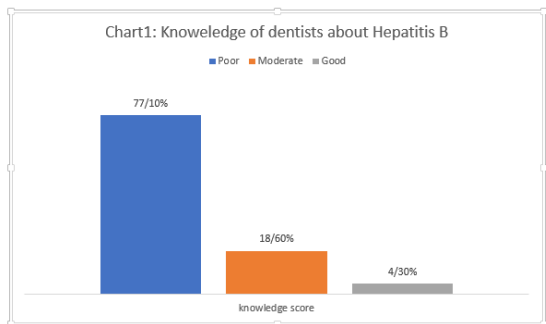


Chart1: Knowledge of Dentists about Hepatitis B

Discussion

In the current study, no relation was found between age and the awareness of dentists about Hepatitis B. However, Kharche et al. observed that younger medical professionals had more awareness compared to those above 40 years.(6) On the contrary, Papagiannis et al. and Mohamamed et al. claimed that medical professionals above 40 years had more knowledge than younger candidates.(10-11)

The result of the current study revealed no difference between male and female participants in terms of knowledge about Hepatitis B. Contrastingly, Saquib et al. found a slightly significant difference between the female and male in knowledge.(5)

In the current study, questions 1 to 6 evaluated the knowledge about Hepatitis B. The mean knowledge of dentists was poor in questions 1 to 5, which assessed their awareness about Hepatitis B. In accordance, Nagpal et al., and Reddy et al. stated that the level of awareness about Hepatitis B virus infection was poor.(12-13) On the contrast, Hassan et al., Samuel et al. and Habiba et al. claimed that the overall knowledge of healthcare workers was good.(14-16) Kumar et al. also, reveals that the majority of dental students were well aware of hepatitis

B. (1) The differences may be due to different study population as Nagpal et al., and Reddy et al. assessed the knowledge of dentists like the current study while Hassan et al., Samuel et al. and Habiba et al. evaluated the knowledge of healthcare workers and Kumar et al. studied the awareness of dental students.(1,12-16)

In this study participants' knowledge about question 6 was good which were about the transmission of HBV. In accordance with this study, Jain et al, reported that dental interns had good knowledge about the HBV transmission. (17) Also, Amir et al. stated that 96.2% of dental students had good knowledge about the transmission of HBV.(4)

In this study, knowledge about the hepatitis B vaccine was assessed. Participants of the current study had moderate knowledge about vaccination protocols. 54.3% of participants answered correctly to questions about vaccination protocols. Amir et al. found that 71.23% of their participants were completely aware of the vaccination program.(4) Sudhakar et al. reported that 81% of dental students were completely aware of the correct protocol for the hepatitis B vaccine.(7)

The current study revealed that 95.7% of participants were vaccinated against hepatitis B and 3.4 % had not received vaccination against hepatitis B. Aslam et al. stated that 96% of their participants who were dental undergraduate students were immunized while 3% were not immunized and 1% did not know about their vaccination status.(18) According to Ravichandran et al. 80.8% of dental students have been vaccinated against HBV.(2) Sudhakar et al. found that 89% of dental students participating in their study were vaccinated.(7) While Kumar et al. reported that only 25% of dental students were vaccinated for hepatitis B infection which was mostly because of their lack of knowledge. (1)

Also, the current study aimed to determine whether the dentist had checked their antibody titer after vaccination. This study claimed that 65.7% of the participants had checked their antibody titer. Santhosh Kumar MP found that

52% of undergraduate dental students had tested for post HBV vaccination.(19) Ravichandran et al. reported that only 13.8% of vaccinated dental students were immunized according to post-HBV immunization serology tests.(2)

Conclusion

Overall knowledge of dentists about HBV was poor in the current study. It is essential to improve the knowledge of dentists about HBV and Hepatitis B. To get information and to improve the awareness of the dentists, retraining courses are suggested.

Conflict of interest

The authors declare that there is no conflict of interest.

References

1. Kumar BR, Monica GS, Arora A. Knowledge and Awareness among Dental Students Regarding Hepatitis B Infection-A Cross Sectional Study. *Int J Res Rev.* 2019;6(10):24-7.
2. Ravichandran RK, Jain J, Ananda SR, Jaduram B. Knowledge, attitude and practices regarding hepatitis B and infection control among clinical dental students. *Int J Applied Dent Sci.* 2019;5(3):42-6.
3. Bafail MA, Allohibi Y, Alotibi A, Bafail SK, Alotaibi B, Albakri M, Alattas S, Ibrahim AB, Hussain Z. Awareness of hepatitis b infection in jeddah population of saudi arabia. *Int J Biol Biotech.* 2020;17(1):65-70.
4. Amir A, Bey A, Aleem A, Qamar Y. Assessment of knowledge, attitudes, and practices of interns in a dental and medical college regarding hepatitisb virus-a cross sectional survey. *Indian J Appl Res.* 2020;10(2):44-46.<https://doi.org/10.36106/ijar/5605053>
5. Saquib S, Ibrahim W, Othman A, Assiri M, Al-Shari H, Al-Qarni A. Exploring the Knowledge, Attitude and Practice Regarding Hepatitis B Infection Among Dental Students in Saudi Arabia: A Cross-Sectional Study. *Macedonian J Med Sci.* 2019;7(5):805-9.<https://doi.org/10.3889/oamjms.2019.111>
6. Kharche J, Bhattu S, Jacob R. Knowledge, attitude and practice of hepatitis-b vaccination among the medical faculty of a teaching hospital, aurangabad. *Int J Sci Res.* 2019;8(6):45-7.
7. Sudhakar U. Knowledge and awareness in managing hepatitis B patients among dental students. *Int J Res Rev.* 2019;5(4):42-7.
8. Pournasiri I, Neshandar Asli H, Abbaspour R, Maleki D. The Effects of Different Sterilization Methods on the Uniformity of Diamond Dental Burs and Changes in the Cutting-Edge Carbide Burs. *J Dentomaxillofac Radiol Pathol Surg.* 2018;7(2):77-84.
9. Soe KP, Pan-ngum W, Nontprasert A, Kittitrakul C, Oam N, Thong VD, Tangkijvanich P, Leowattana W, Poovorawan K. Awareness, knowledge, and practice for hepatitis B infection in Southeast Asia: a cross-sectional study. *J Infect Dev Ctries.* 2019;13(7):656-64.<https://doi.org/10.3855/jidc.10479>
10. Papagiannis D, Tsimtsiou Z, Chatzichristodoulou I, Adamopoulou M, Kallistratos I, Pournaras S, Arvanitidou M, Rachiotis G. Hepatitis B virus vaccination coverage in medical, nursing, and paramedical students: A cross-sectional, multi-centered study in Greece. *Int J Environ Res Public Health.* 2016;13(3):323-32.<https://doi.org/10.3390/ijerph13030323>
11. Ayalew M B, Adugna Horsa B. Hepatitis B vaccination status among health care workers in a tertiary hospital in Ethiopia. *Hepat Res Treat.* 2017; 64(7):65-8. <https://doi.org/10.1155/2017/6470658>
12. Nagpal B, Hegde U. Knowledge, attitude, and practices of hepatitis B infection among dental students. *Int J Med Sci Public Health.* 2016;5(6):1-6.<https://doi.org/10.5455/ijmsph.2016.03102015170>
13. Reddy RS, Swapna LA, Ramesh T. Knowledge, attitude and practice on hepatitis B prevention among dental professionals in India. *Braz J Oral Sci.* 2011;10(4):241-5.
14. Hassan AM, Marium S, Jaffari WZ, Batool I, Rabab U. Knowledge, Attitude and Awareness of Hepatitis B Vaccination in Patients Visiting Jinnah Postgraduate Medical Center, Karachi. *Liaquat National J Prim Care.*2019;1(1):22-6.
15. Samuel SO, Aderibigbe SA, Salami TA, Babatunde OA. Health workers' knowledge, attitude and behaviour towards hepatitis B infection in Southern Nigeria. *Int J Med Med Sci.* 2009;1(10):418-24.
16. Habiba SA, Alrashidi GA, Al-Otaibi AE, Almutairi GR, Makboul G, El-Shazly MK. Knowledge, attitude and behavior of health care workers regarding hepatitis B infection in primary health care, Kuwait. *Greener J Med Sci.* 2012;2(4):77-83.<https://doi.org/10.15580/GJMS.2012.4.GJMS1221>
17. Jain R, Oswal KC, Chitguppi R, Dupare R, Puttaswamy B, Gaikwad R. Knowledge, Attitudes and Practices regarding Hepatitis B Infection among Dental Interns in Mumbai, Maharashtra Journal Article. *Int J Preventive Clin Dent Res.* 2014;1:51-7.<https://doi.org/10.4103/2348-3407.135073>
18. Aslam A, Ali A, Nayyer M, Rehman B, Khan DA, Tariq A. Occupational Hazards in Dentistry-An Assessment of Awareness Among Dental Undergraduate Students. *Pakistan J Med Res.* 2019;58(3):134-40.
19. MP Santhosh Kumar. Knowledge, attitude, and practices regarding infection control among undergraduate dental students. *Asian J Pharm Clin Res.* 2016;9(1):220-4.