

A CROSS-SECTIONAL ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICES TOWARD HEPATITIS B VIRUS INFECTION AMONG DENTISTS OF TERTIARY HOSPITALS IN ISLAMABAD, PAKISTAN

¹BATOOL ZARA, ²NASAR UM MIN ALLAH, ³WAJEEHA JAVED, ⁴SOHAIB SIDDIQUE, ⁵HINA MEHMOOD, ⁶FAIZA HASSAN

ABSTRACT

This cross-sectional study was carried out to assess the knowledge, attitude, and practices (KAPs) of Hepatitis B virus (HBV) infection among dentists of five tertiary hospitals in Islamabad. A total of 192 participants were approached using a convenient sampling technique, over a period of three months from January 2018 to March 2018. Data were collected using self-administered structured questionnaire and analyzed by using SPSS version 22. The response rate was 100% (n=192). The results showed that the mean age of the participants were 28.5 ± 3 years with most of them were females (82%). More than 80% of the study participants had an adequate knowledge on risk factors for HBV, its mode of transmissions, and preventions. Majority (97.9%) of the participants had positive attitude towards following infection control guidelines. The mean score for HBV related practices was 4.76±1.15 revealing good practices among the study participants. In conclusion, this study reveals that majority of the dentists working in tertiary hospitals of Islamabad have good knowledge, attitude and practices towards HBV. However, it is recommended to improve this percentage through health education campaigns and settings so that a greater number of dentists could be benefited.

Keywords: Hepatitis B, Knowledge, Attitude, Practices, Vaccination, Dental professionals

This article may be cited as: Zara B, Min Allah NU, Javed W, Siddique S, Mehmood H, Hassan F. A cross-sectional assessment of knowledge, attitude, and practices toward Hepatitis B virus infection among dentists of tertiary hospitals in Islamabad, Pakistan. *Pak Oral Dent J* 2020; 40(2):66-71.

INTRODUCTION

Hepatitis B is one of the most common life-threatening liver infections caused by Hepatitis B Virus (HBV). According to the recent estimates, an estimated 257

million people are living with HBV infection worldwide with more than 40% of chronic hepatitis patients are at a high risk of developing liver cirrhosis and hepatocellular carcinoma.¹

HBV infection is known to be a global public health concern and is the most common blood-borne viral infection that places health-care professionals (medical and dental) at higher occupational risk.² HBV transmission possibly include unsafe sexual contact, blood transfusion, reuse of contaminated needles, and vertical transmission from mother to child during pregnancy.³ In dentistry, the major route of transmission of HBV infection are from direct contact with infected patients' blood or saliva during dental procedures, while drawing blood, giving injections, or suturing, and needlestick injuries sustained while performing dental procedures.^{4,5} HBV transmission has been confirmed by exposure to saliva and gingival crevicular fluid, making dental professionals more vulnerable to HBV infection.⁶

HBV vaccine is available since 1982. The incidence and related morbidity and mortality of HBV infection

¹ Batool Zara, BDS, MCPS (Periodontology), MPH, C-Ortho, Assistant Professor/HOD, Department of Periodontology, Foundation University and College of Dentistry, Islamabad.

² **Corresponding Author:** Nasar Um Min Allah, BDS, MSc. (Periodontics), Assistant Professor, Department of Periodontology, Foundation University College of Dentistry, Islamabad. House 217, Street 19, G-10/2, Islamabad, Email: nasar.zulfiqarali@gmail.com, Contact: +92 334 9586057

³ Wajeeha Javed, BDS, MCPS (Periodontology), Assistant Professor/HOD, Department of Periodontology, HITEC Dental College and Hospital, Taxila.

⁴ Sohaib Siddique, BDS, MCPS (Periodontology), Senior Registrar, Department of Periodontology, HBS Medical and Dental College, Islamabad.

⁵ Hina Mahmood, BDS, MDS (Periodontology), Assistant Professor/HOD, Department of Periodontology, Islamabad Medical & Dental College, Bara Kahu, Islamabad.

⁶ Faiza Hassan, BDS, M.Phil. Oral Pathology, Assistant Professor/HOD, Department of Oral Pathology, Foundation University College of Dentistry, Islamabad.

Received for Publication: Sept 5, 2019

Revised: Nov 30, 2019

Approved: Jan 10, 2020

has been decreased.^{7,8} Strict adherence to standard microbiological practices and techniques and the use of suitable barrier precautions and pre-exposure vaccines can prevent HBV.^{9, 10} Even following numerous publications on transmission prevention programs and strategies, HBV infections continue to be a major issue for human health.

Knowledge, attitude, and practices (KAPs) study evaluates key knowledge, feelings, trends, or services commonly shared by a public on specific issues. These studies are used later as a practical tool to design and formulate public health policies by considering the awareness, beliefs, and health seeking behavior of the at-risk population. In Pakistan, apart from the published data regarding knowledge, as well as attitude and practice towards the occupational exposure to HBV, there is dearth of information in the literature which specifically addresses the KAPs of professional dentists working in tertiary hospitals albeit the high prevalence of the infection in the general population.

The aim of this study was to assess the KAPs of HBV infection among dentists working in the tertiary care hospitals of Islamabad, Pakistan.

METHODOLOGY

This was a cross-sectional study that was conducted from January 2018 to March 2018. The target population was qualified dentists working in five different tertiary dental hospitals (Islamabad Dental Hospital, Islamic International Dental Hospital, Rawal Dental Hospital, Foundation University Dental Hospital and HBS Dental Hospital) affiliated with dental colleges in Islamabad. By using convenient sampling technique, 192 participants were approached for the data collection. Written informed consent was obtained from each participant and anonymity of the participants was maintained throughout the study. A self-administered structured questionnaire²¹ was used to collect information about the sociodemographic details, knowledge about HBV (each response was scored as ‘yes’, ‘no’ or ‘not sure’), attitude toward HBV (each response was scored as ‘agree’, ‘disagree’ or ‘not sure’), and practices related to HBV (each response was scored as ‘yes’ or ‘no’). Knowledge, attitude, and practice of the study participants towards HBV transmission and prevention were considered as dependent variables; whereas age, sex, marital status and qualification profile was considered as the independent variables. Data was analyzed using SPSS version 22 statistical package software (SPSS Inc., Chicago, IL). Descriptive statistics like frequencies and proportions were used to summarize the data. Comparison of knowledge, attitude and practice (KAP) with and age and qualification profile was analyzed using One-way ANOVA.

RESULTS

A total of 192 participants were approached for the study. All of them were participated in the study making a response rate of 100%. The baseline characteristics of the study participants are shown in Table 1.

Generally, most of the study participants had satisfactory knowledge on HBV infection and its mode of transmission. The response of the study subjects towards Hepatitis B knowledge is presented in Table 2.

The attitudes of the study participants towards HBV infection are summarized in Table 3.

Practices towards HB prevention was assessed by asking six questions as shown in Table 4. However, it was interesting to know that majority of the respondents were never participated in any education program on HB. Overall, there were good practical measures on prevention of HBV infection among the study subjects.

In cross tabulating KAP with age and qualification, there was significant association between knowledge, attitude and practice score and the characteristics age and level of study (Table 5). Participants having good KAP were between the age 25 and above whereas the participants in age group 20–24 had poor knowledge. When compared the qualification profile, participants

TABLE 1: BASELINE CHARACTERISTICS OF THE STUDY PARTICIPANTS

Variables	n (%)
Gender	
Male	34 (17.70%)
Female	158 (82.29%)
Age	
20-24	76 (39.58%)
25-29	91 (47.39%)
> 30	25 (13.02%)
Marital status	
Single	168 (87.5%)
Married	16 (8.3%)
Divorced	8 (4.16%)
Qualification profile	
BDS only	82 (42.70%)
BDS + MSc.	11 (5.72%)
BDS + M.Phil.	13 (6.77%)
BDS + MDS	6 (3.12%)
BDS + MCPS	39 (42.39%)
BDS + FCPS	27 (14.06%)
BDS+ MCPS + FCPS	14 (7.29%)

TABLE 2: RESPONSES OF THE STUDY PARTICIPANTS TO HEPATITIS B KNOWLEDGE

Hepatitis B knowledge questions	Yes n (%)	No n (%)	Not sure n (%)
HBV causes liver cancer	177 (92.1 %)	15 (7.8%)	0 (0.0)
HBV can be transmitted by contaminated blood and body fluids	181 (94.2 %)	9 (4.6%)	2 (1.0%)
HBV can be transmitted by unsterilized syringes, needles and surgical instruments	189 (98.4 %)	0 (0.0)	3 (1.5%)
Hepatitis B transmitted by unsafe sex	165 (85.9 %)	22 (11.4%)	5 (2.6%)
Vaccine can prevent hepatitis B infection	162 (84.3%)	5 (2.6%)	25 (13.0%)
HBV carriers can transmit the infection	172 (89.5%)	1 (0.5%)	19 (9.9%)
HBV has post exposure prophylaxis	114 (59.3%)	64 (33.3%)	14 (7.3%)
Hepatitis B can be cured/treated	101 (52.6%)	62 (32.2%)	29 (15.1%)

TABLE 3: ATTITUDES OF THE STUDY PARTICIPANTS TOWARDS HEPATITIS B PREVENTION

Attitude questions	Agree n (%)	Disagree n (%)	Not sure n (%)
Aware of being infected with HBV	146 (76.0 %)	44 (22.9%)	2 (1.0%)
Following infection control guidelines can prevent from HBV infection	188 (97.9 %)	0 (0.0)	4 (2.1%)
Vaccine for HBV is safe and effective	182 (94.8%)	0 (0.0)	10 (5.2%)
Feel comfortable to treat patients having HBV	166 (86.4 %)	26 (13.5%)	0 (0.0)
All patients should be screened prior to dental treatment	192 (100%)	0 (0.0)	0 (0.0)

TABLE 3: ATTITUDES OF THE STUDY PARTICIPANTS TOWARDS HEPATITIS B PREVENTION

Hepatitis B practice questions	Yes n (%)	No n (%)	Not sure n (%)
Have you ever screened for hepatitis B?	165 (85.9%)	24 (12.5%)	3 (1.5%)
Have you got vaccinated against HBV?	156 (81.2%)	36 (18.7%)	0 (0.0)
How many doses of HBV vaccine did you receive?			
One dose	166 (86.4 %)	26 (13.5%)	0 (0.0)
Two doses	192 (100%)	0 (0.0)	0 (0.0)
Three doses	06 (3.1%)		
Have you ever had a needle prick injury?	114 (59.3%)	52 (27.1%)	26 (13.5%)
I always report for needle stick injury	166 (86.4%)	12 (6.2%)	14 (7.3%)
participated in any education program on HB	121 (63.0%)	69 (35.9%)	2 (1.0%)

having additional postgraduate qualification fell within the good KAP category compared to participants with only basic qualification.

DISCUSSION

The emergence of the blood-borne pathogens and the increasing number of infected patients compel dental professionals to have a thorough knowledge of contagious diseases and the dental management of patients with such diseases. Though there is substan-

tial literature regarding the knowledge and attitude of dentists toward other infectious diseases, very few studies have assessed the different categories of dental healthcare professionals and their attitude toward hepatitis B infection, and very few studies have been conducted in Pakistan to assess their immunization status.^{11, 12} The epidemiology of HBV infection varies distinctly in different areas of the world. Hepatitis B is awfully endemic in developing regions with a large population. In some areas of the world, most of the

TABLE 5: COMPARISON OF KAP STATUS WITH AGE AND QUALIFICATION PROFILE

Variables	Group		Frequency (%)	Mean score (± SD)	Good	Poor	P-value ^a
Knowledge	Age	20-24	39.58	1.77 (1.79)	25	51	0.001**
		25-29	47.39	1.64 (1.33)	72	19	
		> 30	13.02	1.81 (1.94)	25	0	
	Qualification	BDS only	42.70	1.45 (1.22)	12	70	0.012*
		MSc.	5.72	1.83 (1.34)	10	1	
		M.Phil.	6.77	1.24 (1.45)	10	3	
		MDS	3.12	1.37 (1.19)	5	1	
		MCPS	42.39	1.75 (1.54)	34	5	
		FCPS	14.06	1.08 (1.43)	26	1	
Attitude	Age	20-24	39.58	1.70 (1.28)	23	53	0.002**
		25-29	47.39	2.17 (1.20)	69	22	
		> 30	13.02	2.04 (1.46)	23	2	
	Qualification	BDS only	42.70	1.27 (1.92)	17	65	0.005**
		MSc.	5.72	1.99 (1.33)	11	0	
		M.Phil.	6.77	2.02 (1.53)	12	1	
		MDS	3.12	2.02 (1.87)	6	0	
		MCPS	42.39	2.64 (1.71)	36	3	
		FCPS	14.06	1.02 (1.47)	27	0	
Practice	Age	20-24	39.58	1.61 (1.32)	19	57	0.001**
		25-29	47.39	2.08 (1.30)	77	14	
		> 30	13.02	1.53 (1.13)	25	-	
	Qualification	BDS only	42.70	1.94 (1.01)	14	68	0.017*
		MSc.	5.72	1.95 (1.22)	11	0	
		M.Phil.	6.77	2.04 (1.75)	12	1	
		MDS	3.12	1.78 (1.82)	6	0	
		MCPS	42.39	2.13 (1.92)	39	0	
		FCPS	14.06	1.92 (1.44)	27	0	
	MCPS + FCPS	7.29	2.30 (1.71)	14	0		

*Significance at 0.05

**Significance at 0.01

populations show past or present serological record of HBV infection. Most infections appear during infancy or childhood. Most infections in children are asymptomatic, there is little record or confirmation of acute disease related to HBV, but levels of chronic disease and liver cancer in adults are dominant.^{13, 14}

The results obtained by the study were supported by

much of the literature. A study conducted by Aparajita *et al.* in India showed that the researcher did a similar type of study among professional dentists although the results were different from the professionals being involved in the present study.¹⁵

The present study showed that 97.9% of the dentists were aware of the hepatitis B vaccination and its

importance as compared to the Aparajita *et al.* in 2016 (96%) and Tripathi *et al.* in 2014 (86%).^{15, 16} Dentists lacking full vaccination had reasons behind it like 1) carelessness 2) dentists thought that this course was enough and not necessary to complete. Majority of the professionals strongly agreed for the preventive measures for hepatitis B. Fewer studies had been done for knowing behaviors of dentists towards preventive measures in Pakistan. Proper hand washing and utilization of barriers, for example; gloves, outfits, and gowns are the principal parts of standard safety measures which can limit mucocutaneous exposures.¹⁷ Decreasing the control of manual sharp instruments can likewise counteract occupational injuries.¹⁸ The utilization of puncture resistance containers for sharp transfer is likewise a viable system.¹⁹ Utilization of defensive eye products and face cover equipment can help in preventing blood or saliva contact during the surgical procedures.²⁰ Indirect transmission of hepatitis B infection can likewise happen through the dental instruments hence a proper strategy for sanitization and sterilization should be instructed among clinical understudies. Immunization against hepatitis B is prescribed for all the dental students before they begin their clinical career and for susceptible dental practitioners and dental assistant staff.

Poor understanding of Hepatitis B among medical students is due to lack of knowledge at undergraduate level.^{22,23} However, another study indicates sound knowledge of Hepatitis B, but infection control measures were not adequate.²⁴ Another study indicates that overall knowledge about Hepatitis B was satisfactory at undergraduate and young age but few areas like transmission of disease, post exposure measures need improvement.²⁵ Present study indicates less knowledge and practice in undergraduates and around age group of 20-24 years, and improvement is observed with increasing age and qualification. However, this can be improved further by conducting workshops and seminars.

CONCLUSION

This study reveals that majority of the dentists working in tertiary hospitals of Islamabad have good knowledge, attitude and practices towards HBV. However, we recommend improving this percentage through health education campaigns and settings so that a greater number of dentists could be benefited.

ACKNOWLEDGMENT

The authors thank all the administrative staff and participants from different dental institutions for their support during data collection.

REFERENCES

- World Health Organization. Hepatitis B Fact Sheets. 2018; Available from: <https://www.who.int/news-room/fact-sheets/detail/hepatitis-b>.
- Yuen MF, Chen DS, Dusheiko GM, Janssen HL, Lau DT, Locarnini SA, Peters MG, Lai CL. Hepatitis B Virus infection. *Nat Rev Dis Primers*. 2018;7(4):180.
- Kolawole OM, Wahab AA, Adekanle DA, Sibanda, T, Okoh AI. Seroprevalence of Hepatitis B surface antigenemia and its effects on hematological parameters in pregnant women in Osogbo, Nigeria. *Virol J*. 2012;9(1):317.
- O'Connell T, Hayes B. Occupational sharps injuries in a Dublin teaching hospital. *Ir Med J*. 2003;96(5):143-45.
- Al-Zoughool M, Al-Shehri Z. Injury and infection in dental clinics: Risk factors and prevention. *Toxicol Ind Health*. 2018;34(9):609-619.
- Nagpal B, Hegde U. Knowledge, attitude, and practices of hepatitis B infection among dental students. *Int J Med Sci Public Health*. 2016;5(6):1-5.
- Meireles LC, Marinho RT, Van Damme P. Three decades of hepatitis B control with vaccination. *World J Hepatol*. 2015;7(18):2127-32.
- Memon MS, Ansari S, Nizamani R, Khatri NK, Mirza MA, Jafri W. Hepatitis B vaccination status in health care worker of two university hospitals. *J Liaquat Uni Med Health Sci*. 2007;6(2):48-51.
- 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*. 2016;13(3):323.
- Abdela A, Woldu B, Haile K, Mathewos B, Deressa T. Assessment of knowledge, attitudes and practices toward prevention of hepatitis B Virus infection among students of medicine and health sciences in Northwest Ethiopia. *BMC Res Notes*. 2016;9(1):410.
- Wong F, Pai R, Van Schalkwyk J, Yoshida EM. Hepatitis B in pregnancy: a concise review of neonatal vertical transmission and antiviral prophylaxis. *Ann Hepatol*. 2014;13(2):187-95.
- Hollinger FB, Lau DT. Hepatitis B: the pathway to recovery through treatment. *Gastro Clin North Am*. 2016;35(4): 895-931.
- Pettersson JH, Myking S, Elshaug H, Bygdås KI, Stene-Johansen K. Molecular epidemiology of hepatitis B Virus infection in Norway. *BMC Infect Dis*. 2019;19(1):236.
- Pandharbale AA, Gadgil RM, Bhoosreddy AR, Ahire BS, Kunte VR, Shinde MR. An epidemiological study to assess the awareness of hepatitis B infection in the dental students, college staff, practitioners, and auxiliary staff in city of Maharashtra. *J Indian Assoc Public Health Dent* 2015;13:179-82.
- Aparajita D, Mukta M, Durga P, Abhinay P, Chamele J, Ghosh A. Hepatitis B awareness and attitudes among dental professionals in Central India. *J Indian Acad Oral Med Radiol*. 2016;28(3):270-73.
- Tripathi S, Kamala BK, Kiran K. Hepatitis B awareness among the dental professionals, students and dental hygienists in a dental school- An epidemiological study. *Int J Contemp Dent*. 2014;2(1):45-50.
- Akagbo SE, Nortey P, Ackumey MM. Knowledge of standard precautions and barriers to compliance among healthcare workers in the Lower Manya Krobo District, Ghana. *BMC Res*. 2017;10(1):432.
- O'Brien CR, Lim JK. Prevention and Management of Hepatitis B

in Healthcare Professionals. *Curr Hepatology Rep.* 2019;18(1):1-8.

19 Blenkarn JI. Managing sharps injuries: awareness, assessment, reduction. *Br J Health Care Manag.* 2018;24(12):578-80.

20 Roberge RJ. Face shields for infection control: A review. *J Occup Environ Hyg.* 2016;13(4):235-42.

21 Al-Hazmi AH. Knowledge, attitudes and practice of dentists concerning the occupational risks of hepatitis B virus in Al Jouf Province, Saudi Arabia. *Niger J Clin Pract.* 2015;18(2):276-81.

22 Jayakiruthiga S, Rajkamal R, Gopalakrishnan S, Umadevi R. Knowledge, attitude and practices concerning hepatitis B infection, among medical students in urban area of Chennai, Tamil Nadu. *Int J Comm Med Pub Health.* 2018;8(5):35-38.

23 Khan N, Ahmed SM, Khalid MM, Siddiqui SH, Merchant AA. Effect of gender and age on the knowledge, attitude and practice regarding hepatitis B and C and vaccination status of hepatitis B among medical students of Karachi, Pakistan. *J Pak Med Assoc.* 2010;60(6):450-55.

24 Reddy RS, Swapna L, Ramesh T. Knowledge, attitude and practice on hepatitis B prevention among dental professionals in India. *Braz J Oral Sci.* 2011;10(4):241-45.

25 Ali A, Khan S, Malik SM, Haris Iqbal M, Aadil M. Comparison of Knowledge and Attitudes Regarding Hepatitis B Among Healthcare Professionals in Pakistan. *Cureus.* 2017;9(2):1049

CONTRIBUTIONS BY AUTHORS

- | | |
|------------------------------|--|
| 1 Batool Zara: | Conception of study and drafted the initial manuscript. |
| 2 Nasar Um Min Allah: | Study designing, data collection, data analysis, data interpretation and wrote the manuscript. |
| 3 Wajeeha Javed: | Data collection. |
| 4 Sohaib Siddique: | Data collection and data entry. |
| 5 Hina Mahmood: | Data collection. |
| 6 Faiza Hassan: | Data collection. |