

Hepatitis B Vaccination Status of Students and Dentists in Dental Colleges of Pakistan

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ABSTRACT

OBJECTIVE: To determine HBV vaccine compliance in dental students and dentists working in dental colleges of Pakistan.

METHODOLOGY: A cross-sectional study was planned to assess the vaccination status of dentists and dental student through a self-administered questionnaire.

This study was conducted at multiple dental colleges in Lahore, Peshawar, Karachi, Multan, Abbottabad, Quetta, Faisalabad, and Islamabad from 15th June to 30th August 2015.

The sample size was calculated using the WHO calculator. The sample population was estimated at 8800 (200 dentist/dental students in 44 colleges across Pakistan) and the confidence interval was set at 95%. This generated a sample size of 368. However, additional questionnaires were distributed to ensure optimal returns and obtain more accurate results. The sample population was conveniently sampled.

Questionnaires requesting information about the number of doses received, proof of vaccination status and if this proof was submitted before admission or employment, were distributed among dentists and dental students in colleges. A total of 525 questionnaires were returned. The information was recorded in SPSS version 20 and presented as percentages.

RESULTS: From 525 Dental Health Care Workers, 66.8% (n=351) were vaccinated against HBV. From the vaccinated individuals, 54.8% (n=288) had completed the 3-dose regimen. Only 38% (n= 200) of the sampled population were asked to provide proof of vaccination status before being hired, or enrolled.

CONCLUSION: The vaccination compliance rates for HBV vaccine is alarmingly low in dentists and dental students. More efforts are needed at institutional and national level to improve these rates.

KEYWORDS: Hepatitis B vaccination, Students, Dentists, Dental College.

This article may be cited as: Kiyani A, Zafar M, Abbasi A, Bin Saeed MH. Hepatitis B Vaccination Status of Students and Dentists in Dental Colleges of Pakistan. J Liaquat Uni Med Health Sci. 2020;19(01):62-5. doi: 10.22442/jlumhs.201910663

INTRODUCTION

Hepatitis B virus (HBV) infection is one of the leading causes of liver disease in humans. Untreated infections may result in death. The virus transmits by contact with infected blood and body fluids putting health care workers (HCWs) at major risk¹. While the treatment for HBV is long and expensive, an effective vaccine against the infection has been available since 1981. The vaccine is available as a 3-dose regimen administered over a six month period².

Despite inclusion of the HBV vaccine in the extended immunization program (EPI) of the world health organization (WHO) in 2002, the seroprevalence of HBV infection in the Pakistani population is documented at 2.41 to 3.31% in young, healthy, blood donors³. This puts dental students, and dentists providing treatment to these infected individuals at elevated risks for exposure.

The aim of this study was to assess the HBV vaccination status of dentists and dental students in Pakistan.

METHODOLOGY

A cross-sectional study was planned to assess the vaccination status of dentists and dental student through a self-administered questionnaire.

This study was conducted at multiple dental colleges in Lahore, Peshawar, Karachi, Multan, Abbottabad, Quetta, Faisalabad, and Islamabad between the dates 15th June to 30th August 2015.

The sample size was calculated using the WHO calculator. The sample population was estimated at 8800 (200 dentist/dental students in 44 colleges across Pakistan) and the confidence interval was set at 95%. This generated a sample size of 368. However, additional questionnaires were distributed to ensure optimal returns and obtain more accurate results. The sample population was conveniently sampled.

Data collection format was designed using a validated questionnaire from a previous study by Ayalew MB 2017⁴. Information about age, sex, vaccination status including the number of doses administered was recorded. The participants were additionally asked if

they submitted their vaccination record before admission or hiring.

Fifty questionnaires were distributed in each dental college by a single dental student appointed by the college administration. This totaled to 1300 questionnaires in total. The dental student was instructed to approach dental students and dentists in clinics on a single day, explain the purpose of study, distribute the questionnaires and collect them at a later time.

The survey responses were recorded on to a data sheet and analyzed using SPSS version 20. They were presented using percentages.

RESULTS

There were 1300 forms distributed in dental colleges, however, only 525 were returned.

Participants' Demographics:

The age of the participating dental students and dentists ranged between 18-54 years. From a total of 525, 106 (20%) participants were male and 419 (80%) were female, 330 (68.2%) were currently enrolled dental students and 195 (38.2%) practicing dentists. The number of years in practice ranged between 0 to 20 years.

Vaccine Compliance:

Out of 525 participants, 351 (66.8%) were vaccinated against HBV, while 174 (33.14%) were not. Out of 330 dental students, 198 (60%) were vaccinated, and from the 195 dentists, 153 (78.4%) were vaccinated. Only 288 (54.8%) individuals had completed their 3-dose regimen for HBV vaccine, 56 (10.7%) had received only two doses while 7 (1.3%) had received only one dose of the vaccine. This included vaccination records, and/or antibody titers. These results are summarized in Table I.

Proof of Vaccination:

Only 115 (58%) dental students and 54 (35.2%) dentists had proof of their vaccination status. This data was also summarized in Table I.

TABLE I: TABLE SHOWING NUMBER OF VACCINATED PARTICIPANTS, NUMBER OF DOSES RECEIVED, AND THE AVAILABILITY OF PROOF OF VACCINE RECEIPT

		Student(s)	Practitioner(s)	Total
Vaccination Status	Vaccinated	196(60%)	155(78%)	351(66.8%)
	Unvaccinated	131(40%)	43(22%)	174(33.1%)
	Total	327	198	525
Dose(s)	Single dose	5(2.5%)	2(1.3%)	7(1%)
	2-doses	42(21.4%)	14(9%)	56(10.7%)
	3-doses	149(76%)	137(88.3%)	286(54.4%)
Proof with Participants	Available	112(57.1%)	57(36.7%)	169(32.1%)
	Not available	84(42.9%)	98(63.2%)	182(34.7%)

Institutional Requirement for Proof of Vaccination:

In response to the questions regarding submission of any vaccination record, only 200 (38%) of the participating stated that they were asked to provide vaccination record prior to admission into a dental school or employment. These students and employees were all from 4 different institutes based in Islamabad, implying that some sort of an institutional policy may have been in place (Table II). However, other students and employees from the same institute did not report disclosure of status.

TABLE II: NUMBER OF INSTITUTES REQUIRING VACCINATION STATUS DISCLOSURE PRIOR TO ADMISSION OR HIRING

	Requiring disclosure	Not requiring disclosure	Total
Institutions requiring disclosure of vaccination status	3	23	26

DISCUSSION

HBV infection is a transmissible liver disease that can result in significant morbidity and mortality if left untreated. However, a vaccine against HBV has been available since 1981-2². DHCWs are at an increased risk of infection because of the nature of their work⁵. This necessitates HBV vaccination for DHCWs. The results of this investigation show suboptimal vaccination compliance in DHCWs. They also show absence of institutional and national policies to ensure compliance.

Our results show that 66.8% practicing dentists and dental students have received at least one-dose of vaccination against HBV, 10.7% have received two doses, while only 54.8% have completed the 3-dose regimen. Since studies have shown that the efficacy of the 2-dose regimen is similar to the 3-dose regimen in young individuals, the compliance rate in our sample was estimated at 65.5% (n=344)⁶. Our results are similar to the reports of 60% from China⁷. However,

these compliance rates are significantly lower than the 97% reported from Brazil⁸.

Only 38% of our sample was asked for proof before their admissions in dental schools, or being hired for jobs. This reflects the lack of vaccination policies at an institutional level and enforces the need for a national policy to ensure that all Health Care Workers are protected against vaccine-preventable diseases. Developed countries have already implemented institutional, and national policies that mandate disclosure of vaccination status before hiring⁹. Designing and implementing similar policies indigenously will motivate more dental HCWs to get vaccinated against communicable diseases, and protect them from serious complications.

Busy schedule of practitioners and forgetfulness are some of the common reasons behind low vaccination rates¹⁰. Risk of exposure, easy availability of vaccines, infection control training and implementation of local and institutional policies can increase compliance in HCWs^{9,11}.

One of our limitations is reflected in our results; the huge discrepancy in the number of forms collected from each institute. This is because we were not physically present to distribute and collect forms at distant locations and completely dependent on the effort of the administration, whose efforts despite sincerity, may not have been thorough. Also, our sample included a larger female population. This can be explained by a larger percentage (75%) of females attending medical and dental colleges in Pakistan¹².

In conclusion, although a majority of dentists in our sample were vaccinated against HBV, we still have a long way to reach the 100% compliance target. Designing and implementing a national policy that prevents unvaccinated dentists from being hired will serve as strong motivation factor ensuring higher compliance. Institutions should also attempt to devise local policies to ensure that their employees are protected. Effective communication about the risks of HBV infection and provision of free vaccine to dentists may also help in increasing compliance.

Ethical permission: Riphah International University letter No. IIDC/IRC/2015/03/006, dated: 29-04-2015.

Conflict of Interest: There is no conflict of interest.

Funding: There was no any funding agency.

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