

HEPATITIS B AWARENESS AMONG DENTAL STUDENTS IN THODUPUZHA: A Cross Sectional Study

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Abstract

Background: Hepatitis B virus (HBV) infection is a significant public health concern. Dental students play a crucial role in disease prevention due to their direct patient interactions. This study aimed to assess the level of Hepatitis B awareness among dental students and identify areas of knowledge variation across different study years.

Methods: A cross-sectional survey was conducted among dental students from various study years at Thodupuzha. Participants were queried about HBV-related knowledge, including transmission modes, symptoms, prevention, and vaccination. Statistical analyses were performed to compare awareness levels among different study years.

Results: The results revealed varying levels of HBV knowledge among participants. Third-year students exhibited the highest awareness of HBV being an RNA virus (32.2%), while first-year students displayed the lowest (9.8%). Similarly, understanding the incubation period of HBV was most prevalent among second-year students (26.6%). Notably, 64% mistakenly believed HBV to be an active and live vaccine. Awareness of HBV transmission via dental procedures was highest among third-year students (29%), while interns demonstrated the lowest awareness (19.4%). Correct awareness of transmission through saliva was most notable among third and fourth-year students (22.2%). Knowledge of HBV symptoms in the oral cavity was highest among third-year students (31.5%). Furthermore, third-year students demonstrated the highest awareness of HBV complications (29.1%) and its greater life-threatening risk compared to HIV (32.3%). Awareness of preventive measures varied, with 76.6% reporting complete vaccination, while 63.9% were aware of the scheduled vaccine doses.

Conclusion: This study highlights the variability in Hepatitis B awareness among dental students across different study years. The findings underscore the importance of targeted educational interventions to enhance overall HBV knowledge, ensuring the delivery of quality patient care and occupational safety within dental practice.

Keywords: Hepatitis B, awareness, dental students, knowledge, transmission, prevention, vaccination, education, healthcare.

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INTRODUCTION

Hepatitis B (HBV) remains a substantial global health challenge, with a prevalence of approximately 257 million chronic carriers and an annual mortality rate of over 800,000 individuals due to complications such as

cirrhosis and hepatocellular carcinoma. In this context, healthcare professionals, particularly dental students, play a pivotal role in disease prevention, early detection, and patient education ¹. Hepatitis B is a bloodborne pathogen that can be transmitted through percutaneous and mucosal exposure to infected blood and body fluids, making dental healthcare settings potential sources of transmission².

Dental students constitute a crucial segment of the healthcare workforce, with their clinical practices involving direct patient interactions and invasive procedures, thereby heightening their risk of exposure to bloodborne pathogens. Therefore, a comprehensive understanding of HBV, including its transmission, symptoms, prevention, and vaccination, is paramount for these future healthcare providers ³.

This study seeks to explore the levels of knowledge and misconceptions regarding HBV among students from various study years, with the intention of identifying potential areas of improvement in educational approaches.

As a framework for the study, the Health Belief Model (HBM) provides a theoretical lens through which to understand factors influencing HBV awareness and its subsequent impact on preventive behaviours ⁴. The HBM underscores the significance of perceived susceptibility, severity, benefits, barriers, cues to action, and self-efficacy in shaping individuals' health-related decisions.

This research aims to contribute to the existing body of knowledge by pinpointing specific areas of HBV awareness that necessitate targeted interventions. Findings from this study could guide the development of tailored educational programs and curricular enhancements to equip dental students with accurate information and instil a proactive approach toward HBV prevention and patient care.

Methodology

For this study, a cross-sectional survey methodology was employed to investigate the level of awareness concerning Hepatitis B (HBV) among dental students at Thodupuzha. The cross-sectional design allowed for a one-time snapshot of participants' knowledge and perceptions, capturing a diverse representation of students from different study years.

Participants in this study consisted of dental students across various study years, encompassing 1st, 2nd, 3rd, and 4th years, as well as interns. A convenient sampling strategy was used to ensure a practical and diverse participant pool, facilitating a broad overview of HBV awareness among the student population.

The survey instrument was a structured questionnaire and was divided into two main sections: demographic information, including the participant's year of study, and a knowledge assessment section. The knowledge assessment included questions covering HBV transmission mechanisms, symptoms, preventive measures, and vaccination protocols. The survey was administered through a secure online platform, providing participants the flexibility to respond at their convenience and from various locations.

Descriptive statistics, such as frequencies and percentages, were computed to summarize demographic details and participants' answers to knowledge-based inquiries. To identify trends and potential differences between different study years, inferential statistics like chi-square tests were applied, utilizing a significance threshold of $p < 0.05$. Statistical analyses were conducted using SPSS v16.0 software tools.

TABLE 1: DISTRIBUTION OF YEAR OF STUDY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1st year	42	14.0	14.0	14.0
	2nd year	77	25.8	25.8	39.8
	3rd year	84	28.1	28.1	67.9
	4th year	61	20.4	20.4	88.3
	intern	35	11.7	11.7	100.0
	total	299	100.0	100.0	

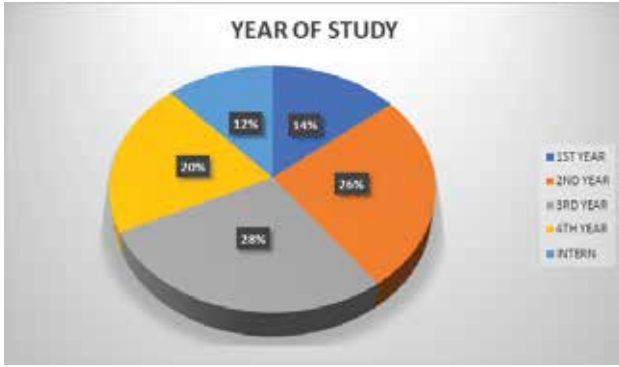


TABLE 2: DISTRIBUTION OF THE QUESTIONS ASKED TO PARTICIPANTS

Question	Frequency	Percent
Is Hepatitis B a RNA Virus?	174	58.2
Is the incubation period of HBV is about 50 to 80 days?	177	59.2
Is Hepatitis active and live vaccine?	194	64.9
Can Hepatitis B be transmitted via dental procedures?	252	84.3
Can Hepatitis B be transmitted via saliva?	162	54.2
Are you aware of symptoms of HBV in oral cavity?	219	73.2
Do you know HBV leads to serious complication such as jaundice & liver cirrhosis?	223	74.6
Do you know that HBV is more life threatening than HIV?	195	65.2
Does HBV spreads through percutaneous injury?	227	75.9
Do you think the autoclave sterilization method can prevent the spread of HBV?	241	80.6
Does immuno-prophylactic vaccine is used to prevent to HBV?	244	81.6
Have you been vaccinated for all doses of HBV?	229	76.6
Do you know the scheduled three dose of vaccine and its duration?	191	63.9

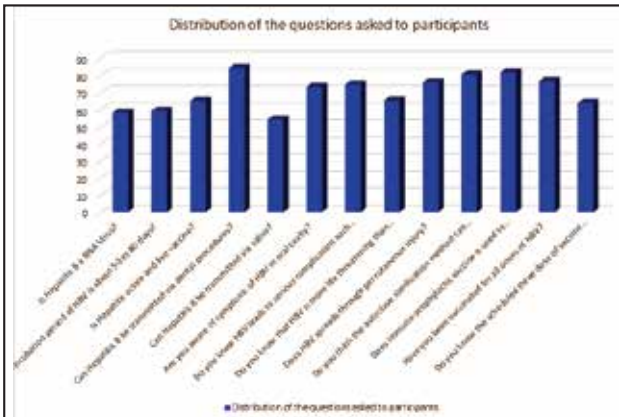


TABLE 3 : COMPARISON BETWEEN YEAR OF STUDY AND QUESTIONS ASKED

		Crosstab					Total	P VALUE
		YEAR OF STUDY						
		1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR	INTER N		
Is Hepatitis B a RNA Virus?	Count	17	39	56	34	28	174	.002
	% within Q1	9.8%	22.4%	32.2%	19.5%	16.1%	100.0%	
Is the incubation period of HBV is about 50 to 80 days?	Count	22	47	43	42	23	177	0.191
	% within Q2	12.4%	26.6%	24.3%	23.7%	13.0%	100.0%	
Is Hepatitis active and live vaccine?	Count	21	49	64	31	29	194	.001
	% within Q3	10.8%	25.3%	33.0%	16.0%	14.9%	100.0%	
Can Hepatitis B be transmitted via dental procedures?	Count	35	61	73	49	34	252	0.134
	% within Q4	13.9%	24.2%	29.0%	19.4%	13.5%	100.0%	
Can Hepatitis B be transmitted via saliva?	Count	24	43	36	36	23	162	0.135
	% within Q5	14.8%	26.5%	22.2%	22.2%	14.2%	100.0%	
Are you aware of symptoms of HBV in oral cavity?	Count	29	46	69	43	32	219	.002
	% within Q6	13.2%	21.0%	31.5%	19.6%	14.6%	100.0%	
Do you know HBV leads to serious complication such as jaundice & liver cirrhosis?	Count	29	52	65	48	29	223	0.303
	% within Q8	13.0%	23.3%	29.1%	21.5%	13.0%	100.0%	
Do you know that HBV is more life threatening than HIV?	Count	23	45	63	37	27	195	.042
	% within Q9	11.8%	23.1%	32.3%	19.0%	13.8%	100.0%	
Does HBV spreads through percutaneous injury?	Count	30	58	64	42	33	227	0.072
	% within Q10	13.2%	25.6%	28.2%	18.5%	14.5%	100.0%	
Do you think the autoclave sterilization method can prevent the spread of HBV?	Count	37	54	67	50	33	241	.024
	% within Q12	15.4%	22.4%	27.8%	20.7%	13.7%	100.0%	
Does immuno-prophylactic vaccine is used to prevent to HBV?	Count	34	62	65	52	31	244	0.602
	% within Q13	13.9%	25.4%	26.6%	21.3%	12.7%	100.0%	
Have you been vaccinated for all doses of HBV?	Count	30	56	61	51	31	229	0.166
	% within Q14	13.1%	24.5%	26.6%	22.3%	13.5%	100.0%	
Do you know the scheduled three dose of vaccine and its duration?	Count	26	49	46	43	27	191	0.140
	% within Q15	13.6%	25.7%	24.1%	22.5%	14.1%	100.0%	

RESULT

The results of the research study conducted among dental students at Thodupuzha provide valuable insights into their awareness of Hepatitis B (HBV). In terms of HBV knowledge, participants from different study years displayed varying levels of awareness. Notably, the highest awareness regarding HBV being an RNA virus was observed among 3rd-year students (32.2%), while 1st-year students exhibited the lowest awareness (9.8%), with this difference being statistically significant. Similarly, understanding the incubation period of HBV (50 to 80 days) was most prevalent among 2nd-year students (26.6%) and least among 1st-year students (12.4%), although this distinction did not yield statistical significance. A significant finding revealed that a considerable 64% erroneously believed HBV to be an active and live vaccine.

Moving on to transmission and symptoms, participants' comprehension of HBV transmission via dental procedures was highest among 3rd-year students (29%), while interns demonstrated the lowest awareness (19.4%), with no statistical significance detected. In terms of HBV transmission through saliva, correct awareness was most pronounced among 3rd and 4th-year students (22.2%), whereas interns displayed the lowest awareness (14.2%). Furthermore, knowledge of HBV symptoms in the oral cavity was found to be highest among 3rd-year students (31.5%), with the lowest awareness noted among 1st-year students (13.2%).

Regarding complications and comparison with HIV, the study revealed that awareness of HBV-related complications, such as jaundice and liver cirrhosis, was most prominent among 3rd-year students (29.1%), while 1st-year students and interns displayed the lowest awareness (13%). Nonetheless, this difference did not reach statistical significance. Conversely, awareness that HBV poses a greater life-threatening risk compared to HIV was most prevalent among 3rd-year students (32.3%), and statistically significant disparities were

observed, with 1st-year students exhibiting the lowest awareness (11.8%).

Exploring prevention and vaccination, participants' understanding of HBV transmission through percutaneous injury was highest among 3rd-year students (28.2%) and lowest among 1st-year students (13.2%), with no statistical significance established. Conversely, accurate awareness that autoclave sterilization effectively prevents HBV transmission was most notable among 3rd-year students (27.8%), while interns demonstrated the lowest awareness (13.7%), and this difference was statistically significant. Knowledge of the immuno-prophylactic vaccine for HBV prevention was highest among 3rd-year students (26.6%) and lowest among interns (12.7%), but this discrepancy did not yield statistical significance. Importantly, a considerable proportion (76.6%) of participants reported complete vaccination for all HBV doses, while 63.9% were familiar with the scheduled three-dose vaccine and its duration.

In summary, this study underscores the variable levels of HBV awareness among dental students, highlighting specific areas of strength and areas that necessitate further education and training. These findings underscore the importance of targeted interventions to enhance overall HBV knowledge among dental students, ultimately contributing to improved patient care and healthcare worker safety within the dental setting.

DISCUSSION

The findings of this research study provide significant insights into the levels of awareness regarding Hepatitis B (HBV) among dental students at Thodupuzha. The study's results illuminate varying levels of knowledge across different study years, revealing both areas of commendable understanding and notable misconceptions.

In terms of HBV knowledge, the observed differences in awareness between study years underscore the influence of education and training. The highest awareness of HBV as an RNA virus among 3rd-year students

(32.2%) may reflect the progression of curriculum and exposure to relevant materials, contributing to their enhanced understanding. Conversely, the comparatively lower awareness among 1st-year students (9.8%) might highlight the need for early intervention and comprehensive HBV education upon entry into dental programs.

The distinctions in awareness regarding the incubation period of HBV suggest that exposure to this information might occur at different stages of the curriculum. Although statistical significance was not achieved, the relatively higher awareness among 2nd-year students (26.6%) indicates a potential improvement in knowledge as students advance in their studies.

Of particular concern is the misconception held by a significant portion of participants (64%) that HBV is an active and live vaccine. This misconception underscores the necessity of addressing and rectifying misinformation within the curriculum to ensure accurate knowledge dissemination.

Moving to transmission and symptoms, the higher awareness of HBV transmission via dental procedures among 3rd-year students (29%) compared to interns (19.4%) could be attributed to the former's more extensive clinical exposure. Similarly, correct awareness of transmission through saliva was notable among 3rd and 4th-year students (22.2%), suggesting that clinical experience may contribute to this understanding. Notably, the relatively lower awareness of symptoms in the oral cavity among 1st-year students (13.2%) highlights the importance of early exposure to symptom recognition within the curriculum.

Regarding complications and risk perception, the higher awareness of HBV-related complications among 3rd-year students (29.1%) aligns with their advanced studies and clinical experience. The substantial awareness that HBV poses a greater life-threatening risk compared to HIV among 3rd-year students (32.3%) underscores the significance of prioritizing HBV education within dental programs.

The varying levels of awareness regarding prevention and vaccination highlight both strengths and opportunities for improvement. The notable awareness of HBV transmission through percutaneous injury among 3rd-year students (28.2%) suggests effective teaching on infection control practices. Accurate awareness of autoclave sterilization as a preventive measure among 3rd-year students (27.8%) is promising, yet the relatively lower awareness among interns (13.7%) indicates a need for continued reinforcement.

While the study reports relatively high awareness of the immuno-prophylactic vaccine for HBV prevention among 3rd-year students (26.6%), the overall awareness among interns (12.7%) could be elevated to ensure consistent knowledge across all study years.

The study's encouraging finding that 76.6% of participants reported complete vaccination for all HBV doses aligns with the importance of healthcare worker immunization. Furthermore, the reported familiarity with the scheduled three-dose vaccine and its duration (63.9%) emphasizes the importance of adhering to recommended vaccination protocols.

In comparison to related studies⁵⁻⁷, this research reinforces the variability in HBV awareness among dental students observed across different contexts. The differences in awareness levels, as well as the presence of misconceptions, highlight the need for tailored and context-specific educational interventions.

In conclusion, this study's comprehensive analysis of HBV awareness among dental students illuminates strengths and areas for improvement within the curriculum. By comparing these results with findings from other studies, a clearer understanding of the global landscape of HBV awareness among dental students can be achieved. The insights gleaned from this research underscore the urgency of enhancing HBV education to equip future dental professionals with accurate knowledge and contribute to improved patient care and safety.

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