



## KNOWLEDGE AND ATTITUDE TOWARDS HEPATITIS B AND HEPATITIS C AMONG DENTAL MEDICINE STUDENTS

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### SUMMARY

**Background:** Hepatitis B (HBV) and hepatitis C viruses (HCV) are highly contagious and important occupational hazard for health workers. Dental practice often includes direct contact with patients' body fluids and exposure at high degree to potentially HBV and HCV infected materials and instruments.

**Purpose:** The purpose of this study is to investigate the level of knowledge about hepatitis B and C infections and the attitude towards hepatitis B virus vaccination among Dental Medicine students.

**Materials and Methods:** A cross-sectional survey was conducted among 96 students of Faculty of Dental Medicine, Medical University of Varna in March, 2015. The questionnaire contained 22 questions divided into 4 major sections. SPSS ver.16 software package was used for statistical data processing.

**Results:** Most of the participants (82,3 %) considered hepatitis B and C as serious diseases and had positive attitude towards HBV vaccination (75 %). Almost 90 % considered that dental practice could enhance the risk of infection with HBV and HCV. Unfortunately, only 57,4 % of students knew their vaccination status and 13,9 % had checked HBV antibodies' level.

**Conclusions:** The majority of respondents demonstrated a high level of knowledge of HBV and HCV infections. All participants were aware about the risk of potential HBV and HCV transmission in their future practice and anticipated applying preventive measures at work. However, deeper information about HBV vaccination and checking anti HBs titer is still needed among dental students, as well continuous target education in the field.

**Keywords:** Hepatitis B, Hepatitis C, Knowledge, Attitude, Dentists, Students,

### INTRODUCTION

Hepatitis B (HBV) and C viruses (HCV) are serious public health problems and major cause of chronic hepatitis, cirrhosis, and hepatocellular carcinoma. HBV and HCV can lead to permanent liver damage and in many cases to fatal end of the host [1, 2]. World Health Organization (WHO) estimates that 2 billion people globally have

been infected with HBV during their life course; 240 million are chronic carriers and 780 000 persons die each year from HBV infections [3]. Similarly, 170 million people worldwide are infected with HCV; 130–150 million people have chronic hepatitis C infection and almost 500 000 people die each year from hepatitis C-associated diseases[4].

Hepatitis B and C are important occupational hazard for health workers, especially for dentists, as dental treatment often includes direct exposure to patients' body fluids. Both viruses are present in high concentration in blood of infected person, and HBV is also present in serous exudates and saliva [3, 4]. The main accident in routine dental practice is needle stick injury [5] and the risk for viral hepatitis transmission by needle stick injury varies from 1,5-2% for HCV to 30-50% for HBV in non immune individuals [6]. HBV infection can be highly preventable by currently accessible safe and effective vaccine, but unfortunately, there is no effective vaccine against HCV infection.

As HBV and HCV infections can cause serious health problems and dentists are a high-risk group for HBV and HCV acquiring and transmission, we aimed to investigate the level of Dental Medicine students' knowledge about hepatitis B and C infection. We also want to evaluate their attitude and practice towards HBV vaccination and to focus the relationship between student's knowledge, attitude and practice with demographic and work-related characteristics.

### MATERIALS AND METHODS

A cross-sectional survey was conducted on 96 students of Faculty of Dental Medicine in Medical University of Varna in March, 2015. We used a validated questionnaire which was distributed among students and collected in the same day. It contained 22 questions into 4 main sections: (1) socio-demographic and work-related characteristics (age, sex, years of work experience and/or years of education) - 5 questions; (2) knowledge about HBV and HCV infections - 3 questions, where 2 were multiple-statement questions with 10 true/false items; (3) evaluation of dental practice - 7 questions (including preventive measures - wearing of gloves and mask, occur-

rence of micro abrasions or open cracks on their hands and past needle injuries); and (4) attitude towards HBV vaccination - 7 questions (vaccination status, antibodies' titer status, reasons for positive or negative attitude towards HBV vaccination).

Anonymity of participants was insured and their oral informed consent was obtained before completion of the questionnaire and after clear description of study objectives.

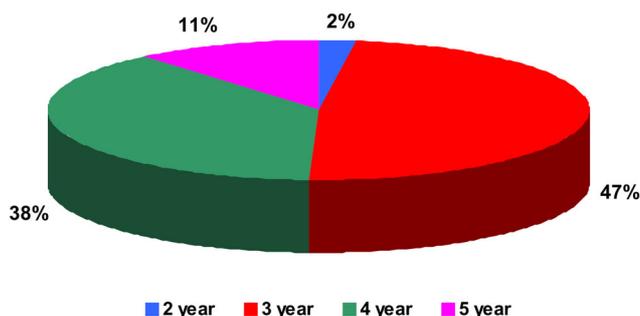
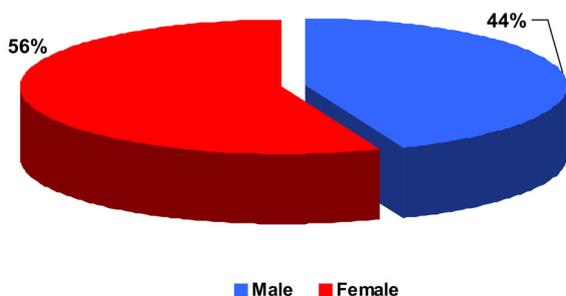
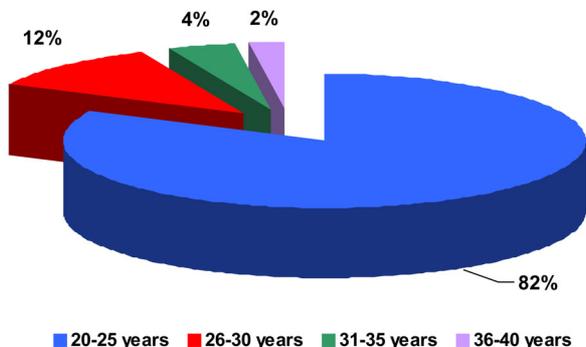
The correct answers to true/false items were selected on the base of the available information and guidelines. Their number was determined and the resulted scores of knowledge were classified into three levels: good (>8 correct answers out of 10), moderate (6-8 correct answers out of 10), and poor (<6 correct answers out of 10).

Statistical data processing was performed with SPSS ver.16 software package. Data were analyzed using one-way analysis of variance (ANOVA), independent sample t-test and Spearman rank correlation coefficient.  $P < 0,05$  was considered statistically significant.

## RESULTS

### Demographic Characteristics of Participants

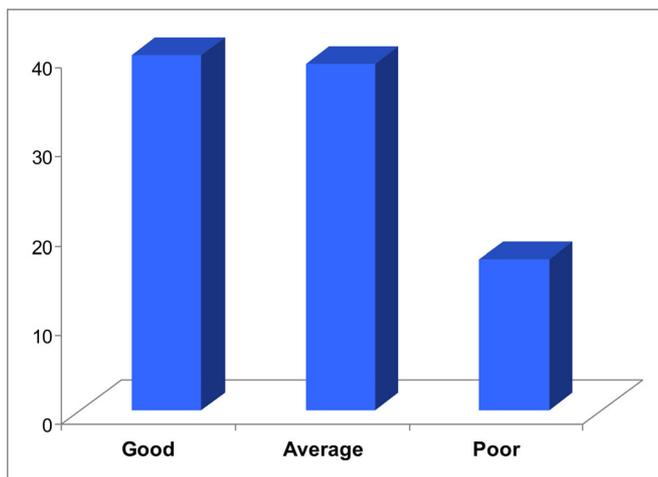
The majority of the participants in this study was in the age group 20-25 years and the lowest number of them was in the group 36-40 years (Fig. 1). Almost half of them (47,3 %) were in their third year of education in Medical University of Varna. Of the total 96 Dental Medicine students, 57 (56 %) were females and 39 (44 %) were males (Fig. 1).



**Fig. 1.** Socio-demographic characteristics of respondents. First panel shows age distribution (blue color - 20-25 years; red - 26-30 years; green - 31-35 years; purple - 36-40 years). Second panel represents gender distribution (blue - males; red - females), and third panel displays year of education of participants in Dental Medicine (blue color - second year; red - third year; green - fourth year; purple - fifth year).

### Level of Knowledge

Most of the respondents demonstrated a high level of knowledge of HBV and HCV infections (41,6% had a good knowledge score with 8-9 correct answers out of 10) (Fig. 2). They were aware of possible routes of transmission: broken skin-blood transmission was recognized as risk by 90,6% of participants; broken skin-saliva – by 62,5% and needle injury – by 87,5%. Intact skin in contact with saliva and intact skin/intact skin contact were correctly considered as not dangerous for HBV/HCV transmission (87,5% and 90,6% respectively). More than 80% of dental students knew that HBV/HCV carrier may look healthy without symptoms. Unfortunately, most of the participants had no idea of the actual HBV/HCV prevalence in Bulgaria but considered it higher than 1% (70,8% and 61,5% for HBV and HCV respectively). Their responses to the questions „What percentage of your patients do you believe are positive for HBV (HCV respectively)”? varied widely between 2 and above 50%. No statistically significant association between knowledge score and demographic and work-related characteristics of respondents was found.



**Fig. 2.** Total knowledge score of respondents – good (>8 correct answers out of 10), moderate (6-8 correct answers), and poor (<6 correct answers).

### Practice Evaluation

Almost 90% of students were afraid of being in-

fectured with HBV or HCV during their routine practice and 100% of them considered wearing gloves and mask as necessary. Forty five percent of future dentists declared that they have micro abrasions or open cracks on their hands and 5% admitted to have past needle injury or other accident of possible contamination during treatment of HBV or HCV positive patient. Secondary to a needle stick, 66,7% of the participants considered that they should be treated with a vaccine, 89,1% - with an immunoglobulin, while only 21,1% should envisaged a consultation with a specialist after accident with HBV/HCV contaminated material or instrument.

### Attitude towards HBV Vaccination

Most of the respondents (82,3%) believed that hepatitis B is a serious disease and had positive attitude towards HBV vaccination. Seventy five percent of them thought that hepatitis B vaccine was effective in preventing the disease, 70,8% believed HBV vaccine could prevent spread of the infection to patients and 80,2% saw it as protective for family members (Table 1). Reasons for negative attitude mainly consist of worries about negative adverse effects (6,3%) and ineffectiveness (4,2%) (Table 1).

**Table 1.** Positive/negative attitude towards HBV vaccine among dental students.

I have a positive attitude towards HBV vaccine because:	Agreed
I am at risk because of the nature of my work	89,6%
Vaccination prevents spread of infection to patients	70,8%
Vaccination protects my family members	80,2%
Vaccination is mandatory	42,7%
Hepatitis vaccine is effective in preventing the disease	75,0%
The risk of death among vaccinated persons is reduced	47,9%
I have a negative attitude towards HBV vaccine because:	
I am worried about its adverse effects	6,3%
I am afraid of injection	1,0%
It is not effective in disease protection	4,2%
I am not at high risk	1,0%

Although the majority of participants had high rate of knowledge on HBV transmission routes and ways of prevention, only 57,4 % of them declared to have hepatitis B vaccine. Unfortunately, 42,6 % of students considered that they had not received vaccine against HBV - a surprising result as the majority (~80 % of the responders) were born after 1992, when hepatitis B vaccination became mandatory for all healthy newborns in Bulgaria.

Other alarming result was that only 13,9 % of the participants had checked their antibody titer.

### DISCUSSION

Our present study evaluates the level of knowledge, attitude and practice of Dental Medicine students from Medical University of Varna about hepatitis B and C infections.

Dentists and dental staff are one of the most vulnerable groups for work-related HBV or HCV transmis-

sion. In Bulgaria, 2,06% of dentists, 2,82% of dental nurses and 6,82% of dental prosthetic technicians are positive for HBV surface antigen (HbsAg) [7]. Although the prevalence of HBsAg seropositivity among dentists decreases gradually in the last decades [7], it is still unacceptably high and presents serious risk,

The majority of participants in our study showed high or average rate of knowledge concerning HBV and HCV route of transmission and prevention. Similar results were found in previous studies assessing HBV knowledge in dental students and dentists worldwide [8 - 10] - students in Dental Medicine were relatively aware of current risk posed by hepatitis in dental practice and knew how to protect themselves and patients from hepatitis spread. Association of knowledge with socio-demographic and work-related variables was not significant ( $p > 0,05$ ) but the correlation between the knowledge and positive attitude towards HBV vaccination was significant ( $p < 0,05$ ) -

knowledge scores were relatively high for respondents believing HBV vaccine effective in disease prevention ( $p=0,02$ ).

Only 57,4 % of studied population declared to have hepatitis B vaccine and 42,6% considered that they had not received vaccine against HBV, although most of them were born after the implementation of mandatory HBV vaccine in Bulgaria. This unanticipated result contributes to a potential limitation of the present study - the self administered questionnaire can not distinguish between absence of vaccine and absence of knowledge about it.

In addition to the ignorance of vaccination status, only 13,9 % of the respondents had controlled their HBsAg antibody titer. Among Iranian dentists 36,5% knows their HBs antibody titer [11] - a significantly higher proportion compared to our result. However, this difference can be explained with the absence of dental practice - in our sur-

vey only students in Dental Medicine and not practicing and experienced dentists were included. Mansour-Ghanael [12] obtained a comparable results about student's knowledge - only 16,7% of medical students in their study had checked the antibody titer.

## CONCLUSION

Knowledge about hepatitis B and C viruses, their routes of transmission, prevention and HBV vaccine is relatively high among Dental Medicine students in Varna Medical University. However, there are some significant gaps in the knowledge about HBV vaccination. Based on the results from this survey, we consider that reorganization of the studying program, as well as continuous training are necessary in order to reduce the burden of the disease among future dentists.

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