

# Occupational hazards awareness and preventive practices among students of a dental institution in South India

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## Abstract

**Background:** Dentists are constantly exposed to numerous occupational health risks. These can cause the appearance of numerous infirmities, which further develop and intensify with time.

**Objective:** To assess the level of awareness of occupational hazards and preventive practices among the dental students in dental college and hospital.

**Materials and Methods:** The study was conducted at a dental institution in South India using self-administered questionnaires. All the students attending the second-year bachelor of dental surgery (BDS) and Internship of the college were included in the study. Total number of participants included was 160 comprising 82 second year BDS and 78 internship students of the institution. The self-administered questionnaire also included questions on baseline characteristic information such as gender, age, and years of study. Data were analyzed using SPSS, version 15.0.

**Results:** The most prevalent preventive measure reported by the participants was the use of facemask (99.4%), wearing gloves on a routine basis (98.1%), and changing gloves between the patients (96.2%). Majority (84.4%) of the study participants were vaccinated against Hepatitis B. Only 57.5% study participants had regular exposure to dental amalgam, and 43.8% feel stress while working in clinic or laboratory. Overall, internship students score for better awareness and preventive practices; this was found to be statistically significant (Table 1). Clinical practices were better among the internship group of participants as compared to second-year BDS students.

**Conclusion:** Majority of the study participants were aware of the biological, chemical, and physical health hazards associated with dentistry but incapable to follow preventive measures in daily routine. The number of years of study and clinical hours spent improves the knowledge and practices of occupational hazard awareness and preventive practices among dental professionals.

**KEY WORDS:** Occupational hazards, dental students, preventive practices

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## Introduction

Dentists constitute a group of professionals who are likely to get exposed to biological, chemical, and physical health hazards. A dentist can get infected either directly or indirectly from different sources during clinical work. It is due to long working hours, changing shifts, physically demanding tasks, and exposures to infectious diseases; harmful chemicals

**Table 1:** Association between number of study years and awareness (n= 160)

Variables	Second year	Internship	<i>p</i> Value
Hepatitis B vaccination			
Yes	62	73	0.002
No	20	5	
Washing hands before and after wearing gloves			
Yes	57	77	0.001
No	25	1	
Sharps injury over the past 6 months			
Yes	32	15	0.009
No	50	63	
Regular contact with amalgam			
Yes	64	28	0.001
No	17	50	
Knowledge on whom to report exposure incident			
Yes	12	70	0.001
No	64	14	
Knowledge on use of disinfectants			
Yes	28	61	0.001
No	54	17	
Knowledge of silicosis			
Yes	52	66	0.004
No	30	12	

are sources of hazards that put these professionals at risk for illness and injury. Occupational hazard refers to a risk or danger as a consequence of the nature or working conditions of a specific work.<sup>[1]</sup> The history of occupational hazard awareness can be traced back to the eighteenth century when Bernadino Ramazzini, who is referred to as the father of occupational medicine, recognized the role of occupation in dynamics of health and diseases.<sup>[2,3]</sup> Dentistry is known to be a profession with a variety of environmental factors that prove to affect the health of dentists or even aggregate their pre-existing ailments.<sup>[4,5]</sup> However, modernization of dental profession reduces the risk of occupational hazards; in spite, many risks remain in dental practices, which continue to challenge this status.<sup>[6]</sup> Carrying out their professional work, dentists are exposed to numerous occupational hazards. This cause the appearance of diseases and disorders, which further develop and intensify with time.<sup>[7]</sup>

In addition, through this kind of health-care practice, many infectious agents may be transmitted<sup>[8]</sup> as the dentists and patients are in direct or indirect contact with traumatized tissues, saliva, blood, and other body fluids on a daily basis.<sup>[9]</sup> Where such risks cannot be figured out of the dental clinic, appropriate occupational health and safety measures need to

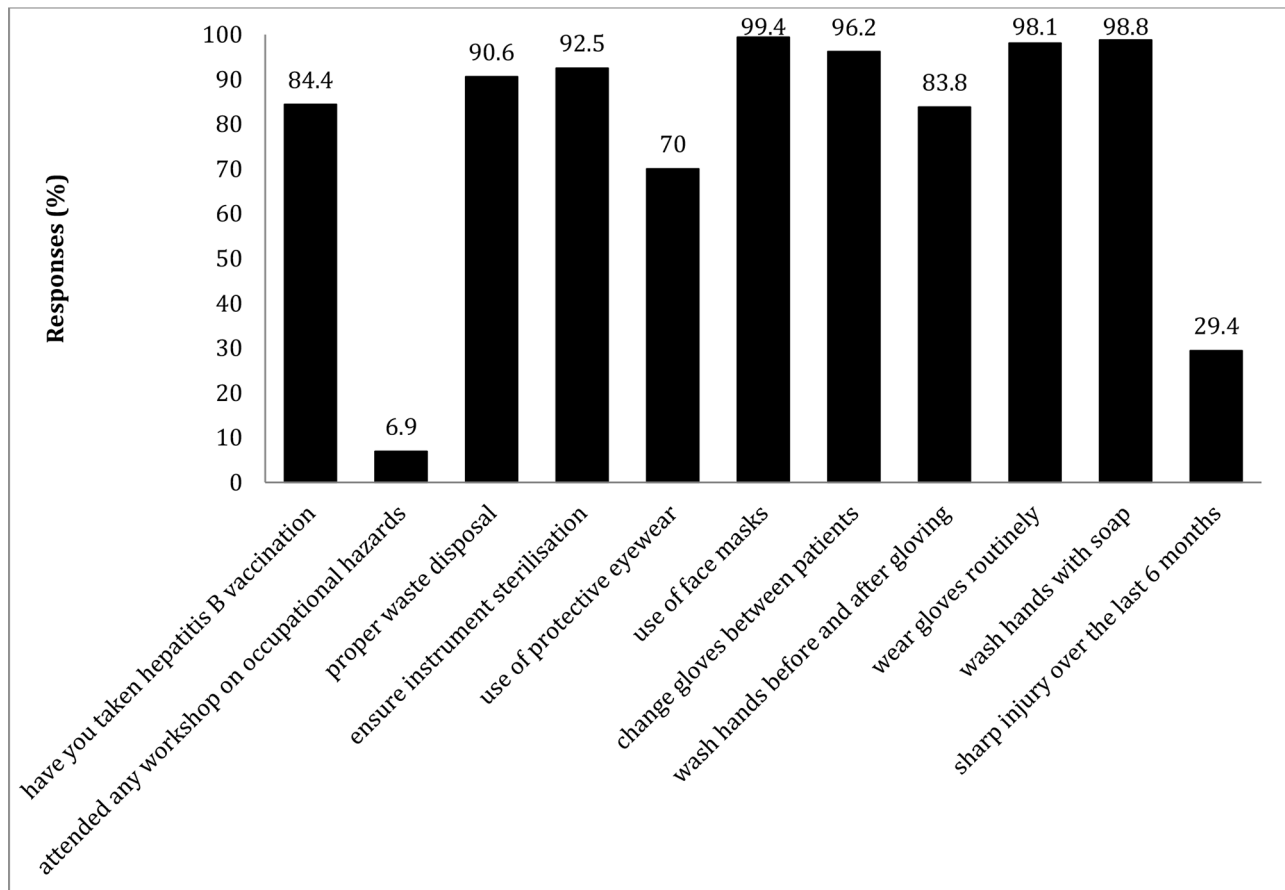
be adopted and adhered to, by dental professionals. Assessment of the occupational hazard awareness among dental students would help in motivating and planning preventive strategies at the training and teaching level. Hence, the current study was aimed to assess the level of awareness and preventive measures practice by the students studying at a dental institution in South India.

## Materials and Methods

This study was conducted at Manipal College of Dental Sciences (MCOADS), Manipal, India. The data were obtained using a self-administrated questionnaire that included questions on baseline characteristics, awareness of occupational hazards, and safety measures practiced by the study participants. Informed consent was obtained from all the participants and ethical approval was obtained from the institutional ethical committee for conducting the study. The study participants were asked to answer each questionnaire item as “yes” or “no” closed-ended questionnaire. All the students attending the second year class (preclinical) and all internship students (postclinical) attending the clinics of the hospital were included in the study. Subsequently, 164 dental students agreed to participate in the study voluntarily and completed the questionnaires. However, four questionnaires were rejected as they were either incomplete or had multiple responses for questions. The final sample size was 160 students including 82 students from second-year bachelor of dental surgery and 78 students from internship. Statistical Package for Social Sciences (SPSS), version 15.0 was used for statistical analysis. The data have been presented as frequency tables, and chi square test was used to assess the association between the year of study and their respective responses.

## Results

All participants were well aware of the term occupational hazards and its definition with its risk factors at workplace. Out of the 160 participants, 72.5% were females and 27.5% were males. The mean age of the study participants was  $21.40 \pm 1.72$  years. About 29.4% study participants experienced an injury from a sharp instrument over the past 6 months and 57.5% had regular exposure to dental amalgam. There was no significant difference between the genders for preventive measures undertaken against occupational hazards at workplace. Figure 1 shows that the most prevalent preventive practice reported by the participants was use of face mask (99.4%) and changing gloves between the patients (96.2%). However, only 6.9% of the participants had attended workshops or conferences on occupational hazards. It is significant to notice that 3.8% participants reported latex allergy in the current study and 84.4% of the participants were vaccinated against Hepatitis B. By using chi square test, significant *p* value is found for Hepatitis B vaccination (0.002), washing hands before and after wearing gloves



**Figure 1:** Preventive measures undertaken by the study participants.

(0.001), sharp injury over the past 6 months (0.009), regular contact with amalgam (0.001), knowledge on where to report exposure incident (0.001), knowledge about the use of disinfectant (0.001), and awareness about silicosis (0.004) among the internship and second-year BDS Students. This clearly shows that clinical experience and practice with more years of clinical exposure improved the knowledge, awareness, and preventive practices among dental professionals.

## Discussion

The present trends of dentistry in India demands more lecture hours, competition, and proper time management among the students. At workplace, dentist assumes a strained posture both while standing and sitting close to the patients who remain in a sitting or a lying position; this over-stress negatively affects the musculoskeletal system.<sup>[10]</sup> In the present study, only 35.5% of the participants reported any kind of musculoskeletal problem; this finding is significantly lower than past surveys among Danish, Israel, and US military and Australian dentist where 50%–60% of the

dentists reported musculoskeletal pain.<sup>[11]</sup> Turjanamaa et al.<sup>[12]</sup> observed that 8.8% of the dentists were found to be allergic to latex which is more than 3.8% reported in the present study. Sharp instrument injuries represent the most efficient method for transmitting blood-borne infections between patients and health-care professionals.<sup>[11]</sup> In the present study (29.4%), participants reported sharp instruments injury, which is significantly lower. In contrast, 72% of the dental students of Australia<sup>[14]</sup> had experienced sharp instrument injury during their clinical training. Wearing of face masks and changing of the gloves were the preventive measures routinely employed by the study population in accordance to previous studies.<sup>[15,16]</sup> Only 6.9% of the participants reported of attending workshops on occupational health, similar finding was reported by Tadakamadla et al.<sup>[17]</sup> It was motivating to note that 84.4% of the participants had taken Hepatitis B vaccination. However, in a previous report among Indian Navy dentists, all the subjects were vaccinated against Hepatitis B,<sup>[1]</sup> whereas this was only 38% in dentists of East Jerusalem.<sup>[6]</sup> Majority of the participants were well aware about the biological hazards (HIV and HBV) associated with dentistry, which might be a reason for many participants in our study undergoing vaccination.

## Conclusion

Majority of the participants were aware of the biological, chemical, and physical hazards associated with the practice of dentistry. Occupational hazard awareness among dental students will help in motivating and planning preventive strategies at the training and teaching level. If the knowledge of preventive practices is imparted during the curriculum, it will result in the use of effective practice of dentistry in future.

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