Original Article

International Journal of Dental and Health Sciences
Volume 04,Issue 05

OCCUPATIONAL HAZARDS AMONG THE PRACTICING DENTISTS IN KARACHI, PAKISTAN

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ABSTRACT:

Aim:To investigate the prevalence of occupational hazards and measures of prevention among dental professionals of Karachi, Pakistan.

Materials and Methods: A self-administered questionnaire was distributed to dental professionals which recorded demographic variables, different types of occupational hazards and their preventive measures. Among 150 dentists, 115 returned completed forms. Over all response rate was 76.6%. Descriptive statistics were recorded using SPSS Version 23.0.

Results: Injury from sharp objects was found to be most common (46%). Amongst the sharps, needle stick injury had the highest percentage (48%). Musculoskeletal problems were recorded in (28%) of the dental professionals , (18%) had stress related to their job and (8%) had allergies from dental consumables and products. (80%) of the dentists were vaccinated against hepatitis B-virus and infection control was being observed by the majority. A very low percentage of dentists (5%) disposed of excess amalgam correctly. (90%) did not routinely measure the x-ray radiation. Satisfaction from job and their working hours was observed in (52.2%) of dentists.

Conclusion: High occurrence of occupational hazards were recorded in the current study and dentists did not follow prevention methods properly. Therefore, knowledge of the dentists should be improved regarding prevention and management of these occupational hazards.

Keywords: Occupational hazards, Dentists, Injury

INTRODUCTION:

Dentistry in the modern times has been designated as probably amongst the least hazardous of all occupations. However, many risks continue to challenge this status in the dental practice.[1] a sizable amount of evidence implies that dentistry can be disadvantageous to the long-term general well-being and overall health of an individual, owing to the mentally and physically challenging nature of the profession.[2] Dentists are exposed to numerous occupational hazards. The occupational hazards found among dentists and other dental professionals in the clinic, are similar all over the world. These comprise of a wide array of risks and sometimes even legal hazards. The cause of these hazards is the environment at work, which can include chemical, physical, biological, social and mechanical aspects. The chemical hazards may include exposure to microbial aerosols produced by high-speed hand pieces in the dental unit water systems and contact with various different chemicals used in dental practice.[3]

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Physical hazards include long work hours under high level of attentiveness, working with apprehensive patients and working in a sedentary state.[3] These cause numerous illnesses that are specific to the profession, which develop and exaggerate over the years. In many cases they result in diseases and disease complexes, some of which are regarded as occupational illnesses.[4] It is evident that where such risks cannot be engineered out of the dental clinic, appropriate occupational health and safety measures need to be adopted and strictly adhered to, by the dentists and their dental staff.[1] Minimal data is available regarding "occupational hazards in dentistry" in the developing countries as majority of studies on this subject has been carried out in the developed countries.[5-12] Therefore the aim of this study is to evaluate the status of "occupational hazards" amongst the practicing dentists in Karachi, Pakistan.

MATERIALS AND METHODS:

The study was conducted among dentists practicing in three different dental hospitals of Karachi. Total of 150 dentists were selected by random selection to fill the questionnaire out of which 115 dentists returned the completed forms. Informed consent was obtained from all the participants of the study.

A two page self-administered questionnaire was prepared. The first part of the questionnaire recorded demographic variables and had questions relating to dental occupational hazards like injury from sharp instruments, musculoskeletal problems, allergies and job related stress.

The second part included questions relating to status of preventive measures done in their daily practice like immunization status against hepatitis, methods of dental amalgam disposal and measurement of radiation exposure. Lastly, questions related to subjects satisfaction with working hours and job related stress were asked. Descriptive statistics were recorded using SPSS Version 23.0 .

RESULTS:

150 questionnaires were distributed among which 115 dentists completed and returned it. Overall response rate was 76.6%. Incomplete forms were excluded from the analysis. Our sample comrpised of 58% male dentists and 42% female dentists. Out of 115 dentists 46% of the dentists had experienced injury from sharp objects in their practice out of which needle stick injury was most common 48% followed by injury from probe 30%, pricks from endodontic files 15% and injuries from high speed burs 7%. Only 20% got post-exposure prophylactic treatment.

Secong highest occupational hazard reported was musculoskeletal problem 28%. 18% of the participants reported job related stress. 8% reported of allergies from dental materials and latex gloves. (80%) of the dentists were vaccinated against hepatitis B-virus and infection control was being observed by the majority. A very low percentage of

dentists (5%) disposed of excess amalgam correctly while (95%) were disposing off amalgam in water or dustbin. 90% of the dentists did not routinely measure the xray radiation exposure. While 52% of the dentists were satisfied from their job and working hours.

DISCUSSION:

This study was conducted amongst dentists working in three different dental hospitals in Karachi, Pakistan. A total of 115 dentists out of 150 responded to the study. This can be considered a satisfactory response rate (76.6%). The most common reason for non-participation of the dentists was their busy schedules. Injury from sharp objects is by far the major concern as it proves to be a source of spread of several communicable agents including HIV and different types of hepatitis viruses. In our study 46% of the dental gave a positive history of such injuries. This is in accordance to the studies carried out in Nigeria[3], Australia.[5] and Thailand[6] that shows 36%, 27.7%, and 50% of positive history of such injuries respectively. The most common cause was needle stick injury (48%) which in accordance with the studies carried out in various countries.[3,5-8]

Musculoskeletal disorders including neck and shoulder pain, lower back pain and wrist aches are common hazards encountered in dentistry. A total of 28% of the participants complained of one or more musculoskeletal disorders. Some studies reported the prevalence of MSD to be as high as 59-87%, which has led the dentists to either, retire early or caused cardiovascular diseases amongst them.[6,10,13] Only 8% of the participants suffered allergies from latex gloves and dental materials being used for different purposes. These results are in contrast to the other studies.[6,9,11,14]

Job related stress is a part of all professions, and dentistry is no exception to it. In our study 18% of the respondents fell victim to stress. These reported values are substantially lesser than those reported by Kay and Lowe [2], Leggat *et al*. in Thailand[8], Gijbels *et al*.[9] in Belgium and Myers and Myers.[15] which reported a prevalence of 86%, 96.1%, 54.1% and 60% respectively. The chief reasons for the tension and the stress in the dentists are mainly the long working hours, Patient and staff communications, satisfaction with the job and medico legal problems.[14]

It is extremely important for a dentist to be vaccinated for Hepatitis B since they are exposed to the various bodily fluids of the patients. In our study 80% of the dentists were immunized against the hepatitis B virus. These figures are similar to those stated in other studies. Alot of dentists were following the correct method of infection control and hospital waste disposal management in the their clinics. Similar findings were also reported by other authors.[7,12]

By far, Amalgam is the most hazardous material used in dentistry. It poses a threat to dentists, dental staff and general public if it isn't handled and

disposed off appropriately. In our study, 95% were disposing off amalgam in water or dustbin. These figures are alarmingly high and far more than as stated by Leggat.[12] Only 5% were keeping excess amalgam in radiographic fixer, which is contemplated to be the correct method.[14] 90% of the dentists did not routinely measure the xray radiation exposure. This is a cause of grave concern, because majority of the dentists have a conical positioning device in their X-ray machine.[12] Overall, half of the dentists were satisfied with their job and working hours and were taking regular breaks from their routine. This percentage is similar as reported in a study done on dentists working in the UK by Kay and Lowe.[2]

Our study, as with any questionnaire based study, has limitations especially that of false reporting, as dentists are very well conscious of what suitable measures are to be taken for prevention of various occupational hazards, which they must have studied in dental school. False reporting is likely since the investigators carried out no inspection physically.

CONCLUSION:

The present study concludes that there is a dire need of awareness of dentists regarding the occupational hazards that they encounter during their practice. Areas that require special attention are post exposure prophylaxis required after injury from sharp objects, radiation exposure and protection, proper storage and disposal of excess amalgam and management of stress. Educational initiatives and continuous refreshment of knowledge should be done on regular basis through educational seminars and workshops.

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