DOI: https://doi.org/10.53350/pjmhs2115123261

ORIGINAL ARTICLE

Incidence and Knowledge of Occupational Health Hazards in Prosthodontic Practice at a Tertiary Hospital in Islamabad

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ABSTRACT

Aim: To explore various occupational hazards and assess the level of awareness among dental students
Methods: Data was prospectively collected from 80 under-graduate and post-graduate students on voluntary basis. A questionnaire pertaining to the occupational hazards was handed over to the subjects and their responses were then tabulated for statistical analysis. The study design was descriptive cross sectional.
Results: Among 80 participants, chemical burns was reported by 18(22.5%), thermal burns via hot instrument by 72(90%), injuries from spirit lamp by 64(80%) , needle prick injury by 37(46.3%), injuries from sharp instruments by 74(92.5%), injuries from micro-motor by 48(60%), allergic dermatitis by 25(31.3%), hot material injury by 63(78.8%) and eye irritation by 31(38.8%). While performing daily procedures and handling patients, 100% wore gloves, 95% of the participants wore masks, 32% used protective eye wear, 97.5% followed safety protocols and 92.5% washed their hands post-operatively. Adequate knowledge regarding occupational safety was reported by 100% of participants. The source of knowledge was found to be electronic media among 50% participants, social media among 27.5% participants and social media among the remaining 22.5%. Alarmingly, only 7.5% participants had received training regarding occupational safety. 48.8% followed occupational safety protocols and 93.8% were aware of the system that existed in case of any accidents happened.
Conclusion: The findings of this study are consistent with the previous studies indicating a high risk of occupational health hazards in dentistry.
Keywords: Occupational accidents, Prosthodontics, Allergic dermatitis

INTRODUCTION

Any threat to an individual due to the working conditions at job is termed as an Occupational hazard[1]. It is a vast term and encompasses minor injuries, major injuries including lethal accidents, hypersensitive allergic responses and systemic effects. The impact of such conditions can be observed immediately or at a latter period[2]. Owing to the intricate nature of their job, dentists report more common health issues than other high threat medical professionals.[3] The possible risk to prosthodontists comes from chemicals, inhalation of vapors, dust elements, harm from high speed rotary apparatus and flammable substances.[4] Thermal wounds from autoclaves, Bunsen burners, furnaces can also occur.[5,6] Methacrylates, surgical gloves, allergens, natural rubber latex, gluteraldehyde etc. are probable allergens that lead to several dermatological reactions and respiratory illnesses[7,8].

Infection control is vital in dental practice as the dental professionals are at great risk and occurrence of new transmissible diseases like hepatitis, HIV and spreading diseases like tuberculosis makes it significant to control the spread.[9,10,11,12] The growth in prosthodontics is considered by an increasing number of new prosthetic supplies. There are a vast number of characteristics of the prosthetic materials, which must be as near to ideal as increasing requirements of patients, biologic, physical, chemical, and aesthetic compatibility that have to be considered.[13, 14] Prosthodontic practice needs contact with restorative and secondary dental materials of different configuration such as metals, resin polymers, cements, impression and restorative materials. Seepage and transmission of allergic constituents from these materials carry the danger of hypersensitive reactions among patients, dental workers, and laboratory technicians.[15] A survey conducted in New Zealand reported similar findings with more than 40% of dental professionals affected with skin dermatosis, itchy eyes, nose or airway problem in their career.[2] The same survey also reported a female predilection of allergic incidences with a ratio of 2:1.

Received on 11-06-2021
Accepted on 22-11-2021

The objective of this study was to evaluate the level of awareness of occupational health threats in a prosthodontic training. Since no local studies had been carried out in this respect, this study will help to encourage awareness about these occupational hazards and execution of precautionary approaches that can offer a harmless working atmosphere for the dental professionals.

MATERIALS AND METHODS

The sample size included 80 under-graduate and post-graduate students pursuing education in Islamic International Dental College. After informed consent, data was prospectively collected using structured performas pertaining to the occupational hazards. One performa was used to record the incidence of occupational hazards while the others were used to assess the knowledge regarding occupation safety and its practical implementation. The responses on all performas were then tabulated for statistical analysis. The study design was descriptive cross sectional.

RESULTS

After the collection and statistical analysis of data from the 80 participants, results were tabulated. Table 1 depicts the incidence of occupational hazards. The knowledge regarding occupation safety returned promising results as shown in Table 2. The results of last performa that assessed the practical implementation of knowledge regarding occupation safety are depicted in Table 3. Adequate knowledge regarding occupational safety was reported by 100% of participants. The source of knowledge was found to be electronic media among 50% participants, social media among 27.5% participants and social media among the remaining 22.5%.

There was no significant difference between the students that had received training of occupational hazards than students that had not received any training. Only 6 students had received training of occupational safety, out of which none reported allergic dermatitis or injuries from monomer, 2 reported needle stick injury, 4 stated eye irritation and 5 informed injuries from sprit lamp, sharp

instrument and micro-motors while all had been injured from hot instruments and materials.

Table 1: Incidence of Occupational Hazards (n=80)

Questions	Yes		No	
	No.	%age	No.	%age
Injured by chemicals like monomer.	18	22.5	62	77.5
Injured by flame from the spirit lamp or burner.	64	80%	16	20
Injured by hot instruments.	72	90%	8	10%
Injured by needles.	37	46.3	43	53.8
Injured by sharp instruments (carver, wax knife, burs).	74	92.5	6	7.5
Injured by micromotor while trimming dentures.	48	60	32	40
Allergic Dermititis of hands	25	31.3	55	68.8
Injured by hot materials like modeling wax, green stick.	63	78.8	17	21.3
Irritation of the eye by getting something in the eye like acrylic fragments.	31	38.8	49	61.3

Table 2: Knowledge regarding Occupational Safety (n=80)

Questions	Yes		No	
	No.	%age	No.	%age
Have information regarding occupational safety	80	100.0%	0	0
Training of occupational safety	6	7.5	74	92.5
Follow safety Protocols department	39	48.8	41	51.25
Hospital accidents reporting system	75	93.8	5	8.8

Table 3: Practical Implementation of Occupational Safety Precautions (n=80)

Questions	Yes		No	
	No.	%age	No.	%age
	80	100.0	0	0
Use of face Mask	76	95.0	4	5
Use of protective eye wear	26	32.5	54	67.5
Use of protective clothes (Lab coat)	73	91.2	7	8.8
Use of gloves when handling patient related materials	80	100.0	0	0
Follow Safety protocols when performing clinical/lab work	78	97.5	2	2.5
Wash hands post-operatively	74	92.5	6	7.5

DISCUSSION

A healthy dentist is one of the main components in a popular dental practice. Occupational health hazards are inevitable in many professions. In order to be a dynamic professional one must be healthy. Dentists and dental staffs are continuously exposed to a variety of occupational threats.

Occupational health complications still continue in modern dentistry in spite of several technical improvements[8,16]. Dental personnel while executing their functions are showing to a variety of hazards. This is dependent on numerous factors and variables that the dental practitioners come across in day to day practice and contain different type of services offered, the type of patients, and finally the work reported. The various types of exposure are chemical mishaps, allergic reaction, percutaneous exposure incidents, eye injury and legal hazards. The basis of these hazards be determined by the work atmosphere which can comprise of physical, chemical, biological, and mechanical features. Many occupations include exposure to unusual hazards. The utmost detrimental are not those where the effects appear immediately, as in accidents, but relatively those that course an insidious path over a time of years.[17] The results from monomer injury 22.5%, hot instruments 90%, spirit lamp is 80%, needles 46.2%, sharp instruments 92.%, micro-motor 60% allergic dermatitis 31.2%, hot instruments 78.8% and eye irritation 38.8%.

The use of shielding eyewear is an important means of avoiding occupational injury related to the use of dental curing lights and high-speed rotary instruments. Injury from splashes and projectiles is a common cause of injury to the eyes, and the use of protective eyewear should be stressed. According to this study 38.8 % had experienced eye injury as compared to another study where the results were 5%.[3] The cross infection control mechanisms engaged by the most of the clinical staff include sanctioning all instruments are sterilized before they are used, changing gloves among patients, use of facemasks, and hand-washing before and after every patient. Evidence shows all of these mechanisms should be further encouraged as ideal usage has not been attained. In several studies, the allergies among dental practitioners have ranged from 12%-75% Latex gloves are the main reason of allergic skin reaction[18,19].

The use of gloves, face mask, protective eye wear and protective clothes are vital part of dentist uniform in order to shield from health hazards and injuries. In this study 100% students wore gloves while handling materials. 32.5% students wore protective eye wear as compared to the study where 47.3% students wore protective eye wear.[20]

Knowledge concerning occupational safety is important for all dental professionals. Keeping a safe working atmosphere is reflected on a healthy worker. Some explanations for not implementing the safety policy are absence of effective enforcement system, lack of evidence and precise records of occupational diseases and accidents, and absence of basic professional training in occupational health and safety. In this study 100% students had information regarding occupational safety and sources were different. 22 students had their knowledge from social media, 18% had from Print media and 40 had from electronic media. Only 7% had received prior training of occupational hazards which is even lower in comparison to the low percentage of 12% reported by other researchers.[19, 20]

CONCLUSION

The findings of this study are consistent with the previous studies indicating a high risk of occupational health hazards in dentistry. In spite of these risks a dentist cannot abstain from providing care and helping community. Sufficient knowledge and information about occupational hazards and its prevention will contribute in giving quality care to patients. The identification and exclusion of the potential risk factors should be merged in a standard practice management program as an essential part of dental organizations and informing dental students and practitioners about potential hazards and methods to prevent them.

REFERENCES

1. Reddy S R, Majumder DSP, Doshi D. Occupational Hazards in Dentistry. J Res Adv Dent 2017;6:2:110-22.
2. Sivakumar I, Arunachalam KS, Solomon EGR. Occupational health hazards in a Prosthodontic practice; review of risk factors & management strategies. J Adv Prosthodont 2012;4:259-65.
3. Gambhir RS, Singh G, Sharma S. Occupational health hazards in current dental profession - a review. The Open Occupational Health & Safety Journal 2011;3:5-64.
4. Singh A, Vivek R. Occupational health hazards in dental practice- a brief review. Indian Journal of Research 2013;7:25-31.
5. Mojard F, Massum T, Samavat H. Noise levels in dental offices & laboratories in Hamedan, Iran. J Dent (Tehran) 2009;6:181-186.
6. Caballero AJ, Palencia IP, Cardinas SD. Ergonomic factors that cause the presence of pain muscles in students of dentistry. Med Oral Patol Cir Bucal 2010;15:906-11.
7. Pargali N, Jowkar N. prevalence of musculoskeletal pain among dentist in shiraz, southern Iran. International Occup Environ Med 2010; 1:69-74.
8. Chugh A. Occupational Hazards in Prosthetic Dentistry. Dentistry, an open access J. 2017; 7:2:410-5.
9. Rahman B, Abraham SB, Alsalami AM. Attitudes & practices of infection control among senior dental students at college of dentistry, Uni of Sharjah, UAE. Eur J Dent 2013; 7:1:15-19.

10. Rampal N, Pawah S, Kaushik P. infection control in prosthodontics. J Oral Health Comm Dent 2010; 4(1):7-11.
11. Egusa H, Watamooto T, Abe K. an analysis of persistent presence of opportunistic pathogens on patient derived dental impressions & gypsum casts. Int J prosthodont 2008; 21:62-68.
12. Santosh K, Jyothi S,Prabu D. Infection control practices among undergraduate students from a private dental school in India Rev. Odonto Cienc 2009;24:124-8.
13. Petrovic D, Krunic N,Kostic M.risk factors and preventive measures for occupational diseases in dental technicians. Vojnosanit Pregl 2013; 70(10):959-963.
14. Mikov I, Tukalj I, Jovanovic M. Occupational contact allergic dermatitis in dentistry. Vojnosanit Preg 2011; 68(6):523-25.
15. Padjama S. Biohazards associated with materials used in prosthodontics. Nigerian J Clinical Practice 2013; 16(2):139.
16. Leggat PA, Kedjarune U, Smith DR.Occupational health problems in modern dentistry a review. Ind Health 2007; 45: 611-621.
17. PrashantB, Firoza S, Jaiswal J.N, Bansa. A. Occupational hazards among dentists: A review of literature. J Intel Med and Dent Res 2011; 4: 87-93.
18. F Adebola, Bchd, Jo Foluso, Bchd, FWACS. (2007) Occupational hazards Among Clinic Dental Staff. JCPD 2007; 2: 16-20.
19. R. Nivesh Krishna, N. P. Muralidharan: Awareness of personal protective equipment among the undergraduate dental college students. 2019; 11(2); 387-389.
20. Mostafa M, Momen M. Occupational health and safety training: knowledge, attitude and practice among technical education students. Egypt J Occup Med. 2014; 38(2):153-165,