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Occupational hazards in dentistry – Knowledge attitudes and practices of dental practitioners in Belgaum city



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Keywords:
Occupational hazards
Ergonomics
Dental practice

ABSTRACT

Introduction: Work is a major determinant of our income, livelihood, life-styles, social interactions and health. All kinds of occupation have their own hazards and so does dentistry. A study was conducted to assess the knowledge, attitudes and practices of dentists towards the occupational hazards and also the methods employed to prevent them.

Methods: The whole population of dental practitioners in Belgaum city was included in the study. A structured questionnaire consisting of 50 questions was prepared. The investigator visited the dental practitioners on the scheduled days and distributed the questionnaires to the dentists after obtaining their consent. The answered questionnaires were collected, compiled and the obtained data was subjected to statistical presentation and analysis.

Results: Most dentists did not wear eye goggles, did not have any health insurance policy, did not use a rubber dam and considered dentistry more susceptible to HBV, HCV and HIV than other professionals. None of the dentists wore earplugs.

Conclusions: Occupational hazards pose a significant risk to dentists. Dentists spend more than half of life their life time in a clinical environment. They should be aware of all these hazards and the ways to prevent them.

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1. Introduction

Work is a major determinant of our income, livelihood, life-styles, social interactions and health. We know that all work is characterized by certain amounts of stresses. In carrying out their professional work, dentists are exposed to a number of occupational hazards. These cause the appearance of various ailments, specific to the profession, which develop and intensify with years. In many cases they result in diseases and disease complexes, some of which are regarded as occupational illnesses.

Contact with patient's saliva and blood may expose the dentist to many occupational biohazards including the contagious kind.[1] Bernardino Ramazzini is referred as the father of occupational medicine. In the 17th century, he published the first comprehensive treatise on occupational diseases De

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http://dx.doi.org/10.1016/j.jpfa.2013.10.002

Morbis Artificum Diatriba ("The Discourse of the Diseases of Workmen"). In there he has recommended that doctors should inquire about a patients occupation when taking a history. He recognized the role of occupation in the dynamics of health and diseases.[2]

Occupational hazard is the risk to a person which usually arises out of employment. Hazard can also refer to any accidents or diseases or it may even be the work, material, substance or process at work place. The occupational of dentistry exposes dental professionals to many and different types of work related hazards. These include working for long hours at a high level of concentration, working in a sedentary state, working with anxious patients, exposure to microbial aerosols generated by high-speed rotary pieces, exposure to various chemicals used in clinical dental practice and many other hazards.[3]

All these hazards pose a significant risk to dentists. Dentists spend more than half of life their life time in a clinical environment. So they should be aware of this environment and of the hazards and also the ways to prevent them.

It has been so aptly stated that, as dentists, we spend half of our working hours in the office. Let us learn to work in safety, comfort and tranquility. The present study aims at assessing the knowledge, attitudes and practices of dentists towards the occupational hazards and also the methods employed to prevent them.

2. Methods

This study was a cross-sectional study and a questionnaire study conducted to assess the knowledge, attitudes and practices of dental practitioners towards occupational hazards. The whole population of 110 dental practitioners in Belgaum city was included in the study. The questionnaire was pilot tested on a sample of 5 dental practitioners to check the flaws and the feasibility under the guidance of staff members. The required modifications were done and the questionnaire was prepared for conducting the final survey. A structured questionnaire consisting of 50 questions was prepared. The questions were close ended consisting of only yes or no options. All the questions were carefully designed so as to assess the knowledge, attitudes and practices of dental practitioners towards occupational hazards. Procedure: The schedule was fixed. The investigator visited the dental practitioners on the scheduled days and personally distributed the questionnaires to the dentists after obtaining their consent. The dentists were requested to select the answer and place a right (✓) mark beside the selected answer. Whenever there was ambiguity in understanding the questions, the investigator clarified without leading them to any specific answer. The answered questionnaires were collected, compiled and the obtained data was subjected to statistical presentation and analysis.

3. Results

In the present study all dentists were aware of occupational hazards in dentistry. 51% of dentists had attended seminars, symposium, workshops on occupational hazards. Most (61%) considered it possible to practice hazard free dentistry. 98% of the dentists wore gloves regularly. 95% of the dentists used new pair of gloves for every patient. 89% of the dentists washed their hands before gloving. 85% of the dentists wore mask regularly. Only 25% of the dentists wore eye goggles.

Regarding infectious diseases in dentistry, 89% of the dentists had taken hepatitis B vaccination. Most (99%) had never suffered from any infection which might have arisen due to cross-infection. Most (77%) of the dentists thought that they were more susceptible to HBV, HCV and HIV than other professionals. 94% thought that HIV and HBV were the greatest occupational hazards in dentistry.

Table 1 shows the frequency of distribution of dentists according to their knowledge, attitudes and practices regarding psychological aspects in dentistry.

In the present study 62% of the dentists were aware of ergonomics in dentistry and 67% were aware that sound ergonomics could prevent many of the occupational hazards.

Table 2 shows the distribution of dentists according to their knowledge, attitudes and practices regarding disinfection and sterilization.

In regard to amalgam use in dentistry 50% of the dentists were in regularly contact with amalgam. Most (90%) of the dentists had their work area well ventilated for procedures involving mercury. 73% of the dentists incorporated "no –touch" techniques for handling amalgam and 70% of the dentists were aware of appropriate clean up of accidental spills of mercury.

None of the dentists had ever any litigation case against them. Most (65%) of the dentists were not scared of being sued.

Only 40% of the dentists wore lead apron when taking X-Rays. 58% of the dentists agreed that their examination area was so arranged as to permit them to stand at least 6 feet from the patient and outside the path of the beam when the X-ray equipment was operating.

None of the dentists or their staff wore earplugs that allow normal sounds and speech to be transmitted, but block high frequency intensity sounds. 19% of the dentists had suffered from or were suffering from eyestrain or blurred vision. 33% had sharp injury during the past six months of their practice, while 46% of the dentists were sufferings from some musculoskeletal disorder that arose.

Most of the dentists had no health insurance policy (58%). Most of the dentists took a complete health history of their patients, with an update each visit (77%).

4. Discussion

Occupational hazard can be defined as a risk to a person usually arising out of employment. It can also refer to a work, material, substance, process or situation accidents or diseases, at a work place. The practice of dentistry exposes dental professional to a variety of work related hazards. Occupational hazards pose a significant risk to dentists. In a study Iranian dental professionals seemed to have low levels of knowledge, attitude and practice towards infection control.[4] Dentists spend more than half of life their life time in a

Table 1 – Distribution of dentists according to their knowledge, attitudes and practices regarding psychosocial factors.

Questionnaire	Yes (%)	No (%)
Have you ever taken any leave due to any occupational hazard?	4	96
Do non-compliant patients irritate you?	60	40
Do patients who come late add aggression to your practice?	58	42
Did you ever have problem in handling patients under the influence of alcohol or drugs?	41	59
Do patients who do not pay bills add to your aggression?	65	35
Do patients who miss appointments add to your aggression	56	44
Has higher career expectation led to burnout in your practice?	29	71
Has competition led to stress in your practice?	32	68
To avoid stress, do you review scheduling practices to eliminate as much over scheduling as possible?	83	17
Do you have periodic dentist-dental staff meetings to discuss problem areas in your clinic?	44	56
Does your personal problem affect the running of your clinic?	38	62

clinical environment. So they should be aware of all hazards and also the ways to prevent them.

In the present study all the dentists were aware of occupational hazards in dentistry. Similar results were found in the study by Fasunloro et al.[3] Half of them (51%) had attended previous seminars, symposium, and workshops on occupational hazards. Conflicting results were found in the study by Fasunloro et al.[3] Most (58%) of the dentists did not have any health insurance policy. Conflicting results were found in the study by Fasunloro et al.[3]

In the present study 98% of the dentists wore gloves regularly. Conflicting results were found in the study by Fasunloro et al.[3] 95% used new pair of gloves for every patient. Similar results were found in the study by Fasunloro et al.[3] It has been confirmed that protective rubber gloves cannot be reused, as micropunctures develop during rewashing.[5] 89% washed hands before gloving. Similar results were found in the study by Fasunloro et al.[3] 85% of the dentists wore mask regularly. Dentists should be aware that a certified particulate respirator could provide them with superior filtering protection than mask.[6] Similar results were found in the study by Fasunloro et al.[3] Only 25% of the dentists used eye goggles regularly. Similar results were found in the study by Fasunloro et al.[3] Many studies have being conducted in relation to HIV.[7–9] The largest collection yet assembled of year-to-year data on the seroprevalence of antibody to HIV in practicing dentists confirmed that dentists along with other health care workers remain at low risk for occupationally acquired HIV infection.[10] Though the first report of HIV transmission from health care worker to patient was of a dentist.[11] In the present study none of them had ever suffered from or are suffering from HIV, hepatitis B or tuberculosis that arose due to cross-infection. There was just one case of Herpes virus infection that arose due to cross-infection during practice. Most (94%) dentists considered HIV and HBV as the greatest occupational hazard in dentistry and considered themselves more susceptible to HBV, HCV and HIV than other professionals (77%). Agents other than HBV and HIV are of significant importance like NANB hepatitis and these need consideration.[12] In the present study 89% of the dentists were vaccinated to hepatitis B. Similar results were found in the study by Fasunloro et al.[3] Only 4% of the dentists in the study had ever taken any leave due to any occupational hazard. Dentists opined that non-compliant patients irritated them (60%), patients who came late added aggression to their practice (58%), patients who did not pay bills added to their aggression (65%) and patients who missed appointments added to their aggression (56%). 59% of the dentists had no problem in handling patients under the influence of alcohol or drugs. Burnout is best described as a gradual erosion of the person.[13] 71% in the present study opined that higher career expectation led to burnout in their practice. Similar results were found in the study by Rada et al.[13] 68% opined that competition led to stress in their practice. 83% of the dentists agreed that they reviewed scheduling practices to eliminate as much over scheduling as possible to avoid stress. Only 44% had periodic dentist-dental staff meetings to discuss problem areas in the clinic. Most (62%) of the dentists said that their personal problem did not affect the running of their clinic. Uncomfortable positions assumed by dentists during work without doubt cannot

Table 2 – Distribution of dentists according to their knowledge, attitudes and practices regarding disinfection and sterilization.

Questionnaire	Yes (%)	No (%)
Do you wash hands with bactericidal soap?	95	5
Do you follow proper waste disposal technique?	75	25
Do you ensure proper instrument sterilization?	98	2
Do you use a rubber dam to limit the spread of aerosolized saliva?	9	91
Are all dental instruments routinely and regularly sterilized?	96	4
Are all employees aware of proper handling practices and precautions in your clinic	79	21
Are you aware of signs and symptoms of inadvertent exposure to chemicals?	81	19
Do you routinely have your patient rinse his/her mouth prior to beginning the session?	73	27
Are all uniforms and work clothes removed at work and laundered professionally to avoid contaminating home environments?	54	46

remain without effect on health. The work place of dentists should be designed and fitted-out in accordance with the principles of ergonomics, with new equipment which ensure the correct method or working (correct position, good view, group work).[14] In the present study, most (62%) of the dentists were aware of ergonomics in dentistry.

95% of the dentists washed hands with bactericidal soap. Similar results were found in the study by Fasunloro et al.[3] Most (75%) of them followed proper waste disposal technique. Similar results were found in the study by Fasunloro et al.[3] Almost all of them ensured proper instrument sterilization (98%). Similar results were found in the study by Fasunloro et al.[3] Only 9% used a rubber dam to limit the spread of aerosolized saliva. 73% of the dentists routinely had their patient rinse his/her mouth prior to beginning the session. Pre-procedural use of an antimicrobial mouthrinse produces a significant reduction in number of viable bacteria in a dental aerosol.[15] The universal use of pre-procedural rinses and high-volume evacuation has been recommended in addition to the routine use of standard barriers such as masks and gloves to prevent cross-infection through aerosols and splatter in dentistry.[16]

Half of the dentists were regularly in contact with amalgam (50%). Conflicting results were found in the study by Fasunloro et al.[3] Most had their work area well ventilated for procedures involving mercury (90%). Similar results were found in the study by Fasunloro et al.[3] 73% incorporated "no–touch" techniques for handling amalgam. Conflicting results were found in the study by Fasunloro et al.[3]

None (100%) of the dentists ever had any litigation case against them, while most were not scared of being sued (65%). Most of the dentists did not wear lead apron when taking x-rays (60%).

None (100%) of the dentists wore earplugs that allow normal sounds and speech to be transmitted, but block high frequency intensity sounds. Only 19% had suffered from or were suffering from eyestrain or blurred vision. Similar results were found in the study by Chowanadisai S, et al.[17] Good number of dentists (33%) had sharp injury in past six months in their practice. Preventing sharps, splash, and needlestick injuries in dentistry is very important A comprehensive overview provides general precautions that help in preventing such injuries.[18] 46% had suffered from or were suffering from backache, wrist ache, allergic dermatitis or any other hazard due to your occupation. Similar results were found in the study by Szymanska J[14] and Fasunloro et al.[3] Conflicting results were found in the study by Chowanadisai et al.[17] and Marshall.[19]

Cross-infection can certainly be prevented. 61% of the dentists agreed that it was possible to practice dentistry hazard free. It has also been recommended that reused high-speed, air-driven handpieces and prophylaxis angles should be cleaned and heat-treated between patients.[20] A study conducted in Antigua showed that the factors, such as cost of imported dental materials, time spent on cross-infection control procedures and the limited number of dental instruments did not influence the suitability of cross-infection control methods in a government dental clinic in a developing country.[21]

The Centers for Disease Control and Prevention, or CDC, is the lead federal agency for disease prevention in the United States. CDC has given infection control guidelines for dental practice. CDC believes that dental offices that follow these new recommendations will strengthen safe dental practice and patients and providers alike can be assured that oral health care can be delivered and received in a safe manner.[22] American Dental Association has given similar recommendations.[23]

Conflicts of interest

All authors have none to declare.

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