

# Prevalence of Occupational Health Hazards in Dentists, Final Year Bachelor of Dental Surgery Students and Dental Assistants of Lahore

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## Abstract:

The burden of occupational health hazards in dentists, final year bachelor of dental surgery (BDS) students and dental assistants are tremendous. Developing countries have controversial situation about the prevalence because of inadequate facilities in rural and urban areas of each nation.

## Objective:

To determine the prevalence of occupational health hazards in dentists, final year BDS students and dental assistants of Lahore.

## Methods:

A total of 300 subjects comprising of 150 dentists, 50 final year BDS students and 100 dental assistants were selected through simple random sampling technique. The cross sectional study was carried out in both private and public based teaching hospitals of Lahore to assess the differences of prevalence of occupational health hazards between them with a pre-tested questionnaire.

## Results:

Among all the occupational health hazards under study a maximum problem of stress was manifested and reported in 87% of all the subjects of private university hospital and 66% in public university dental hospital. Minimum health hazard in the term of prevalence of hearing impairment among public university dental hospitals was 25% in public and 36% in private university dental hospital.

## Conclusions:

The burden of occupational health hazards and its prevalence was higher as an average in private university dental hospitals as compared to public university dental hospitals.

## Keywords:

Musculoskeletal disorders, latex allergy, impaired hearing, loss of vision.

## Introduction:

Occupational health hazards are considered as the risk factors leading to various diseases and/ or disabilities that originate within the course of an occupation in a previously healthy individual. According to the reports of world health organization (WHO), 59 million people working in healthcare system are exposed to different occupational health hazards. WHO advocates occupational safety as a priority concern and recommends a healthy, disease free working environment for the workers. It is the responsibility of the public organizations to formulate laws and procedures for maintenance of safe working environment. Dentistry is an important branch of healthcare which is an important section associated with many occupational health hazards for the working personnel. It is considered safe as long as the national and international guidelines set by different organizations are followed. Occupational hazards in dentistry arise when one deviates from the standard operating procedures and protocols. Almost all of the hazards related with this occupation are preventable. It is worth mentioning that there should be a separate body in every setup to evaluate the potential risks of the working environment. Occupational health hazards in dentistry include sharp injuries, musculoskeletal diseases, stress, impaired hearing, allergy, loss of vision. Needle stick injury is quiet common in dentistry. According to a study carried out in Khyber Pakhtun khwa Pakistan prevalence of sharp injury in dentists was 54%. It is very important to obtain complete medical history with respect to hepatitis B and C from the patient. According to survey conducted by EMRO region of WHO, the prevalence rate of hepatitis B and C was 2.5% and 4.8% respectively.

In Karachi a study was conducted which says that low

cost is a reason for use of amalgam. 90.4% dentists consider it as a health hazard while 46.4% think it is just an environmental hazard. Another survey performed in Karachi reported the back ache as most prevalent dental occupational hazard 81.96%. Others include knee, elbow joint pain, eye infection, stress, impaired hearing and allergies. Latex gloves are most widely used in dentistry. Others include latex free, surgical and polythene gloves. Latex is natural rubber manufactured from the sap of rubber tree. In about 2% of the humans latex allergy is observed. It is mainly because of proteins in latex. Symptoms include rash, hay fever type reactions. In some patients even asthma may develop. To combat the allergy latex free gloves made of vinyl, nitrile rubber or neoprene are being manufactured. Medication is of little help. Leggat et al laid emphasis on the use of PPD and sterilization protocols to avoid percutaneous exposure incidents. Also need to educate more and more about hazards and their prevention and up to date information regarding biocompatibility of the novel materials. Interventional studies, awareness programmes, training of personnel helps prevent the occupational disease. Globally many studies have been conducted that highlight the occupational health hazards and emphasis was laid for their prevention. It has been reported that still the developing countries do not practice these safety measures which results in the increase of health risks. It is also reported that apart from dentist the dental care assistants working in the same field are also exposed to the same risks and need to be educated for their safety. Dental assistants in Pakistan come from a lower social and educational background and very few are professionally trained.

The purpose of the study was to find the important health hazards among the dentists, both under graduates and post graduates. So that the efforts could be undertaken to reduce all these hazards among dentists through health education.

### **Methods:**

It was a cross sectional descriptive study conducted for a period of six months. 300 Dentist, final year BDS students and dental assistants working in public and private dental setup for more than a year and willing to participate were selected through simple random

sampling. The age distribution of the staff ranged from 20- 60 years. Out of 300 individuals, 150 were selected from public university dental hospital while remaining 150 was selected from private university dental hospital. From public university dental hospital 78 were dentists, 26 were final year BDS students and 43 were dental assistants. While from private university dental hospital 72 were dentists, 24 were final year BDS students and 57 were dental assistants. Data was analyzed using MS Excel.

### **Results:**

According to the study, stress was the most prevalent occupational hazard and its prevalence in public university dental hospital was 76%, 73% and 51% in dentists, final year BDS students and dental assistants respectively. While in private university dental hospital the prevalence was 81% in dentists, 79% in final year BDS students and 84% in dental assistants. Least experienced hazard was hearing impairment. Its prevalence in public university dental hospital was 25% on average in all categories and in private university dental hospital it was 36%. Most prevalent hazard in dentist, students and dental assistants emerged to be the stress. Least experienced health occupational hazard was hearing impairment in all categories. Estimated prevalence of each occupational hazard and the results are shown in table 1.

Based on the prevalence the occupational health hazards can be ranked. The most prevalent hazard was stress, 66% in public while 87% in private university dental hospital. The least experienced hazard was hearing impairment, 25% in public and 36% in private university dental hospital. The ranking of disease in descending order is shown in table 2.

### PREVALANCE OF DIFFERENT OCCUPATIONAL HAZARDS IN DENTISTS, FINAL YEAR BDS STUDENTS AND DENTAL ASSISTANTS OF LAHORE

HAZARDS	PUBLIC UNIVERSITY DENTAL HOSPITAL N=150				PRIVATE UNIVERSITY DENTAL HOSPITAL N=150			
	Dentists	Students	Dental Assistants	Average	Dentists	Students	Dental Assistants	Average
Sample Population	78	26	43		72	24	57	
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Sharp Injury	61 (78%)	15 (58%)	20 (47%)	61%	51 (71%)	15 (63%)	51 (89%)	74%
Musculoskeletal Problems	61 (78%)	18 (69%)	18 (42%)	63%	69 (96%)	18 (75%)	29 (51%)	74%
Stress	59 (76%)	19 (73%)	22 (51%)	66%	58 (81%)	19 (79%)	48 (84%)	87%
Latex Allergy	38 (49%)	16 (62%)	10 (23%)	45%	67 (93%)	16 (67%)	13 (23%)	61%
Hearing Impairment	21 (27%)	7 (28%)	21 (49%)	25%	21 (29%)	7 (29%)	28 (49%)	36%
Effect On Vision	7 (9%)	5 (19%)	23 (53%)	27%	24 (32%)	5 (21%)	45 (79%)	44%
Average	52%	51%	44%	48%	67%	56%	62%	63%

**Table 1:** Burden and prevalence of different occupational hazards in dentists, final year bachelor of dental surgery students and dental assistants in Lahore.

Rank Number in Private and Public University Dental Hospitals	Occupational Health Hazards
1	Stress
2	Musculoskeletal disorders
3	Sharp injury
4	Latex allergy
5	Effect on vision
6	Hearing impairment

**Table 2:** Ranking order of different occupational health hazards

### Discussion:

According to the study stress was the most prevalent occupational hazard and its prevalence in public university dental hospital was 76%, 73% and 51% in dentists, final year BDS students and dental assistants respectively. While in private university dental hospital the prevalence was 81% in dentists, 79% in final year

BDS students and 84% in dental assistants. Least experienced hazard was hearing impairment. Its prevalence in public university dental hospital was 25% on average in all categories and in private university dental hospital it was 36%. The results are similar to a study carried out in Jerusalem by Khatib et al that included 84 dentists. They were given questionnaire to highlight what they see as hazards in dentistry. The results demonstrated stress as the major issue about 60% followed by sharp injury 38%. Pakistan is a developing country which is facing many problems like poverty, unemployment, corruption, terrorism. The budget of the federal and provincial governments is insufficient to meet the needs of health projects across the country. It is the responsibility of every citizen to put in their efforts for the betterment of the state and society. Public health workers require helping government and other stakeholders to overcome the health-related problems. They can conduct awareness programmes, seminars, symposiums, research projects and the availability of resources can lead to take practical steps for the solution of different problems. In Pakistan unfortunately dentistry is not a part of primary health care.

Little work is done by public health care workers in dental health care setup. Pakistan is far behind in meeting the oral health standards set by WHO. A report published in 'Express tribune' on 21<sup>st</sup> October 2012 says that there is one dentist to about 200,000 people in Pakistan. Few licensed dentists actually practice. Quacks are highly prevalent in the private dental setups. This quackery has posed high threats to public health of the country. These quacks do not follow the protocols and are a major cause of hepatitis transmission in Pakistan. They play with the lives of patients. They are major cause of occupational health hazards but qualified doctors who overlook the safety measures also contribute to it. The BDS curriculum covers the risks of dentistry and their management so if we stick to it we can prevent the hazards. However the new graduates may be inexperienced in combating these issues. Dental assistants are also not qualified up to the mark and may contribute to development of these hazards. Thus there is need to create awareness among these professionals. People may be aware of the hazards but usually lack knowledge about their prevention and management or they may overlook the serious consequences. Strict policies and governing bodies are required to properly look into this matter. Internationally many journals publish articles related to these problems but practically little is done. International standards should be met. Government or the higher authorities should help to establish the highest level of care for safe professional practices. In developing countries more efforts are required. In Pakistan few dental assistants are officially trained so they lack the basic knowledge essential for healthy well being. It is our responsibility to intervene and help train them well.

As the length of exposure of final year was less in the clinics, so the response to experience of the hazards was less. The chart given below clearly shows that these hazards were time related and their prevalence is less in students. Increased prevalence in the dental assistants is a confirmation that they are not practicing safely.

### Conclusions:

Generally it can be inferred from the study that developing countries are far behind in the management of occupational health hazards. It is the need of the hour that

we revise our policies and budget for an effective dental health care setup. It is the duty of public health workers to raise their voice for betterment of population and recognize potential risks. There is a need to make our working environments safe. This is only possible if we update our knowledge. More and more research projects should be conducted to identify the hazards we may encounter and then come up with ideas to prevent and manage them.

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