



MUSCULOSKELETAL DISORDERS; PREVALENCE OF MUSCULOSKELETAL DISORDERS AMONG DENTAL PRACTITIONERS WORKING IN PRIVATE DENTAL CLINICS IN KARACHI.

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ABSTRACT... Introduction: Dental surgeon are most susceptible to develop the musculoskeletal disorders due to different working habits, repetitive tasks and uncomfortable physiological posture and mental stresses. Dentist and other health professionals often cannot avoid prolonged static postures. In optimal seated postures, major part of human body and muscles are contracted statically and there is little movement of the vertebral joints this may result in physiological changes that can lead to neck, shoulder and back pain or musculoskeletal disorders. The aim of the study was to determine the frequency of musculoskeletal disorders among dental surgeons practicing in different areas of Karachi city. **Study Design:** Cross sectional study. **Setting:** Private Dental Clinics in the city of Karachi. **Period:** March 2017 to May 2017. **Material & Methods:** The survey was conducted among 242 Dental Surgeons practicing in different districts of Karachi. The questionnaire was concerned with demographic details, work duration and acquired specialization, organization and methods of work in the surgery. **Results:** Out of 242 questionnaire 107 were male and 135 female and 70% of the responders were from age group 25-35 years. Around 38.60% were serving the profession from less than 5 years and 28.83% had an experience of 5 to 10 years. Most of the dentist work 6 days a week and 5 to 8 hours a day. 42% dentist preferred both standing and sitting position. About 55.81% have acquired their preferred mode of vision according to position. Shoulder had more incidence of involvement (36.27%), followed by lower back (34.41%) and Neck (22.32%). Majority of them (40.1%) marked intensity of pain as moderate and described it as discomfort (42.4%) and aching (39.2%). Majority were taking paracetamol as pain killer and 53.6% agreed to the fact that their pain aggravates upon repetitive movements. **Conclusions:** The present study showed high prevalence of musculoskeletal disorders among dentist, so there should be preventing aims delivered during undergraduate curriculum and structure base workshop should be programmed to explain the consequences of prolonged and bed posture dentistry.

Key words: Dental practitioners, Musculoskeletal disorders, Pain Killers.

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INTRODUCTION

The term musculoskeletal disorders (MSD) are used to describe any injury, damage or disorder of the joints or other tissues in the cervical spine, upper or lower limbs or the back.¹ Recently reported MSD is more common work related problem.² Dentists are among the workers who are more often susceptible to MSDs and the recent study reported that these disorders occur in 54-80 % of Dentists, with a higher incidence in older individuals and women.³

Various risk factors have been established as predisposing the disorders. Dental professionals

regularly adopt positions that are awkward and dissymmetric like placing the head forward and pivoted to the side with the arms held out from the body. If these attitudes continue for prolonged period, the muscles and joints may get over stresses particularly those of the shoulder, neck and back, resulting in various musculoskeletal disorders.⁴

Musculoskeletal disorders is characterized by the presence of pain, stiffness of muscles, tenderness, discomfort or persistent pain in the different part of body like joints, muscle and tendons. MSD can be elevated by frequent or repeated movements

and prolonged awkward or forced body posture. When the body is repeatedly subjected to such prolonged static postures, it can cause persistent pain that lead to muscles injury and career ending of the profession.⁵

There is global rise of MSD among Dentist. Literature from North America and Europe and part of Asia reported high incidence of MSD among Dentist and hygienist. As far concerned few studies conducted in different cities of Pakistan but still inadequate data available about the prevalence and distribution of MSDs from dentist working in private dental clinics of Karachi. Therefore our study was undertaken to investigate the prevalence and associated risk factors of MSD among a selection of dentist in different areas of Karachi, Pakistan.

MATERIALS AND METHODS

This cross sectional study was carried out in private dental clinics in the city of Karachi from March 2017 to May 2017. A pretested 18-Items questionnaire was designed and pretested about the validity of the Questionnaire. The Questionnaires distributed in most of the dental clinic in Karachi by hands with written informed consent obtained from all the participants. Study participants included irrespective of their academic position. However, fresh graduates and house officers were excluded from this study.

A total of 260 dentist received a questionnaire. However, from the total participants only 242 subjects accepted to sign the consent form and admit to participate in this study. The method of answering was explained and the questionnaires were collected within one week.

A single page, A4-sized, questionnaire consisted of three sections in each part of which crucial points of musculoskeletal disorder were drawn.

The first part was a self-administration about the respondent's demographic information including age, gender, area of practice and qualifications.

In the second part, evaluating respondent's practice duration, mode of vision, exposure to

posture, forces and muscle activities that have been shown to contribute to repetitive strain and injuries.

In the third part, musculoskeletal complaints were recognized. It includes four body areas, neck, shoulder, lower back, wrist/hands. Musculoskeletal complaints were defined as pain perceived, experienced as ache, discomfort and numbness and preventing activities with yes or no.

Statistical Analysis

Statistical package for social sciences version 21 was used to determine frequency distribution, means and proportions. Chi-square test was used to determine the relationship between musculoskeletal disorders with other variables (age, gender, working experience and posture).

RESULTS

Out of 260 questionnaires, 242 questionnaires (93%) were returned, fully completed by the doctors. Missing data was excluded from the analysis. Amongst the responders, 107(44.2%) were male doctors and 135(55.8%) were female doctors. The age group of the responders varied, having 177 of belonging to the age group of 25-35 years. Majority 173(71.5%) were BDS, while considering the working experience most of the doctors 93(38.4%) were having experience less than 5 years and 70(28.9%) were serving the profession from 5 to 10 years.

Our study statistics showed that 106(43.8%) dental practitioners worked 6 days in a week while 73(30%) worked 5 days in a week from which majority (66%) worked 5-8 hours a day and 17.7% worked 8 to 12 hours per day. It was observed that increased number of days and working hours were directly associated with increased symptoms of MSDs (p-value=.001).

Most of the Doctors (44.2%) preferred both standing and sitting position, while 29.3% preferred sitting position. The difference in position was also found to be statistically significant (p value=0.001).As far as use of indirect vision is concerned results of this study showed that only

29(12%) of Dentist used indirect vision while 76(31.4) preferred direct vision to treat maxillary teeth. The difference of vision was also found to be significant in this study (p value=0.001) (Table-I)

PREVELANCE

The overall prevalence of MSDs in the present study was 215(88.8%). Most of the Dental Practitioner (86%) gave no family history of MSD. Shoulder pain had more incidence of involvement (36.27%), followed by lower back (34.41%). (Table-II)

Majority 97 (40%) of them marked moderate intensity of pain, while 85(35%) marked the pain as mild and only 10 % had severe pain. The pain description as discomfort was the answer of 49.6% people, while 44% marked the aching type of pain. (Table-III)

Only 36 (15%) were involved in a regular routine workout, while 90 (37%) do exercise but not regularly, and 116 (48%) had no interest in doing exercise. Most of them did not take any sick leave in their professional career.

Risk Factors	Category	Surveyed Dentists	MSD positive N (%)	P-value
Age	25-35 Yrs	177	158 (73.48)	<.001
	36-45 Yrs	56	49 (22.79)	
	45-55 Yrs	06	05 (2.3)	
	>55 Yrs	03	03 (1.4)	
Gender	Male	107	92 (42.8)	.072
	Female	135	123 (57.20)	
Years of Practice	<5 years	93	83 (38.60)	<.001
	5-10 years	70	62 (28.83)	
	11-15 years	48	41 (19.06)	
	>15 years	31	29 (13.48)	
Days of Practice	3 days	08	08 (3.72)	<.001
	5 days	73	62 (28.83)	
	6 days	106	92 (42.8)	
	7 days	55	53 (24.65)	
Working hours / day	< 5 hrs.	35	30 (13.95)	<.001
	5-8 hrs.	160	139 (64.65)	
	8-12 hrs.	43	42 (19.53)	
	>12 hrs.	4	4 (0.018)	
Position of Dentist	Standing	64	56 (26.04)	.001
	Sitting	71	66 (30.69)	
	Standing & Sitting	107	93 (43.25)	
Mode of Vision	Direct	76	69 (32.09)	<.001
	Indirect	29	26 (12.09)	
	Procedure option	137	120 (55.81)	

Table-I

Symptomatic Site	MSD n (%)	P-Value
Neck	48 (22.32)	<.001
Shoulder	78 (36.27)	
Lower Back	74 (34.41)	
Hand & wrist	15 (06.9)	

Table-II

Intensity	Frequency	Percent
Mild	85	35.1
Moderate	97	40.1
Severe	24	9.9
No	36	14.9
Total	242	100

Table-III

DISCUSSION

Dental professionals commonly experience musculoskeletal pain during the course of their careers. The musculoskeletal health of dental professionals has been the subject of numerous studies worldwide, and their focus has been on the pain experienced by the practitioner.

The current study assessed the prevalence of musculoskeletal disorders and associated risk factors among dentists in Karachi working at various private dental clinics. The results 88.8% suggested that musculoskeletal disorders are very common among dentist population. Similar result showed by study conducted by Zahoor S et al.⁶ in different dental colleges of Lahore reported 88 % doctors affected by MSD. While most of the literature reported 50-70% prevalence of MSD among Dentist.⁷

Females (56%) were reported to have more musculoskeletal problems than males. This could be explained because female usually has lower threshold of tolerance than male plus they are more in proportion compare to male doctors. Furthermore, the results showed that the frequency of pain and discomfort had tendency to decrease with age and with the number of year in practice⁸

Younger age group of 25-35 years, with less than 5 years of professional experience have greater prevalence of MSDs revealed in our study. This result is consisted with other study.⁹⁻¹⁰ The possible reasons for this could be more workload or little knowledge of ergonomics and their implications among young dentists or senior practitioners taking up less number of patients. Furthermore Seniors dentist have low incidence of MSD (2-5%). The low occurrence of pain and discomfort among Seniors dentists may be due

to the “healthy workers effect” plus short duration of practice are more specialized with less load of patients, younger dentists are mainly practicing general dentistry or enrolled in postgraduate training that put them under more pressure. Instead of using the dental mirror, younger dentists work more often with a direct view and with the use of wedge cushion to improve the vision.

Dasai V et al. reported that an awkward posture adaptation is a significant predictor of musculoskeletal disorders among dentists.¹¹ Dayakar et al. showed that static postures maintained for long periods can lead to career-ending disability.¹² In our study 36% dentist had Shoulder pain followed by Lower back (34%). This result was also consisted with other study results.^{2,6}

In the present study most of the dentist were asked about their physical health and any significant musculoskeletal problems before joining dental profession. It was revealed that around 88% dental professional were healthy and without any musculoskeletal problems. They develop this problem once they join this profession.

The primary limitation of this study is the small sample size and difficulty in coordination with the doctors in their clinics during rush hours. A large sample size would achieve more comprehensive results.

CONCLUSION

It is concluded that MSDs has high prevalence among Dental Profession this can be reduced by through improving knowledge of ergonomics in their practices.

We recommend that dentists should pay attention to their musculoskeletal health to prevent conditions that can harm their professional career and it is recommended that ergonomics should be covered in the educational system (BDS curriculum) to reduce risks to dental practitioners. All work related risks and their respective preventive strategies should be explained at the undergraduate training stages, so that students

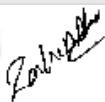

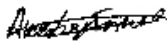
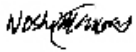
can prevent the onset of MSDs by adopting an ergonomic approach in their dental practices.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
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2	Hira Chishty	Help in data collection.	
3	Anosha Farwa	Help in data collection.	
4	Noshi Maria Fletcher	Help in Statically Analysis of data.	
5	Syed Muhammad Ali	Help in Technical support, Review of article, Proof reading.	