

WORK-RELATED MUSCULOSKELETAL DISORDERS AMONG DENTAL PRACTITIONERS IN KHYBER PAKHTUNKHWA

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ABSTRACT

The aim of this study was to determine the prevalence of musculoskeletal disorders among the dental professionals of the public and private sectors of Khyber Pakhtunkhwa. A standard questionnaire was circulated among 137 practicing dentists, including questions regarding age, gender, body mass index, clinical experience, posture during work, exercise and musculoskeletal disorders complaint. The data were analyzed using SPSS 17.0. The male to female ratio was 2.6:1. Majority of the dentists were in the age range of 25-34 years (51.1%). Most of the dentists had a clinical experience of more than 10 years (48.2%), were working 5-6 hours daily and were practicing sitting dentistry (47.4%) and indirect vision (51.1%). Musculoskeletal disorders were reported by 46.7% of the participants. The most common complaint was lower backache (57.8%) followed by neck ache (37.5%) and shoulder ache (29.6%).

There was a significant relationship between musculoskeletal disorders and the clinical experience of the dentist and the posture used. It was concluded that there was a high prevalence of musculoskeletal disorders in the area of study.

Key Words: Musculoskeletal Disorders, lower backache, posture.

INTRODUCTION

Musculoskeletal symptoms are a major concern among dental practitioners.¹ Musculoskeletal disorders are described as disorders of the muscles, nerves, tendons, ligaments, joints, cartilages or spinal disc. These disorders are some of the most important work-related problems currently reported.² Dentists have a high frequency of musculoskeletal disorders.^{4,3} The physical load among dentists seems to put them at risk for the occurrence of musculoskeletal disorders. These disorders are not the result of a single event, but develop over time.⁵ Repeated unnatural, deviated or inadequate working postures, forceful hand movements, inadequate

equipment or workplace designs and inappropriate work patterns are likely to be the particular risk factors however; musculoskeletal disorders are not an avoidable part of the oral health care providers' professional lives.^{6,7}

About two out of three dental professionals experience occupational pain. Musculoskeletal disorders account for the most common reason (29.3%) for early retirement in dentists worldwide.⁸

The key to preventing musculoskeletal disorders is to understand potential risk factors. Some individuals are at greater risk for the development of musculoskeletal disorders based on their personal health history.⁹

High-risk activities and movements also can occur outside of work and at home. Therefore, it is important to evaluate the presence of activity-based risk factors in both environments.¹⁰

The aim of this study was to determine the prevalence of musculoskeletal disorders among the dental professionals in the public and private sectors of Khyber Pukhtunkhwa.

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METHODOLOGY

Practicing dentists in the government and private sectors of Peshawar were included in this study. One hundred and thirty seven dentists participated. A standard questionnaire was distributed among all. The questionnaire included demographic questions regarding gender, age, height, weight, hand dominance, years of practice, hours of work per 24 hours and posture during work. Questions were also asked about the incidence of any musculoskeletal disorders, exercise, any systemic illness and sleep hours per 24 hours.

Dentists from both genders, with more than three years clinical experience, (general dental practitioners and consultants) were included in the study. Dentists with less than three years clinical experience and having any congenital musculoskeletal disorder were excluded.

The data collected were analyzed using statistical package for social sciences version 17.0. Frequencies of the variables were tabulated. Pearson's chi square was used to correlate musculoskeletal disorders with other variables. A p-value of less than 0.05 was considered significant.

RESULTS

One hundred and thirty seven participants were included in this study. The response to participate in the study was 100% (137/137). Ninety nine participants were male and 38 were female with a male to female ratio of 2.6:1. Majority of them were in the age range 25-34 years (n=70, 51.1%). Details of age distribution are given in Table 1.

Most of the dentists were working 5-6 hours daily (n=64, 42.3%), Details are given in Table 2.

Sixty six participants had a clinical experience of more than 10 years (48.2%) while 34 (24.8%) had less.

Sitting dentistry was practiced by n=65 (47.4%) participants while n=49 (35.8%) were working in standing position. n=23 (16.8%) worked using both positions. (Figure 1).

Sixty four dentists stated that they were suffering from a musculoskeletal disorder (46.7%) while 70 (51.1%) had no such problem (Fig 2).

TABLE 1: AGE DISTRIBUTION

Age (years)	n	%
25-34	70	51.1
35-44	28	20.4
45-54	26	19.0
55-64	13	9.5
Total	137	100

TABLE 2: WORK HOURS

Work hours	n	%
Less than 3	10	7.3
3-4	27	19.7
5-6	64	46.7
7 or more	36	26.3
Total	137	100
Total	137	100

TABLE 3: EXPERIENCE (YEARS)

Experience (years)	n	%
Less than 4	34	24.8
4-6	21	15.3
7-9	16	11.7
10 or more	66	48.2
Total	137	100

TABLE 4: MUSCULOSKELETAL DISORDERS AREAS

Area	Frequency	%
Upper backache	9	14.0
Lower backache	37	57.8
Shoulder ache	19	29.6
Neck ache	24	37.5
Headache	11	17.1
Wrist ache	9	14.0
Arms ache	6	9.3
Legs ache	17	26.5
Others	6	9.3

The most commonly involved site in musculoskeletal disorders was the lower back (n=37, 57.8%). Other areas involved in musculoskeletal are shown in Table 4.

Pearson's Chi test square was used to determine the relationship of musculoskeletal disorders with other variables. A p-value of less than 0.05 was obtained for the clinical experience of the dentists (0.01) and the posture (0.02) used. There was no significant relationship of musculoskeletal disorders with age, gender and working hours per 24 hours.

For unapproachable area, indirect vision was practiced by majority of the dentists (n=70, 51.1%), while others were practicing direct vision (n=42, 30.6%) and some were using both (n=25, 18.2%) (Fig 3).

Majority of the practitioners were doing different sort of exercises (n=74, 54.1%) while others were not (n=63, 45.9%).

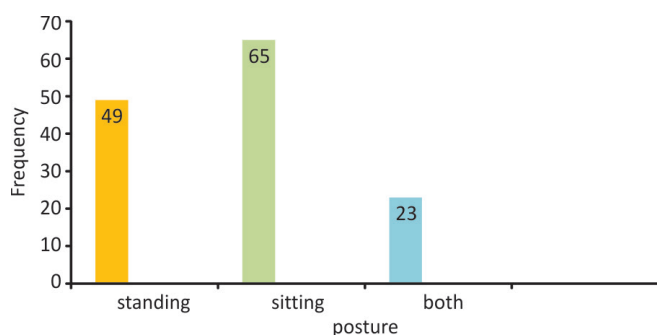


Fig. 1:

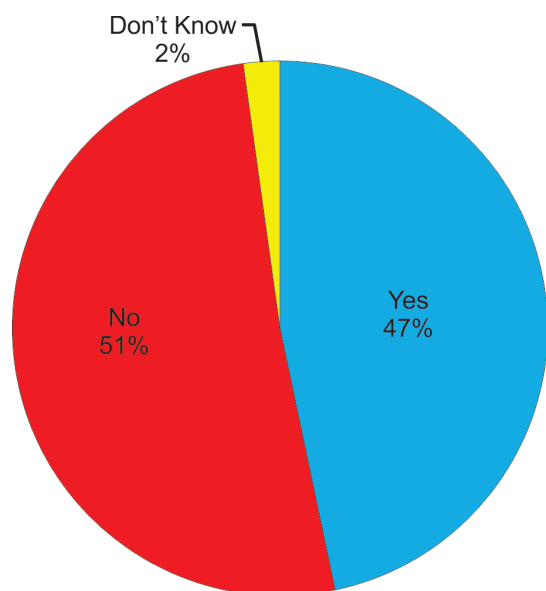


Fig. 2: Musculoskeletal disorders

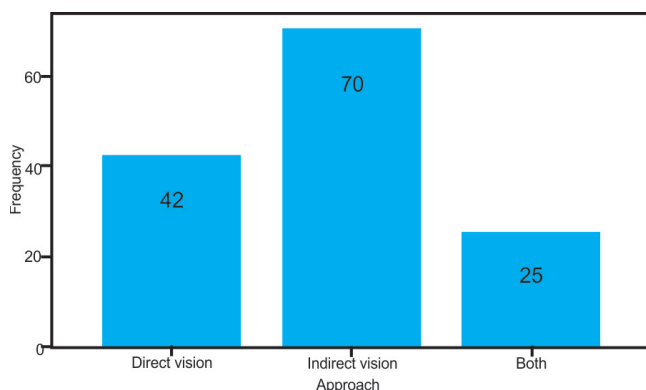


Fig. 3:

DISCUSSION

Musculoskeletal disorders among dentists are some of the most important work-related problems reported worldwide.¹¹ Majority of the participants in this study were males which indicates a predominance of the male gender in clinical practice in the area of study. The most common age group was in the range of 25-34 years which shows that the greater percentage of dentists with musculoskeletal disorders, were in this age

range. These results correlate with a study conducted by Abdul-jabbar T.A in Saudi Arabia.¹²

In the present study, a significant relationship was found between the prevalence of musculoskeletal disorders and clinical experience and posture. Similarly the results of a study in Saudi Arabia showed that the frequency of pain and discomfort had tendency to decrease with age and with the number of years in practice.¹² Furthermore, some investigations have shown that the prevalence and location of musculoskeletal disorders may be influenced by posture and other work habits. Prolonged static postures are thought to be associated with various musculoskeletal disorders.¹³

More than half of the participants stated that they did not suffer from any musculoskeletal disorder while 46.7% stated that they were suffering from single or multiple musculoskeletal disorders. This is lower than the prevalence mentioned in studies conducted in Greece (62%)¹⁴, Saudi Arabia (82.9%)¹¹ and Queensland (87.2%).¹²

The prevalence of lower back pain (57.8%) was similar with that reported in many other countries such as Australia¹³, Denmark¹⁵, Israel¹⁶ and the United States.¹⁷ However, the rate was lower than that reported by a study in Saudi Arabia (73.5%).¹² Neck ache was reported by 37.5% of the dentists. Similar results were obtained in a survey of Israeli dentists (38.3%).¹⁶ However, the incidence of neck ache was much lower than studies in Denmark¹⁵ (65%), Queensland¹³ (57.5%) and Saudi Arabia (65%).¹² The third most commonly reported musculoskeletal disorder was shoulder ache (29.6%). Contrary to the results of this study, Milerad and Ekewan¹⁸ reported a prevalence of 51% for shoulder ache in their study while Bernard¹⁹ has found that 37% of dentists suffered from work related shoulder ache. Other less commonly reported musculoskeletal disorders in the present study were upper backache, headache, wrist ache, arms ache and legs ache.

In this study no correlation was found between the use of direct or indirect vision for unapproachable areas of the mouth and the prevalence of musculoskeletal disorders. However, Abdul-Jabbar A.T¹² reported that dentists who usually use the dental mirror in positions where a direct view is difficult had significantly less pain and discomfort. Regular exercise, also, did not seem to have a relationship with musculoskeletal disorders.

Karwaski et al.²⁰ reported that the symptoms of musculoskeletal disorders are a product of many risk factors including prolonged static postures, repetitive movements, and poor positioning. Ratzen¹⁶ linked musculoskeletal pain occurrence in the dentists to the frequent assumption of static postures, which usually requires more than 50% of the body's muscles to contract

to hold the body motion less, while resisting gravity. The static forces resulting from these postures have been shown to be much more tasking than dynamic forces. Repeated prolonged static postures are thought to initiate a series of events that could account for pain, injuries, or career-ending problems seen in musculoskeletal disorders.²⁰ Lalumandir et al.^{21,22} reported that all dental specialties show a high occurrence of musculoskeletal disorders but with variations in frequency and locations.²⁰

Morse²³ reported that the prevalence of neck symptoms (26-73%) were greater than shoulder symptoms (20-65%). He also reported the consequences of musculoskeletal disorders, such as leaving the profession or reducing working hours. Afridi et al²⁴ positively correlated the symptoms of musculoskeletal disorders with the working hours.

CONCLUSION

46.7% of the participants reported that they were suffering from musculoskeletal disorders.

Lower back pain (57.8%) was the most common complaint, followed by neck ache (37.5%) and shoulder ache (29.6%).

Significant relationship between musculoskeletal disorders and duration of working hours and the posture used was found.

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