

Musculoskeletal Symptoms among Dentists in Yemen

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Abstract

The objective of the study was to find out the prevalence and distribution of musculoskeletal symptoms among dentists in Yemen. Furthermore, to find possible correlations between these symptoms and working positions and actions. A questionnaire about musculoskeletal symptoms in different parts of the body was completed by 136 dentists (78 male, 58 female) from the public dental service clinics in Sana'a city in April 2010. Back pain was the most common complaint affecting almost 80% of the study population, followed by neck pain (58.8%) and shoulder pain (47%). The frequency of shoulder pain among female dentists was nearly double that of males ($P=0.009$). The mean days of neck pain among males was significantly higher as compared to females ($P=0.048$). The study suggests that musculoskeletal complaints are common among dentists, though they are not of severe nature. To reduce the prevalence and severity of these disorders specific exercises should be performed.

Key words: Musculoskeletal disorders, Occupational health, Dentists in Yemen, Working positions

Introduction

Dentistry is a demanding profession regarding concentration and precision. Most dentists today work in the sitting position treating the patient in the supine position. Because their work area (the mouth of the patient) is narrow, performance of dental treatment results in a very inflexible work posture[1]. Studies have shown that dentists have a high frequency of musculoskeletal disorders[2-3]. There are several numbers of studies relating to musculoskeletal complaints among dental surgeons in the Western literature but none has been conducted in Yemen. This study has been conducted to assess the work-related complaints among dentists in our country with the specific objectives to find out the prevalence of neck, shoulder and back pain among the dental surgeons and to identify the risk factors associated with these symptoms. Most studies consistently report that back pain is the most common musculoskeletal complaint among the dental surgeons. Szymananska in his study reported that symptoms connected to the back were the most common[7], this in agreement with the result of the present study. The physical load among dentists seems to put them at risk for the occurrence of musculoskeletal disorders. Muscular imbalance, neuromuscular inhibition, and pain and dysfunction

may frequently be observed among oral health care providers. 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, MSDs are not an avoidable part of the oral health care providers' professional lives [6, 11]. The epidemiologic data regarding MSDs have been obtained from many countries and societies [3, 12, 13, 14]. There is no information about the spread of such disorders in Yemen.

Material and methods

This is a cross-sectional study conducted in 136 dental surgeons who were interviewed using pretested questionnaires in April 2010. A random sampling was done of dentists living in Sana'a, Northern Province, Republic of Yemen and working in different areas within the city. A questionnaire was distributed among dental graduate or specialized dentists working in public and private hospitals, private clinics and to all dentists who attended the Yemeni Dental Association meetings. The questionnaire was adopted and modified from forms in previous studies [4, 5]. The instrument consisted of various questions about gender, type of dentistry, frequent breaks, right posture, neck pain, shoulder pain, back pain, analgesic-use and exercise. Right posture was drawn and explained to each subjects in the questionnaire itself.

A single page, A4-sized, self-reporting MSD questionnaire, an information sheet was distributed among dental graduate or specialized dentists. Information on MSD was sought, including information on the location of symptoms in the past 12 months, whether it interfered with daily activities, and whether medical treatment had been sought in the previous 12 months. Multiple choice and "fill in the blank" style questions were used throughout. Additional information was requested on age, gender, number of years since graduation, field of dental practice, number of hours worked per day and per week.

Before the data collection, written permission and verbal consent from each respondent were obtained. The study was conducted without any support of funds from anywhere.

Data were entered into the Microsoft excel program and analyzed using SPSS (Statistical Package for Social Sciences version 13 software). The collected data was summarized by calculating frequency and percentage for discrete variables and mean, standard deviation for continuous variables like working days lost due to back pain, shoulder pain and neck pain. The analysis was performed by using χ^2 test to identify the significant difference between the discrete data. Mann- Whitney U test, a non parametric test, was applied to test the significance of difference amongst continuous variables. Alpha (α) value was set at 0.05.

Cross-sectional studies using questionnaires have several limitations. Critical points are the representativeness of the responders and their ability to give correct answers.

The inclusion criteria were participants should be registered dental surgeons and be actively involved in the dental profession, academics, private practice, government, jobs or dental administration

within city limits. The exclusion criteria were registered dental surgeons who had retired from service, changed their profession or had never been involved in private practice, academics or government jobs and dentists who are pursuing postgraduate studies. Also dentists working for less than two years.

The average of working hours per day is 9 hours and 45 hours per week for both the male and female dentists. Some of subjects they don't follow the exact chair side position due to lack of proper instruction and supervision during their study in dental college.

Concerning the symptoms in the right or left side the questionnaire of this study designed to record pain when it is present in both sides or in one side.

Some female dentist married and they have children, others they don't have.

Results

Among the dental surgeons interviewed, 78 (57%) were males (mean age 29.6 years) and 58 (43%) were females (mean age 24.9), and the age range of the study subjects was 24-77 years. Thirty six dentists (26.5%) practiced sitting and 100 (73.5%) dentists practiced sitting and standing dentistry. One hundred sixteen (85.3%) respondents said they had frequent breaks during work whereas 20 (14.7%) said they did not. The average of working hours for the dental surgeons interviewed was nine hours per day and 54 hours per week.

Forty percent (54) of the dental surgeons considered endodontic procedures to be the most tiring dental procedure. The second and third most tiring dental procedures (20% each) were impacted teeth extraction and dental fabrication procedures.

One hundred dentists (73.5%) thought they practiced the right posture and 36 (26.5%) thought they did not. One hundred (73.5%) felt that their musculoskeletal complaints were significantly contributed to by their dental work.

One hundred and eight dentists (79.4%) had at least one episode of backache in the last one year. Among them 76 (55.9%) had mild pain, 26 (19.4%) had moderate pain and only 4 (3%) had severe pain. Eighty (58.8%) dentists had at least one episode of neck pain during the last one year. Fifty-eight (42.6%) had mild pain, 16 (11.8%) had moderate and 8 (5.9%) had severe pain.

Shoulder pain was less common. Only 64 (47.1%) had at least one episode of shoulder pain in the last one year. Among those who had shoulder pain, 54 (39.7%) had mild pain, 8 (5.9%) had moderate and 8 (6%) had severe pain.

Out of the 108 dentists who had back pain, only eighteen (16.7%) sought medical treatment. Only ten dentists (7.4%) sought treatment for shoulder and neck pain. The reason for not seeking medical

treatment for shoulder and neck pain was stated by 76 (55.9%) as the pain being mild and self-limiting and by 14 (10.3%) that they resorted to self medication.

Fifty dentists (36.8%) said that they take self medication for their musculoskeletal complaints. Sixty six dentists (48.5%) did not take medicines on their own. Twenty (14.7%) did not respond to the questions. The mean number of days of back pain, shoulder pain and neck pain are shown in Table 1. The mean working days lost due to back pain (Table 4).

The analgesics that were taken included Diclofenac sodium, Ibuprofen, Nimesulide, combination of Paracetamol and Ibuprofen, and some others. Of all these, Nimesulide was the most commonly preferred analgesics, being used by 14.7%, followed closely by Diclofenac sodium (13.2%).

Concerning exercise for backache, 42 (30.9%) said they exercised regularly. Seventy (51.5%) did not exercise and 24 (17.6%) did not respond. Of the 42 who exercised, 26 said they learnt the exercises themselves. Fourteen were taught by orthopedic surgeons. Two did not respond. Only 24 dental surgeons (17.6%) did regular exercise for the prevention or treatment of neck pain. Out of this, sixteen had learnt the exercises themselves and eight had been taught by orthopedic surgeons.

Forty eight (35.3%) of the dental surgeons attributed their shoulder and neck pain to endodontic procedures.

Sixty-nine percent of females had neck pain whereas only 51% of males had it. ($\chi^2=2.15$, $df=1$, $P=0.143$). The frequency of shoulder pain among the females was nearly double than that of males. ($\chi^2=6.9$, $df=1$, $P=0.009$). The probability of significance shows that gender did not have significant relation with the frequency of back pain (Table 1-3).

It was observed that the type of dentistry did not affect the frequency of neck pain, shoulder pain or back pain significantly. The data also suggests that frequent breaks during work did not influence frequency of neck pain ($\chi^2=0.38$, $df=1$, $P=0.54$) or the shoulder pain ($\chi^2=0.79$, $df=1$, $P=0.37$). Frequency of breaks did not have significant relation with the frequency of back pain as well.

The respondents were asked whether they thought they practiced right the posture or not. There was no significant difference in the frequency of neck, shoulder and back pain between those who thought they practiced right posture and those who did not (Table 2-4).

There was no significant difference in the working days lost and the number of days of back pain, shoulder pain and neck pain between the males and females ($P>0.05$) (Table 4).

Questions were raised to find out whether the males or females tended to take frequent breaks. No significant difference was noted between the two ($\chi^2=0.77$, $df=1$, $P=0.38$).

Discussion

Previous studies are not quite comparable to the present one, due to differences in the types of dentists studied, the reference groups, and the methods.

In this study, we found high prevalence of musculoskeletal complaints among the dental surgeons, back pain being the most common, followed by neck pain and shoulder pain. In a study conducted by Alexopoulos et al, they observed similar results[6]. Szymananska in his study reported that symptoms connected to the back were the most common[7]. Most studies consistently report that back pain is the most common musculoskeletal complaint among the dental surgeons.

This study shows that the mean working days lost due to back pain was 0.64, with standard deviation 1.73. Only 3% had severe back pain. Only 16% of those suffering back pain sought medical treatment. This suggests that back pain among dental surgeons is not of a severe nature. Shrestha et al in their study noted that only 37% of those suffering from back pain and neck pain sought medical treatment and concluded that these symptoms among dental personnel are not of severe nature[8].

This study shows that the majority of the dental surgeons did not perform specific exercises to prevent or lessen back, neck and shoulder pain.

It was observed that the frequency of shoulder pain among the females was nearly double than that of males, which is significant. Gender however did not have any relation with back and neck pain. Runderantz et al in their prospective study interviewed 311 dentists in 1987 and also in 1990. As in 1987, female dentists had also in 1990 a higher prevalence of pain and discomfort in the neck and shoulder as compared to their male colleagues[5].

Ratzon et al conducted a study to determine the effect of work posture on musculoskeletal complaints. They concluded that those working only in the sitting position had a more severe low back pain than those who alternated between the sitting and standing positions[9]. We are not able to comment on the severity of the symptoms but we found no difference in the prevalence of symptoms among those who practised the sitting type of dentistry and those who practiced the sitting and standing type.

I tried to find out the relation of posture to the prevalence of back pain, shoulder pain and neck pain and found that it had no relation with any of them.

This study suggests that taking frequent breaks does not decrease the prevalence of musculoskeletal symptoms. Practiced This would mean that all practised similar posture in spite of what they thought. Because the musculoskeletal complaints were mostly mild, the mean working days lost was only 0.64 day. Gender did not affect the number of days lost and the number of days of symptoms.

EC Alexopoulos has reported in his study that female gender was significantly related to chronic back pain (OR=2.42; 95% CI=1.22- 4.82) and chronic shoulder pain (OR=4.51; 95% CI 1.72-11.85). Both sexes tended to take an equal number of breaks during work[6].

This study can be generalized to the whole of Yemenis as the data collected from the dentists working in different parts of Yemen during the second international dental conference which has been held on April 2010 in Sana'a, Yemen.

Conclusion

The present study suggests that musculoskeletal complaints are common among dentists. Back pain is the most common complaint followed by neck pain and shoulder pain, though they all are usually mild. There was no significant difference between male and female dentists with regard to musculoskeletal symptoms and most thought they practiced the right posture without actually doing so. Most dentists do not perform specific exercises for the prophylaxis of neck, shoulder and back pain. There is a scope for further decreasing the prevalence and severity of these disorders by performing regular specific exercises.

Exercises that of public interest include, body strengthening exercises, Stretching and strengthening the muscles that support the back and neck and those used in the forearm, wrist, and hand will help them remain strong and healthy. You can do periodic stretching throughout the workday. Before beginning any exercise program, you should check with your physician, particularly if you experience pain with any of the movements.

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Table 1. Distribution of neck pain in relation to different variables

		Neck Pain		χ^2 value	P value
		Yes	No		
Gender	Male (78)	40 (51.3%)	38 (48.7%)	2.15	0.143
	Female (58)	40 (69.0%)	18 (31.0%)		
Type of dentistry	Sitting	22 (61.1%)	14 (38.9%)	0.05	0.82
	Sitting and Standing	58 (58.0%)	42(42.0%)		
Frequent breaks	Yes	70 (60.3%)	46 (39.7%)	0.38	0.54
	No	10 (50.0%)	10 (50.0%)		
Right posture	Yes	56 (41.2%)	44 (44.0%)	0.62	0.43
	No	24 (66.7%)	12 (33.3%)		

Table 2. Distribution of shoulder pain in relation to different variables

		Shoulder Pain		χ^2 value	P value
		Yes	No		
Gender	Male (78)	26 (33.3%)	38 (66.7%)	6.9	0.009
	Female (58)	38(65.5%)	20 (34.5%)		
Type of position	Sitting	12 (33.3%)	24 (66.7%)	0.79	0.37
	Sitting and Standing	52 (52.0%)	48(48.0%)		
Frequent breaks	Yes	52 (44.8%)	64 (55.2%)	0.79	0.38
	No	12 (60.0%)	8 (40.0%)		
Right posture	Yes	40 (40.0%)	60 (60.0%)	3.78	0.052
	No	24 (66.7%)	12 (33.3%)		

Table 3. Distribution of back pain in relation to different variables

		Back Pain		χ^2 value	P value
		Yes	No		
Gender	Male (78)	58 (74.4%)	20 (25.6%)	1.43	0.23
	Female (58)	50 (86.2%)	8 (13.8%)		
Type of position	Sitting	32 (88.9%)	4 (11.1%)	1.35	0.25
	Sitting and Standing	76 (76.0%)	24 (24.0%)		
Frequent breaks	Yes	94 (81.0%)	22 (19.0%)	0.64	0.43
	No	14 (70.0%)	6 (30.0%)		
	Yes	78 (78.0%)	11 (22.0%)	0.23	0.63
	No	30 (83.3%)	6 (16.7%)		

Table 4. Duration of symptoms in relation to gender

Gender		Working days lost due to back pain	No. of days of back pain	No. of days of shoulder pain	No. of days of neck pain
Male	Mean	0.52	2.03	0.57	1.10
	SD	1.39	1.54	0.87	1.35
Female	Mean	0.81	2.17	0.89	0.86
	SD	2.10	1.63	0.79	0.92
Total	Mean	0.64	2.09	0.71	1.00
	SD	1.73	1.57	0.84	1.18

SD = Standard Deviation

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