



## RESEARCH ARTICLE

### WORK RELATED COMPLAINTS AMONG DENTISTS IN PATNA

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#### ABSTRACT

The main objective of this study was to depict the occurrence of neck pain, shoulder pain and back pain among dentists and to evaluate the risk factors affecting them. Sixty-eight dentists from Patna were interviewed utilizing pretested questionnaires in January 2018. Back pain was the most common complaint affecting almost 75% of the study population, followed by neck pain (52%) and shoulder pain (48%). The recurrence of shoulder pain among female dentists was nearly double that of males (P=0.009). The mean days of neck pain among males was altogether higher as compared to females (P=0.048). The study proposes that musculoskeletal complaints are common among dental specialists; however they are not of severe nature. There is a scope for further decreasing the prevalence and seriousness of these disorders by performing regular specific exercises.

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## INTRODUCTION

Dentistry is a demanding profession regarding concentration and precision. Most dental practitioners today work in the sitting position treating the patient in the supine position. Since their work area (the mouth of the patient) is narrow, performance of dental treatment brings about an exceptionally unyielding work posture (Finsen, 1998). Studies have demonstrated that dental practitioners have a high recurrence of musculoskeletal disorders (Shugars, 1987; Murtomaa, 1982 and Kajland, 1974). There are large numbers of studies relating to musculoskeletal complaints among dental practitioners in the Western literature but none has been conducted in Patna. This study has been conducted to assess the work-related complaints among dentist specialists in our local region with the specific objectives to find out the prevalence of neck, shoulder and back pain among the dental surgeons and to distinguish the risk factors associated with these symptoms.

## MATERIAL AND METHODS

This is a cross-sectional survey conducted in 68 dental surgeons who were interviewed using pretested questionnaires

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in January 2018. 33 were from the Dr. B. R. Ambedkar Institute of Dental Sciences & Hospital, Patna and 35 were private practitioners from Patna. Any dental surgeon who had passed the Bachelor of Dental Surgery (BDS) and working was viewed as qualified for the examination thus all dental specialists accessible in Patna filled the proforma intentionally. BDS students were excluded in the study. 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. The study was approved by the Ethical Review Board of the Research Committee of Dr. B. R. Ambedkar Institute of Dental Sciences & Hospital, Patna. Prior to 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 analysed utilizing SPSS (Statistical Package for Social Sciences). The collected data was outlined by calculating frequency and percentage for discrete variables and mean, a standard deviation for continuous variables like working days lost due to back pain, shoulder pain and neck pain. The analysis was performed by utilizing  $\chi^2$  test to identify the significant contrast between the discrete data. Mann-Whitney U test, a non-parametric test, was applied to test the significance of difference amongst continuous variables. Alpha ( $\alpha$ ) value was set at 0.05.

## RESULTS

Among the dental specialists interviewed, 39 (57%) were males (mean age 29.56 years) and 29 (43%) were females (mean age 24.93). Eighteen dentists (26.5%) practised sitting and 50 (73.5%) dentists practiced sitting and standing dentistry. Fifty eight (85.3%) respondents said they had frequent breaks while work whereas 10 (14.7%) said they did not. 40% (27) of the dental surgeons considered endodontic procedures to be the most tiring dental procedure.

during the last one year. Twenty-nine (42.6%) had mild pain, 8 (11.8%) had moderate and 4 (5.9%) had severe pain. Shoulder pain was less common. Only 32 (47.1%) had at least one episode of shoulder pain in the last one year. Among those who had shoulder pain, 27 (39.7%) had mild pain, 4 (5.9%) had moderate and 4 (6%) had severe pain. Out of the 54 dentists who had back pain, only nine (16.7%) sought medical treatment. Only five dentists (7.4%) sought treatment for shoulder and neck pain. The reason for not seeking medicinal treatment for shoulder and neck pain was stated by 38 (55.9%)

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

		Neck Pain		$\chi^2$ value	P value
		Yes	No		
Gender	Male (39)	20 (51.3%)	19 (48.7%)	2.15	0.143
	Female (29)	20 (69.0%)	9 (31.0%)		
Type of Dentistry	Sitting	11 (61.1%)	7 (38.9%)	0.05	0.82
	Sitting & standing	29 (58.0%)	21 (42.0%)		
Frequent breaks	Yes	35 (60.3%)	23 (39.7%)	0.38	0.54
	No	5 (50.0%)	5 (50.0%)		
Right posture	Yes	28 (41.2%)	22 (44.0%)	0.62	0.43
	No	12 (66.7%)	6 (33.3%)		

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

		Shoulder Pain		$\chi^2$ value	P value
		Yes	No		
Gender	Male (39)	13 (33.3%)	26 (66.7%)	6.9	0.009
	Female (29)	19 (65.5%)	10 (34.5%)		
Type of Dentistry	Sitting	6 (33.3%)	12 (66.7%)	0.79	0.37
	Sitting & standing	26 (52.0%)	24 (48.0%)		
Frequent breaks	Yes	26 (44.8%)	32 (55.2%)	0.79	0.38
	No	6 (60.0%)	4 (40.0%)		
Right posture	Yes	20 (40.0%)	30 (60.0%)	3.78	0.052
	No	12 (66.7%)	6 (33.3%)		

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

		Back Pain		$\chi^2$ value	P value
		Yes	No		
Gender	Male (39)	29 (74%)	10 (25.6%)	1.43	0.23
	Female (29)	25 (86.2%)	4 (13.8%)		
Type of Dentistry	Sitting	16 (88.9%)	2 (11.1%)	1.35	0.25
	Sitting & standing	38 (76.0%)	12 (24.0%)		
Frequent breaks	Yes	47 (81.0%)	11 (19.0%)	0.64	0.43
	No	7 (70.0%)	3 (30.0%)		
Right posture	Yes	39 (78.0%)	11 (22.0%)	0.23	0.63
	No	15 (83.3%)	3 (16.7%)		

**Table 4. Duration of symptoms in relation to gender**

Sex		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

The second and third most tiring dental procedures (20% each) were impacted tooth extraction and denture fabrication procedures. Fifty dentists (73.5%) thought they practiced the right posture and 18 (26.5%) thought they did not. Fifty (73.5%) felt that their musculoskeletal complaints were significantly contributed to by their dental work. Fifty-four dentists (79.4%) had at least one episode of backache in the last one year. Among them 38 (55.9%) had mild pain, 13 (19.4%) had moderate pain and only 2 (3%) had severe pain. Forty (58.8%) dentists had at least one episode of neck pain

as the pain being mild and self-limiting and by 7 (10.3%) that they resorted to self-medication. Twenty-five dentists (36.8%) said that they take self-medication for their musculoskeletal complaints. Thirty three (48.5%) did not take pharmaceuticals all alone. Ten (14.7%) did not react 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 potassium, Ibuprofen, combination of Paracetamol and Ibuprofen and some others. Of all these, Paracetamol was

the most commonly favoured analgesics, being used by 14.7%, followed closely by Diclofenac sodium (13.2%). Regarding exercise for backache, 21 (30.9%) said they exercised regularly. Thirty-five (51.5%) did not exercise and 12 (17.6%) did not react. Of the 21 who exercised, 13 said they learned the exercises themselves. Seven were taught by orthopaedic specialists. One did not react. Only 12 dental surgeons (17.6%) did regular exercise for the prevention or treatment of neck pain. Out of this, eight had had learnt the exercises themselves and four had been taught by orthopaedic specialists. Twenty-four (35.3%) of the dental surgeons credited 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 recurrence 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 recurrence of back pain (Table 1-3). It was observed that the kind of dentistry did not influence the recurrence of neck pain, shoulder pain or back pain significantly. The data also proposes 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 recurrence of back pain as well. The interviewees were asked whether they thought they practised right the posture or not. There was no significant difference in the frequency of neck, shoulder and back pain between those who thought they practised right posture and those who did not (Table 2-4) There was no huge contrast 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 asked to find out whether the males or females tended to take frequent breaks. No huge difference was noted between the two ( $\chi^2=0.77$ ,  $df=1$ ,  $P=0.38$ ).

## DISCUSSION

This study shows the 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 (Alexopoulos, 2004). Szymanska in his study reported that symptoms connected to the back were the most common (Szymanska, 2002). Most of the studies consistently report that back pain is the most common musculoskeletal complaint among the dental surgeons. In our study 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. Al Wazzan 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 (Al Wazzan, 2001). This study shows that the majority of the dental surgeons did not perform specific exercises to prevent or lessen back, neck and shoulder pain. We 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. Rundcrantz 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 (Rundcrantz, 1991).

Navah 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 (Ratzon, 2002). 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 practised the sitting and standing type. We 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. Szymanska tried to find out the relationship between the working time without breaks and the number of episodes experienced, but found no difference in the frequency of symptoms in dentists working with or without breaks (Szymanska, 2002). Marshall et al also did not find any difference in the symptoms in dentists who worked with or without frequent breaks (Marshall, 1997). We have tried to find the difference in prevalence of musculoskeletal complaints among those who thought they practised the right posture and those who thought they practised the wrong posture. There was no significant difference noted. 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 (Alexopoulos, 2004). This study cannot be generalized to the whole of Bihar as the data only represent the dentists working in the Patna. Therefore, this can be considered a limitation of the study.

## Conclusion

This study proposes that musculoskeletal complaints are common among dental specialists. Back pain is the most widely recognised followed by neck pain and shoulder pain, however they all are usually mild. There was no significant difference between male and female dentists with regard to musculoskeletal symptoms and most thought they practised the right posture without really doing as such. Most dentists do not perform specific exercises for the prophylaxis of neck, shoulder and back pain. There is a need for further decreasing the prevalence and severity of these disorders by performing regular specific exercises.

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