

## Prevalence of lumbago and its risk factors among dentists and orthodontist in Vijayapur city Karnataka

M.B. Halkati, Hemavathi Patil\* and Shahid Ahmed Khan

Department of Orthodontics, Al-Ameen Dental College and Hospital, Athani Road,  
Vijayapur-586108 Karnataka, India

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**Abstract:** *Introduction:* In the practice of dental profession neck and Lower back pain is most common problem in these life time. Considering the importance of this problem, we considered it was necessary to investigate the prevalence and risk factors among dentists. *Aim* of the study is to assess the prevalence and risk factors of lumbago (LBP) among general dentist and orthodontists in vijayapur city. *Material and method:* total 100 dentists among them 65 are General dentists and 35 are orthodontists from vijayapur city were surveyed to determine the prevalence and risk factors of lumbago( LBP)with the mean age between 30-60yr.both the dentists were evaluated with the help of questionnaire. *Result:* The data obtained and showed that incidence of Lumbago (LBP) among (65) GD 41.5% and (35) orthodontist 34.2% had suffered with the problem. 60.0%of GD and 68.6% of orthodontist take breaks during their work .among them only 41.5% of GD and 25.7% Of Orthodontist opted Alternative Remedies like Physiotherapy or Massage. *Conclusion:* This study concluded that dental professionals have a high prevalence of LBP, and the symptoms, The severity of LBP is mild to moderate among both the General Dentists and orthodontist. The symptoms of LBP increased with working position. To minimize the risk of lower back pain among dentists, work postures need to be improved. The physical therapist's role is vital, and the practice of relaxation and stretching exercises during breaks in the dentists' work schedules is mandatory.

**Keywords:** Lumbago, General Dentists, Orthodontists, Musculoskeletal Disorder

### Introduction

Lumbago (LBP) is the most common spinal column problem worldwide. According to some roughly calculation almost 60-80% of the common population was suffer from LBP in their lifetime and 20-30% affected from LBP at any specific time. Cross-sectional data manifestation that early inception of LBP frequently appeared around the age of 20 to 60 years [1].

Dentists are at high risk for neck and back pain. Awkward working postures, repetitive work, and prolonged standing can result in damage to muscles, joints, bones, ligaments, tendons, nerves, and blood vessels, which can then lead to pain, fatigue, and various MSDs. The type of pain varies, ranging from a stiff feeling to definite pain. Lower back pain (LBP) is the most frequent complaint, and almost all dentists worldwide have experienced this during their careers [2].

There are occupational differences in the nature of work for practitioners of general dentistry and orthodontics: orthodontic patient adjustment appointments are generally shorter than general dentistry appointments, orthodontists often focus on the frontal surfaces of the teeth rather than the back of the patient's mouth and are therefore able to maintain a more neutral head and neck position, and many orthodontists typically stand up and walk from patient chair to patient chair more frequently than dentists [3].

It has been stated that the most common sites of pain among dentists are in the areas of the cervical and lumbar vertebrae. It has been pointed out that common postural and excessive bending and twisting of neck, bending forward from the waist, elevation of shoulders, and general bending or twisting of the back and neck [4].

*Aim and Objective of the Study:*

1. To investigate prevalence and the risk factors associated with Lumbago (LBP) among General dentist and orthodontist in vijayapur city.
2. To determine the mean age of the Lumbago (LBP) among both General dentists and orthodontists.
3. To determine the severity of the lumbago (LBP) among General dentists and orthodontists

**Material and Methods**

A total of 110 dentists among them 70 are general dentist and 40 are orthodontists. The main survey was a questionnaire study. A 13 question survey was developed to examine the general dentist and orthodontist. The questionnaire used for the study consisted of 5 questions about general information and 8 questions about specific information on neck and lower back pain. The general dentists and orthodontist were also enquired about any treatment modality opted.

The questionnaire used to collect data for this study was based on similar studies published previously [2-3]. The questionnaire was printed in the English language. All questions were the close ended type. The dentists and orthodontist were randomly selected from the IDA Member Directory of Vijayapur. The questionnaire was divided into three parts. The first part included demographic questions regarding age, acquired specialization and work duration. Part two dealt with working conditions (working posture,) static position (seating/standing) and organization of the dentist's and orthodontist work (number of breaks and their purpose), whereas the third part concerned MSDs and prophylactic physical activities (type, effectiveness).

History of damaging physiological changes that can lead to back, neck or shoulder pain, or musculoskeletal disorder before and after joining the dental profession and the reduction of practice volume due to MSDs discomfort.

The questionnaire was sent self along with a reply paid envelope and an explanation of the purpose of the study to 70 general dentist and 40 orthodontist working in Vijayapur city, inviting them to participate in the study. Respondents were assured of the confidentiality of their information. All subjects were given instructions on how to fill out the questionnaire.

The questionnaire included subjective information regarding job history, personal characteristics, work physical risk factors, health status in general, and the occurrence of various complaints. The participants had to complete the questionnaire. Incomplete questionnaires were rejected. 65 general dentists and 35 orthodontics replied and participated in the study. The completed questionnaire was collected on the third day, and the data were used for the statistical analysis.

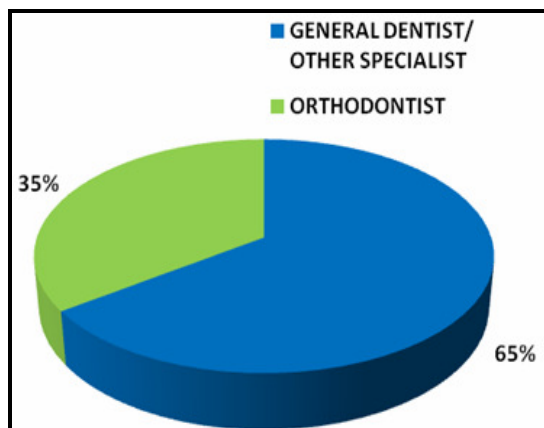
*Statistical analysis:* All characteristics were summarized descriptively. For continuous variables, the summary statistics of mean  $\pm$  standard deviation (SD) were used. For categorical data, the number and percentage were used in the data summaries and diagrammatic presentation. Chi-square ( $\chi^2$ ) test was used for association between two categorical variables. The difference of the means of analysis variables between two independent groups was tested by unpaired t test. If the p-value was  $< 0.05$ , then the results were considered to be statistically significant otherwise it was considered as not statistically significant. Data were analyzed using SPSS software v.23.0. and Microsoft office 2007.

**Results**

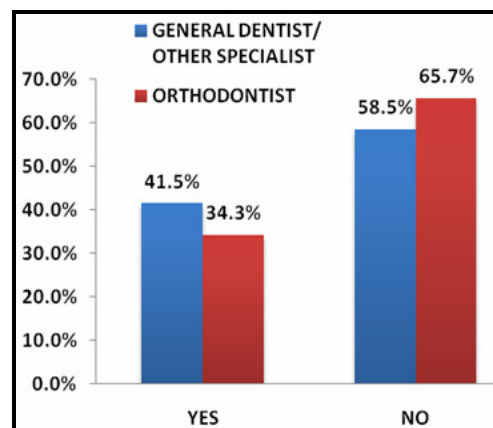
Figure.1 shows distribution of the cases, including 65% General Dentist and 35% orthodontists of vijayapur city with an average age of 30-60 years, participated in the study. Descriptive data are presented in table-1 to 3.

Graph.1 shows; incidence of Lower back pain among GD was 41.5% and 34.3% orthodontist.

**Fig-1:** Distribution of the cases



**Graph-1:** Incidence of Lower back pain



**Table-1A: Background parameters of cases between study groups**

Background Parameters		General Dentist		Orthodontist		p value
		Cases (N=65)	%	Cases (N=35)	%	
Age In Years	25-35	20	30.8%	9	25.7%	0.248
	35-45	34	52.3%	15	42.9%	
	45-50+	11	16.9%	11	31.4%	
Years In Practice	1-5 YEARS	18	27.7%	9	25.7%	0.448
	6-10 YEARS	37	56.9%	17	48.6%	
	>10 YEARS	10	15.4%	9	25.7%	
No. Of Patients/ Day	1-3	10	15.4%	5	14.3%	0.361
	4-6	26	40.0%	19	54.3%	
	>7	29	44.6%	11	31.4%	

**Table-1B: Mean age of cases between study groups**

Mean Age	General Dentist/ Other Specialist		Orthodontist		p value
	Mean	SD	Mean	SD	
	45.6	4.6	44.3	5.8	

**Table-2: Parameters regarding work of cases between study groups**

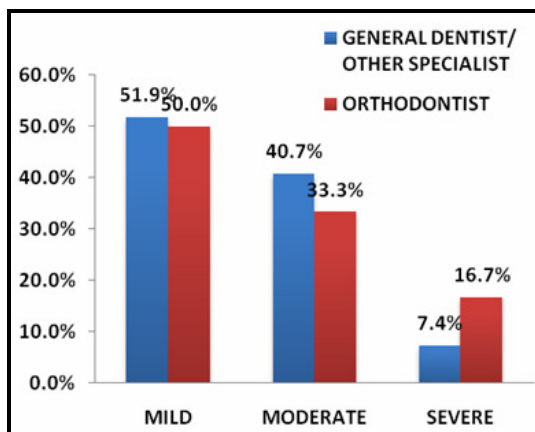
Parameters Regarding Work		General Dentist		Orthodontist		p value
		Cases (N=65)	%	Cases (N=35)	%	
Average Working Length	1-3 Hours	21	32.3%	7	20.0%	0.162
	4-6 Hours	36	55.4%	19	54.3%	
	7-9 Hours	8	12.3%	9	25.7%	
Working Position	Seating	40	61.5%	19	54.3%	0.621
	Standing	13	20.0%	10	28.6%	
	Both	12	18.5%	6	17.1%	
Continuous Working	0-1 Hour	9	13.8%	7	20.0%	0.683
	1-2 Hour	12	18.5%	7	20.0%	
	3-4 Hour	28	43.1%	11	31.4%	
	>5 Hour	16	24.6%	10	28.6%	
Having Rest / Break	Yes	39	60.0%	24	68.6%	0.397
	No	26	40.0%	11	31.4%	

Outcome Parameters		General Dentist		Orthodontist		p value
		Cases (N=65)	%	Cases (N=35)	%	
Incidence Of Lower Back Pain (LBP)	Yes	27	41.5%	12	34.3%	0.478
	No	38	58.5%	23	65.7%	
Severity (LBP)	Mild	14	51.9%	6	50.0%	0.664
	Moderate	11	40.7%	4	33.3%	
	Severe	2	7.4%	2	16.7%	
Utilization Of Any Alternate Remedies	Physiotherapy/ Massage	27	41.5%	9	25.7%	0.116

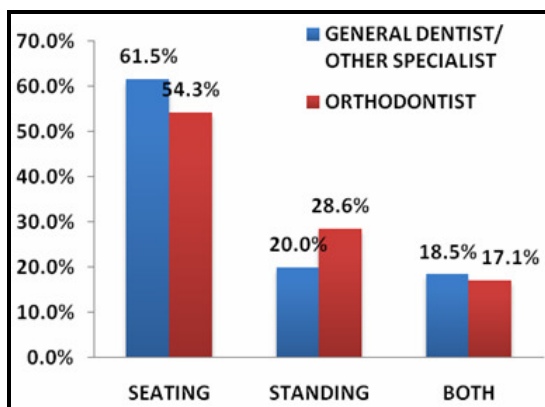
Graph.2 shows: A severity of injury analysis showed that most subjects among GD (92.6%).and (83.3%) orthodontists had a mild to moderate level of severity and only (7.4%) GD and (16.7%) Orthodontist had severe LBP. Graph.3 shows: 61.5%GD and 54.3%orthodontist are work in a sitting position indicating that the incidence of back pain did not correlate with years of experience, any dentists or orthodontist who are not maintaining normal posture are vulnerable to develop back pain.

Table.1shows: The majority of GD respondents were in practice for over 10 years (56.9%), whereas orthodontists with the highest response rate (48.6%) were in practice 6-10 years of experience. (44.6%) GD were treating More Than 7 patients per day, (54.3%) Orthodontist Were Treating 4-6 Patient which demonstrates that the number of patients treated and number of hours worked per day did not correlate with the incidence of back pain. no statically significant correlation were found between, LBP prevalence and age, year, practice, hours, or amount of day spent between sitting In both GD and orthodontist.

**Graph-2: Severity of LBP**



**Graph-3: Working Position**



**Discussion**

The current study of 65 GD and 35orthodontist was conducted to determine the prevalence of and risk factors for LBP. Among the 100 subjects, 83 to 93% complained of mild to moderately intense LBP in both the GD and orthodontist. These results indicate that the prevalence of back pain is very high among the dentists. This finding could be due to the altered working posture required for dentists to reach the oral cavity and is supported by earlier studies that demonstrated that dentists are highly predisposed to LBP [5].

In the current study, when complaints of pain were analyzed by region of the body, 41.5 %GD and 34.3%Orthodontis of subjects complained of LBP. They also found that LBP was most frequent in the age group of 35 to 45 years. A possible cause for work-related LBP among dentists could be the imbalance in muscles between the lower back and abdominal muscles that occurs in the sitting

posture of the dental profession. Repeated leaning towards the patient may lead to strain and overexertion in the lower back extensor muscles while at the same time, the deep abdominal muscles of stabilization become weaker. Studies show that if the transverse abdomens muscle is strong, the levels of back pain will decrease [6].

In the current study, (92.6%). subjects GD and 83.3% of orthodontics complained of mild to moderately intense LBP, and only 7.4% in GD among 65 subject and 16.7% complained of severe LBP in orthodontist among the 35 subject. We assume that this could be the reason why most dentists do not seek consultation with an orthopedic surgeon or physical therapist for their back problems [7]. When the data were analyzed for the number of years of work in both field same, an almost the range of percentage in GD 56.9% And Orthodontist is 48.6% were in Practice Of 6-10 Years Of Experience.

This suggests that the incidence of back pain does not correlate with years of experience and 61.5% of GD and 54.3% of Orthodontists Are Working In Seating Position that any dentists who are not maintaining a normal working posture are vulnerable to develop back pain. The appearance of musculoskeletal symptoms among dental professionals is quite common. It has been suggested that ergonomics should be covered in the dental educational curriculum to reduce the risk of injury to dental practitioners [8].

In our study 44.6% of GD were treating more than 7 patients per day, were 54.3% orthodontics treating 4-6 patients per day which indicates that the incidence of back pain does not correlate with the number of patients treated or number of hours

worked per day. During work hours 60-68% of them took breaks during their working period no one do exercise during their break hours. This is a major concern in regard to the high incidence of “work-related musculoskeletal disorders” WMSDs among dentists [9]. It is the role of an ergonomist or physical therapist to teach an appropriate set of relaxation and stretching exercises to dentists in order to avoid or reduce the occurrence of WMSDs among dentists [10].

In our study, pain was commonly reported only on lower back pain. The impact of MSDs on the work and life of dentists demonstrates the need for increased knowledge of MSDs and the initiation of preventive strategies [11]. Dentists are able to recognize and identify their own postures and equipment usage patterns that lead to high risks for musculoskeletal pain, especially LBP. Such recognition is the first critical step to neutralize non-ergonomic behavior and reduce risks to dental practitioners [12].

### Conclusion

This study concluded that dental professionals have a high prevalence of LBP, and the symptoms, the severity of LBP is mild to moderate among both the GD and orthodontist. The symptoms of LBP increased with working posture. To minimize the risk of lower back pain among dentists, work postures need to be improved. The physical therapist's role is vital, and the practice of relaxation and stretching exercises during breaks in the dentists' work schedules is mandatory.

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\*All correspondences to: Dr. Hemavathi Patil, Assistant Professor, Department of Orthodontics, Al-Ameen Dental College and Hospital, Athani Road, Vijayapur-586108 Karnataka, India. E-mail: hmankare@gmail.com