

Neck and Back Pain Among Dentists in Erbil City

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Background and objectives: Work-associated musculoskeletal disorders have become a common phenomenon and can happen over time as a result of exposing to workload repeatedly. Common regions that vulnerable to include Work-associated musculoskeletal disorders the neck and lower back. The objectives of the study were to assess the prevalence, causes, severity, and extent of lower back and neck pain among the dentists in Erbil city.

Methods: A cross-sectional study was done among on dentists of three medical universities of Erbil. Data collection was performed using a self-stated questionnaire with items related to socio-demographic characteristics, time in profession, activities performed and work conditions.

Results: the results showed that the neck and back pain is prevalent by 55% and 66% respectively. The neck and back pain seems to decrease with the year of experience. Overweight dentists seem to be exposed to neck and back pain more than normal and obese participants. The study also showed that 91% of the participants seem to do no assistive tools to reduce the pain. Individual factors height and weight and work position are important risk factors for neck and back pain.

Conclusions: Vast majority of the participants somehow complain from neck and back pain regardless of weight, height and working position. But the pain attenuates with increasing experience. Also, majority of the participants take no assistive tools to reduce neck and back pains.

Keywords: Musculoskeletal disorder, Dentists, back and neck pain

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Introduction

Work-related musculoskeletal disorders (WRMDs) have become a common phenomenon and can happen over time as a result of exposing to workload repeatedly. Common regions that vulnerable to WRMDs including the neck and low back.¹ Many postural faults among dentists are craning and/or excessive bending and twisting of neck, bending forward from the waist, elevation of shoulders, and general bending or twisting of the back and neck.² Furthermore, limited workspace, scopes of movements and narrow visual field associated with oral cavity leads to high risk of neck and lower backache. These work limitations repeatedly cause dentists to take stressful body positions in order to obtain access and visibility inside the oral cavity.³ Moreover, dental procedures are usually long and require concentration during work. Overstrained and awkward postures, repetitiveness of different joint movements, use of high frequency vibration tools, and psychological stress have been identified as risk factors. Dentist often cannot avoid prolonged static postures.⁴ Even in optimally

seated postures, more than one-half of the body's muscles are contracted statically, and there is little movement of the vertebral joints. These all may result in damaging physiological changes (microchanges) that can lead to back, neck or shoulder pain or musculoskeletal disorders (macrochanges).

In the last decades, various researches have been conducted on the prevalence WRMDs among dental professionals over the world. It has been cited the WRMDs are predominant among them. Different protective measures should be practiced to avoid the neck and lower back pain which include; relaxation techniques early in clinical training, stretching prior to work, performing procedures with good body posture, taking a break in the middle of the day.¹ The literature suggests some others related reasons such as dentist age, patients number and the handled case complexity.⁵

Presence of data regarding this issue could formulate and help to take necessary actions to overcome or reduce the risks of WRMDs. However, to the authors' best knowledge; there is a lack of data in relation WRMDs among the dental professionals in Erbil.

Therefore, this study was done to assess the prevalence, causes, severity, and extent of lower back and neck pain among dentists from three dental colleges in Erbil and propose some preventive measures. Furthermore, the study aimed to understand the connection between individual's information with neck and back pain.

Experimental design. The questionnaire was divided into 3 parts. The first part included

socio-demographic characteristics such as age, experience, height, weight, work duration and work position.

Part two dealt with working conditions (dentist work by sitting, standing or both, working posture (direct, indirect or both).

The third part was concerned with WRMDs and prophylactic physical activities.

Methods

This descriptive, cross-sectional study was done on dentists Hawler Medical University, College of Dentistry, Ishik University, Khanzad Dental Center and Syndicate of Dentists in Erbil (excluding students and dentists not practicing) for duration of four months from January 2017 to April 2017 on dentists working in Erbil city.

Self-stated questionnaire was prepared and all subjects were given instructions on how to fill out the questionnaire, and an informed consent was obtained from each participant. The completed questionnaire was collected, and the data were used for the statistical analysis using Microsoft Excel.

Results and discussion

The high prevalence of the WRMDs (neck and back pain) among dentists can be seen. Data from the study revealed that the neck and back pain is prevalent by 55% and 66% respectively. This could mean that more than half of the participants complained of neck and back pain. Whereas, the rest of the participants seemed to have no pain (Table 1).

Table 1: The prevalence of neck and back pain

Prevalence pain	Neck		Back	
	No.	%	No.	%
Yes	68	55%	82	66%

No	56	45%	42	34%
Total	124	100%	124	100%

Table 2: Relationship between Body Mass Index (BMI) and neck and back pain.

BMI	No.	%	neck pain	back pain
Normal	47	38%	16	23
Overweight	65	52%	45	49
Obese	12	10%	7	10
Total	124	100%	68	82

Table 3: Working and prevalence of neck and back pain.

Hours work per day	No	Neck pain	Back pain
3-4 hrs	55	49%	70%
5-6 hrs	30	63%	57%
7-8 hrs	23	65%	73%
8-10 hrs	16	44%	56%
Grand Total	124		

This can be expected that there are incidents among the dentists since the neck and back pain is well-documented in several studies. Previous studies have also referred to the prevalence of abovementioned pains among dentists. Studies have reported neck and back pain among Danish and Swedish dental professional.^{6,7} A recent study by Canadian orthodontists in Alberta showed that the back and neck pain is prevalent by 59% and 56% respectively.⁸ In a separate study about the prevalence of neck and back pain among dentists in Queensland-Australia, it has been reported that the neck and back pain is prevalent by 57.5% and 53.7% respectively.⁹ In most of the previous studies the prevalence of neck and back is among the highest factors of WRMDs.

The study also aimed to reveal the connection between socio-demographic characteristics and prevalence of neck and

back pain. Body mass index (BMI) is indicator of body weight which might influence WRMDs. So, this study investigated the connection between BMI and neck and back pain. It can be seen that the BMI is connected to neck and back pain (Table 2). It is obvious that overweight dental professionals suffer from neck and back pain by 45% and 49% respectively. Whereas normal and obese dentists' complaint far less than over weight dentists. Previous study found that neck pain is prevalent in underweight participants (68.42%) and back pain (66.17%) among overweight individuals.¹⁰ There is a debate on the correlation between BMI and neck and back pain. Some studies have found negative association between WRMDs and BMI.^{4,11} Whereas some study found strong relationship between the development of BMI and WRMDs.¹²

In relations to working hours, it was found that the dentists whom work between 7-8 hrs suffer more back pain (73%) than neck pain (65%) (Table 3). Furthermore, the densities whom work or 3-4 hours suffer from neck and back pain by 49% and 70% respectively. Furthermore, for 5-6 hrs more than half of participants complained of. Finally, it was found that the dentists whom work for 7-8 hrs suffer from neck and back pain by 44% and 56% respectively. It has been reported that the working hours are strongly related to back and neck pain. But it also depends on the type and difficultness of the cases. There, the more working hours and the difficultness of the cases the more neck and back pain will be.^{8,13}

Previous studies have stated that some socio-demographic information might have association with the risk development of WRMDs. Therefore, it is worth searching and finding any correlation between body height and neck and back pain. From the study results it can be seen that the body height could have connected with WRMDs. With the increasing

height neck and back pain changes and sometimes increases. Even in the case of neck it reaches %100 (Table 4). It has been stated in the literature that individuals' characteristics such as the body height could increase the risks of WRMD.

The study also aimed to see the connection between correlation of years of experience (1 to 40 yrs) and the WRMDs. The results of the study revealed that with increasing the year of experience the prevalence of the neck and back pain reduces (Table 5). Furthermore, dental professionals with 1-5 years of experience seem to have the pains more than the dental professionals with 36-40 years of experience. This result is in congruent with the previous studies which found that WRMDs is negatively correlated with the years of practicing. A Thai study showed that experienced dentists had less MSD than less experienced ones.¹³ Similarly, a Queensland study showed that younger dentists experience more WRMDs.⁹

Table 4: Dentist height in relation to prevalence of back and neck pain.

Height (cm)	No.	Neck pain	Back pain
110-114	1	0 %	0 %
150-154	3	67 %	67 %
155-159	10	20 %	60 %
160-164	14	57 %	64 %
165-169	22	40 %	45 %
170-174	31	64 %	80 %
175-179	20	65 %	85 %
180-184	19	47 %	50 %
185-189	4	100 %	75 %

Grand Total	124		
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Table 5: Years of work in relation to neck and back pain.

Years of work	Neck pain				Back pain			
	Yes	%	No	%	Yes	%	No	%
1-5	17	35%	31	65%	26	54%	22	46%
6-10	17	70%	7	30%	18	75%	6	25%
11-15	16	67%	8	33%	15	62%	9	38%
16-20	9	69%	4	31%	13	100%	0	0%
21-25	5	83%	1	17%	5	83%	1	17%
26-30	3	60%	2	40%	3	60%	2	40%
31-35	1	50%	1	50%	0	0%	2	100%
36-40	0	0%	2	100%	2	100%	0	0%
Total	68		56		82		43	%

Regarding the position of working (sitting or standing and direct or indirect) (Figures 1 and 2). It can be seen (Table 6 and 7) that there is a little difference between prevalence of the pain and the work position. Neck pain is prevalent by 61% and in standing position back pain is prevalent by 80%. Furthermore, this could be due the fact that in different position has different cervical areas as in sitting is neck and in standing is back. In study, it has been reported despite the fact the prevalence of WRMDs is different, but the difference could be little¹⁵. Overstrained and awkward postures, repetitiveness of different joint movements, use of high frequency vibration tools, and psychological stress have been identified as risk factors. Dental professionals often unable to avoid prolonged static postures.⁴ Even in optimal seated postures, more than half of the body’s muscles are contracted statically, and there is narrow movement of the vertebral joints. These all may result in damaging physiological changes (microchanges) that can lead to back, neck or

shoulder pain or musculoskeletal disorders (macrochanges).

The last part of the study was looking at the assistive tools to reduce the pain and risk development of the WRMDs (Table 6). The study asked the participants if they used any therapy method to reduce the pains. The answers revealed that the vast majority of the



Figure 1: Working while sitting



Figure 2: Working while standing

participants by 91% follow no guide to reduce the pains. Whereas, only 8% and 7% of the participants do physical exercise and physiotherapy respectively. Furthermore 21 % of the respondents take analgesics to reduce the pain. It can be very risky not following and doing exercises and physiotherapy to reduce pain of the neck and back pain. Since over

time the pain could develop and reach dangerous stages which may require more difficult treatment. Studies have showed different assistive tools among dentists. In a study about tools to reduce WRMDs pain, it has been reported that majority of the participants exercise when the pain developed. Whereas, 8% of the participants take short break while working.⁸ Another study has revealed that 10% of the participants exercise and 34% take rest but the majority of the participants take no assistive tools to reduce the WRMDs pain.¹ It is obvious that majority of the dental professionals take no assistive tools to prevent or reduce WRMDs pain which might be due to time stress not taking serious.

Table 6: Distribution of dentists' work position on the patient.

Work Position	No.	%	Neck Pain	%	Back Pain	%
Both	63	51%	32	51%	42	67%
Sitting	45	36%	28	62%	27	60%
Standing	16	13%	8	50%	13	81%
Grand Total	124	100%	68		82	

Table 7: Distribution of dentists' position direction on the patient.

Work direction	No.	%	Neck pain	%	Back pain	%
Both	104	84%	57	55%	68	65%
Direct	4	3%	2	50%	3	75%
Indirect	16	13%	9	56%	11	69%
Grand Total	124	100%	68		82	

Table 8: Assistive tools to reduce neck and back pain during rest periods.

Assistive tools	No.	%
None	91	73%

physical exercise	8	6%
Physiotherapy	4	3%
Analgesics	21	17%
Grand Total	124	100%

Conclusions

To summarize, the study was conducted on purpose of investigating the prevalence of neck and back pain among dentists of Erbil. The study revealed that more than half of participant's complaint of having the neck and back pain. Different individual factors such as height, weight, working hours, experience and working positions could have influence the neck and back pain. Despite complaining of the aforementioned pains, it seems that vast majority if the dentists do not take any assistive tools to alleviate the pains. So it, highly recommended that the dental professional would consult take rests, do physical exercises and consult physiotherapists to reduce the pain.

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