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Prevalence of Lower Back Pain among Dentists in Kurdistan Region-Iraq

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Abstract

Background and Objective: Lower back pain caused by professional activities often develops over time due to repetitive work. Dentists are particularly prone to low back discomfort because of their working posture during patient treatment, as they spend most of their workday in static, uncomfortable positions. This study aimed to investigate the incidence of risk factors for low back pain in dentists and examine the potential relationship between these factors and working posture.

Methods: A prospective study was conducted involving 206 dentists. Data was collected and analyzed to assess the prevalence of lower back pain and associated occupational factors.

Results: The findings revealed that 67% of participants reported lower back discomfort. Additionally, the study showed that lower back pain was not age-related. Most participants indicated that they worked long hours with minimal breaks between procedures.

Conclusion: The research confirms that dentists are at a higher risk of developing lower back pain due to their working posture during patient treatment. To mitigate this risk, work postures should be adjusted to reduce the likelihood of work-related musculoskeletal disorders among dental professionals.

Keywords: Lower back Pain, Musculoskeletal Disorder, Dental Ergonomics

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INTRODUCTION

Musculoskeletal discomfort, especially back pain, has been identified as a significant health issue for dental practitioners.[1,2] Pain may occur, persist, and worsen due to a variety of physical reasons such as repeated action and posture.[3]

Musculoskeletal diseases (MSD) are widespread in vocations where workers must utilize high apprehension forces, such as while using tools, where tiny muscle groups are routinely engaged in uncomfortable postures for extended periods.[4] Since dentistry is a visually demanding profession that requires maintaining stationary postures for extended periods, dental practitioners have a high prevalence of musculoskeletal problems.[5] Other professions with high visual demands, such as musicians[6] and draftsmen,[7] have a high risk of MSD.

According to research, there is a clear link between clinical procedure postures and musculoskeletal diseases.[8] Dentists often assume stressful body postures to get unobstructed access to the oral cavity within the restricted space available and to improve sight inside the patient's mouth cavity, which may worsen neck and back issues.[9] Furthermore, dental operations are often lengthy and require a high level of focus. Back pain has been presented as the most prevalent form of discomfort in all occupational categories, although its specific causes are diverse and a definitive diagnosis is sometimes hard.[10] Spinal discomfort, which has been recorded among dentists, dental hygienists, and dental assistants, is frequently a persistent musculoskeletal pain related to repeated motions during normal dental operations.[11] According to studies, dentists have higher neck, shoulder, and back discomfort than practitioners in other occupational categories.[12] Thornwall in1977 revealed that dentists' lower backs, necks, and shoulders were the most painful and uncomfortable parts of their bodies.[13] Rundcrantz in 1991 discovered a significant frequency of back pain (72%) among dentists in research.[14]

While occasional backache or neck pain may not be alarming, chronic pain resulting from accumulated physiological damage can lead to long-term injury or even career-ending disability. Numerous research on the musculoskeletal health of dental practitioners has been conducted across the globe, with a focus on the practitioner's suffering, who indicated a high incidence of back pain.[15]

The aim of the study:

The study's goal was to establish the prevalence, pattern, and kind of back pain among dentists in Iraq's Kurdistan Region, as well as to investigate the probable relationship between reported back pains and perceived influencing variables.

The research objective was;

1- To ascertain the perceived variables impacting the occurrence of back pain among dentists in Iraq's Kurdistan region .

2- To ascertain the pain behavioral pattern (frequency, duration, and severity) reported by this community of dentists in Iraq's Kurdistan region.

RESEARCH QUESTIONS

1. Do dentists in the Kurdistan region of Iraq suffer from lower back pain and work-related Musculoskeletal Disorders?
2. Do dentists in the Kurdistan region of Iraq know the risks of long-term back pain and the risks that work-related Musculoskeletal Disorder brings?
3. Are dentists in the Kurdistan region of Iraq aware of the ways to prevent work-related back pain and other health risks that the profession causes?

METHODOLOGY

The method for this research paper was carried out as an online survey that was sent to 206 dentists in the KRI. The survey is based on three parts. Part one consists of demographic questions related to age, province, etc. Part two is questions relating to whether dentists have lower back pain or not and the type of pain they have. Finally, part three is questions relating to the prevalence of back pain and if dentists exercise or take measures for their back pain or not. MSDs were evaluated with the help of evaluation of the dentist’s diets, ways of working, hours of working and so on. The next chapter will include the results of the survey carried out with the distribution of each response.

RESULTS

A total of 206 dentists participated in this study. The first section of the survey introduced questions about whether dentists had back problems, and the results are summarized in Tables 1-3 below. Shows that 138 dentists %67 have lower

back pain and 68 dentists %33 don't have lower back pain. Out of those dentists that have lower back pain %24.3 have moderate pain and %35 have mild back pain, furthermore, only %5.8 of dentists had severe back pain. %25.2 of doctors have lower back pain during work hours while 13% of dentists have back pain during off hours and finally, %26.2 of dentists said that they have back pain both during work and off hours.

Table 1. Distribution of lower back pain among dentists

		Frequency	Percent
Do you have any lower back pain?	Yes	138	67.0
	No	68	33.0

Table 2. Distribution of severity of lower back pain

		Frequency	Percent
If yes: the severity of the pain	Mild	72	35.0
	Moderate	50	24.3
	Severe	12	5.8

Table 3. Distribution of lower back pain times

		Frequency	Percent
Valid	both times	54	26.2
	While working hours	52	25.2
	While off hours	28	13.6

The next section of the survey is the demographic section, based on Table 4-10 age range of dentists that filled this survey varies between 23-28, which is half the population taken in this survey and from the ages 29-34 were %26.7. As for the gender %58.7 of the participants are female and %41.3 are male, furthermore, %31.1 of the participant's weights vary from 61-70 while %21.4 are 90+ kilograms making fewer percentages for other weight ranges.

When it comes to height the majority of participants' height is between 151-180cm as it makes % up 74.8 of the population that filled out the survey. The next demographic question is marital status and province, with %56,3 of participants being single and %43.2 being married. As for the province, 50% of the participants are from Sulaimaneyah city while 36%36.4 of them are from Erbil, making it the majority of the population in Sulaimaneyah and Erbil.

As for specialty, %67 of the dentist population that took the survey are general practitioners and smaller percentages of other specialties as shown in Table 10.

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Table 4. Distribution of Age

		Frequency	Percent
Age	23-28	109	52.9
	29-34	55	26.7
	35-40	29	14.1
	41-45	8	3.9
	46+	5	2.4

Table 5. Distribution of Gender

		Frequency	Percent
Gender	Male	121	58.7
	Female	85	41.3

Table 6. Distribution of Weight

		Frequency	Percent
Weight	51-60 kg	33	16.0
	61-70 kg	64	31.1
	71-80 kg	31	15.0
	81-90 kg	27	13.1
	91+ kg	44	21.4

Table 7. Distribution of Height

		Frequency	Percent
Height	130-150 cm	21	10.2
	151-180 cm	154	74.8
	181+ cm	31	15.0

Table 8. Distribution of Marital Status

		Frequency	Percent
Marital Status	Single	116	56.3
	Married	89	43.2

Table 9. Distribution of Province

		Frequency	Percent
Province	Sulaymaniyah	103	50.0
	Erbil	75	36.4
	Halabja	3	1.5
	Duhok	25	12.1

Table 10. Distribution of Specialty

		Frequency	Percent
Specialty	General practitioner	138	67.0
	Oral Surgeon	12	5.8
	Orthodontist	13	6.3
	Periodontist	8	3.9
	Prosthodontist	11	5.3
	Endodontist	17	8.3
	Pedodontics	6	2.9
	Radiologist	1	0.5

Furthermore, table 11-14 is the results of the relationship between years of practice, daily working hours, and rest intervals between patients was analyzed. The survey results indicate that due to the young age of most dentists, it shows that % 57 of participants have 1-5 years of practice years and %22.3 have 6-10 years of experience. and it also shows that only %17 work 7-10 hours a day while %54.4 of dentists work from 4-6 hours a day while %28.6 work less than 4 hours daily.
The average time spent on patients varies from 30 minutes to an hour by %64.5 while only %35.5 takes less than 30 minutes of work. This suggests most dental workers need more work time than others need and that causes tiredness for dentists especially dentists that take less than 5-minute breaks. The survey shows that %40 of dentists take very little interval time between patients. While %29.6 takes from 5-15 minutes and fewer dentists take more interval time because of their tight Work schedule as shown in tables 11-14 below.

Table 11. Distribution of Practice Years

		Frequency	Percent
How many years have you been practicing?	1-5	118	57.3
	6-10'	46	22.3
	11-15	26	12.6
	16-20	12	5.8
	21+	4	1.9

Table 12. Distribution of Working Hours Per Day

		Frequency	Percent
Working hours per day	1-3	59	28.6
	4-6	112	54.4
	7-10	35	17.0

Table 13. Distribution of Average Time Spent Per Patient

		Frequency	Percent
Average time spent per patient	5-15	27	13.1
	16-30	46	22.3
	31-45	88	42.7
	45+	45	21.8

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Table 14. Distribution of Rest Interval between Patients

		Frequency	Percent
Rest interval between patients	Less than 5 min	83	40.3
	5-15	61	29.6
	16-30	40	19.4
	30+	22	10.7

Next, we show the results of the dentist's working style, which are shown in tables 15-19, %72 of dentists doesn't use dental loupes as is shown in table 15. Furthermore, results show that 63% of dentists excessively bend and twist for better visibility within the oral cavity, and 71% of dentists have dental assistants that assist them during dental procedures. Finally, dentists' style of working varies between standing and sitting down and results from the survey show that %66 of dentists work while sitting down while %29.1 do dental procedures both sitting and standing up for better reach and vision to the oral cavity. Table 19 shows that %79.1 of dentists are right-handed and use their right hand while operating and only %20 are left-handed.

Table 15. Distribution of Using Dental Loupes

		Frequency	Percent
Do you use dental loupes?	Yes	57	27.7
	No	149	72.3

Table 16. Distribution of bend/twist for better access and Visibility Within the Oral Cavity

		Frequency	Percent
Do you excessively bend/twist for better access and visibility within the oral cavity?	Yes	131	63.6
	No	75	36.4

Table 17. Distribution of being assisted by a Dental Assistant

		Frequency	Percent
Is a dental assistant assisting you?	Yes	147	71.4
	No	59	28.6

Table 18. Distribution of Style of Working

		Frequency	Percent
Style of working	Sitting	136	66.0
	Both	60	29.1
	Standing	10	4.9

Table 19. Distribution of which Hand is used during the operation

		Frequency	Percent
Which hand do you use during the opera-	Right Hand	163	79.1
	Left Hand	43	20.9

Finally, and for the last section of the survey, tables 20-29 show the distribution of what dentists use for better work and comfortable working hours and these vary from office design, chairs used, shoes worn and diets…etc. based on our survey, %90 of dentists use chairs with a backrest while operating. Also %83.5 use adjustable operating chairs for patients for better movement and reach while operating on patients. As for shoes worn by dentists %68 of the survey participants said that they wear Crocs during working hours and while operating %30 said that they wear sneakers while operating, and the reason is that Crocs have more back support and are more comfortable while operating especially for dentists working for longer hours.

Furthermore, %78.2 of participants have one job and have no secondary jobs as shown in Table 23. Moreover, the survey shows that %68 of the participants doesn't exercise while only %32 engage any form of exercise, also %66.5 of participants said that they don't have a balanced diet, and also %61.2 reported that they don't take any nutritional supplements either. Finally, 92% of the participants didn't have any autoimmune or other diseases, moreover %74 of the participants did not have any previous experience with back problems, and %25.7 said that they had a record of previous back pain problems.

As sleeping positions also matter for back problems, 51% of participants mentioned that they sleep on the side while %26.2 sleep on the stomach and %20.9 sleep on the back.

DISCUSSION

Table 21. Distribution of Type of Used Operating Chair

		Frequency	Percent
Which type of operating chair do you use?	Adjustable	172	83.5
	Non-Adjustable	34	16.5

Table 22. Distribution of Type of Worn Shoes by Dentist

		Frequency	Percent
What type of shoes do you wear	Crocs	140	68.0
	Sneakers	62	30.1
	High heel	3	1.5

Table 23. Distribution of side job

		Frequency	Percent
Do you have a side job	Yes	45	21.8
	No	161	78.2

Table 23. Distribution of Exercise by Dentists

		Frequency	Percent
Do you exercise?	Yes	66	32.0
	No	140	68.0

Table 24. Distribution of Having a Balanced Diet

		Frequency	Percent
Do you have a balanced diet?	Yes	69	33.5
	No	137	66.5

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Table 2. Distribution of Using Nutritional Supplements

		Frequency	Percent
Do you take nutritional supplements?	Yes	80	38.8
	No	126	61.2

Table 26. Distribution of Suffering from Autoimmune or Other Diseases

		Frequency	Percent
Do you suffer from autoimmune diseases or other diseases?	None	190	92.2
	Osteoporosis	3	1.5
	Osteoarthritis	8	3.9
	Degenerative disc disease	2	1.0
	Rheumatoid arthritis	3	1.5

Table 27. Distribution of Previous Back Problems

		Frequency	Percent
Did you have any previous complaints about back problems?	Yes	53	25.7
	No	153	74.3

Table 28. Distribution of Sleeping Positions

		Frequency	Percent
Sleeping position	Stomach sleeper	2	1.0
	Stomach	54	26.2
	Back	43	20.9
	Side	107	51.9

The study aims to assess the frequency and risk factors for lower back pain (LBP) among dentists in Iraq's Kurdistan region. According to the data, 67% of individuals felt lower back discomfort.

The study showed no link between years of experience and lower back pain. However, it was shown that extended working hours and short rest periods between surgeries contribute to weariness and can result in major back problems. This demonstrates the role of work-related factors in the development of lower back pain among dentists.

The lower back was shown to be the most common site of discomfort in this study (48.8%). This finding is congruent with the findings of Riziq et al., who also investigated the prevalence of risk factors for lower back pain among dentists .[16]

Another study by Richardson et al. found that deep abdominal muscular weakness is frequent in patients with low back pain. According to their research, around 57% of dentists experience lower back pain, particularly those aged 30 to 40. The study revealed that dentists' working positions may produce an imbalance between the muscles of the lower back and abdomen when seated. Bending repeatedly towards the oral cavity during dental operations might strain and overwork the lower back extensor muscles, causing the deep abdominal muscles to weaken .[17]

Previous research found that the incidence of occupational lower back and neck pain among dentists ranged from 37% to more than 55%. While

several factors contributing to musculoskeletal discomfort have been addressed, this study also looked into other possible causes.

The authors stated that there is little information available on the epidemiology of musculoskeletal issues in their specific region. Other studies have found that ophthalmologists, factory workers, and people who live in rural areas are more likely to experience work-related issues. Postures that put stress on the intervertebral disc, as well as chronic spinal hypomobility, are major causes of lumbar spine degeneration and lower back discomfort.

Given the nature of a dentist's everyday practice, which frequently includes such postures, some researchers believe dentists are more likely to acquire musculoskeletal disorders than other occupational groups. However, the findings of this study show that the prevalence of lower back and neck discomfort among dentists is lower than that reported in other studies.

Similar investigations undertaken in Indonesia[18] and Iran[19] yielded different results. The prevalence of lower back pain among dentists was reported to be 9.3% in Indonesia and more than 55% in Iran. Improper posture, extended sitting, and prolonged standing without rest have been found as key contributors to lower back pain in dentists. Dentists specializing in surgical fields were shown to be more prone to lower back pain, possibly due to extended standing during procedures like extractions.

The study also found that dentists use appropriate seats for sitting and operating. However, many dentists, regardless of age or experience, do not practice healthy habits such as regular exercise, a balanced diet, and adequate sleep, all of which help reduce lower back discomfort.

CONCLUSION

In conclusion, the survey revealed, dentists in the Kurdistan region of Iraq suffer from lower back pain regardless of age and years of experience and that is caused by long working hours and very little resting time between operations. Although dentists are adopting measures such as using ergonomic chairs and comfortable shoes to reduce back pressure. ack of a balanced diet and little exercise and no nutritional benefits or good sleeping posture may all cause lower back pain to worsen because the Spine lacks the necessary support to relax and relieve the stress.

Ergonomics can be a way dentists can recover and have healthier and longer careers, in dentistry, ergonomics refers to reducing musculoskeletal disorders by allowing the dentist to adopt a more natural and comfortable posture, providing patient-friendly therapy, increasing treatment efficiency, and enhancing treatment accuracy. Dentists in the Kurdistan region of Iraq need to learn more about ergonomics, its benefits and how to use these tips and medical therapies to help them have less back pain and healthier lives.

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