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Psychological Assessment of Postural Predisposition of Cervical Pain and Discomfort According to Dentistry Job Title in Tikrit City

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Abstract

The field of dentistry is mentally and physically a challenging profession and the majority of working dentists have musculoskeletal symptoms in the neck. This may be due to stress, tension and postural practices that can contribute to severe cervical pain and discomfort among dental workers. The aim of this study is to assess the posture relation to cervical pain and discomfort in dentists and its impact on their work.A cross-section study was carried out by convenience sampling methods on 150 dentistry students, dental practitioners and dental specialists in Tikrit city through researcher-administered questionnaire. Results shows that 44% of dentists have cervical pain and discomfort, 41.6% of males and 46.9% of females have cervical pain and discomfort and 75% of those older than 40 have cervical pain.Concerning cervical posture, 40.9% and 39.28% of those who have and haven't cervical pain respectively, attended to switch between postures depending of the case.Cervical pain and discomfort occur in 46.55% of dental practitioners, 47.3% of those who practice more than 10 years, 57.14% of those who treated more than 10 patients daily, 53.3% of those who spent less than 30 minutes in treating patients and 55% of those who take rest rarely. Cervical pain and discomfort has caused 55% of dentists to decrease their work activity, 36% to be absent from work and 61% to increase time spent on work. Cervical pain and discomfort is regarded as a common condition among dentists in Tikrit city. It increases with age, dentistry practice years, number of treated patients per day and time spent on each patient.

Keywords: Postural Predisposition, musculoskeletal disorders, cervical pain, dentists.

Introduction

Dentistry is a physically and mentally demanding profession that requires performing a range of procedures within restricted area of the body for an extended period of time, which requires the ability to maintain a good posture among other things. So, this job comes with many health hazards especially cervical pain and discomfort, which represents a common condition among dentists in comparison with any other health professionals. [1][2] Cervical pain and discomfort are characterized by uneasiness, rigidity, disablement and chronic neck pain in the soft tissues of the neck as a result of high static load in the neck region from excessive flexion and rotation for an extended period. [3]

Risk factors for cervical pain in dentists includes high demands of job, poor job control, minimum social support and some personal characteristics. Age related changes in vertebral column, its shape, weakness of muscles, poor practice posture of lifting and mechanical pressure, limited work space and narrow visual field associated with oral cavity led to high risk of cervical pain. These work limitations cause dentists to take stressful body positions in order to obtain access and visibility inside the oral cavity. [3][4] Moreover, dental procedures are usually long and require concentration during work, other factor that should be mentioned is the long working hours due to high number of patients treated per day. These all may result in damaging physiological changes that can lead to neck pain. [2]

This occupational hazard may cause absence from work and finally reduce the quality and productivity of dentist'spractices.[5]

Because of the complex nature of the contributing factors associated with the prevalence of neck pain, studying this phenomenon becomes difficult. For this reason, the focus of many studies, including the present study, is to document the prevalence of neck pain among dental workers. [6]

Aim of the study is:

Assessment of posture relation to cervical pain and discomfort in dentists and its impact on their work.

Study design and samples

An epidemiological investigation using a cross-sectional study design was conducted between 15th November 2021 and 22nd March 2022 using a questionnaire filled by researchers themselves to evaluate postural predisposition of cervical pain and discomfort among dentists. The questionnaire was written in English, accomplished and collected in University of Tikrit, college of dentistry, specialized center of dentistry and private dental clinics in Tikrit city to ensure wide dissemination to the target population (Dentistry students, general dentists and specialist dentists). The sample size was150 participants. The sampling method of the study was convenience sampling. Statistical analyze were performed by manual statistical methods included measurement of Chi-square and P-value. Data presented using tables and figures in Microsoft programs (Word and Excel).

Result

The study was conducted from 150 dentists in Tikrit city, 81dental students, 58 dental practitioners and11 dental specialists.

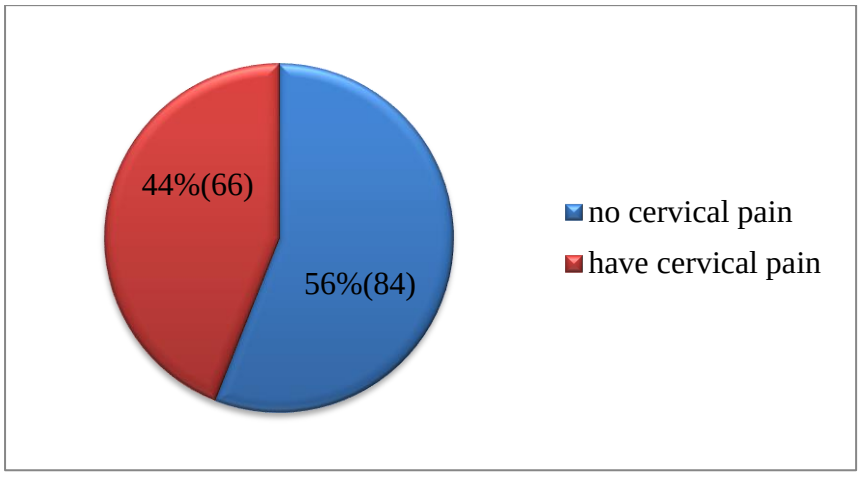

Figure (4.1): Frequency of cervical pain and discomfort in dentists

The figure shows that 56% (84) of the dentists out of 150 of dentists didn't have cervical pain and discomfort, while the remaining 44% (66) had cervical pain and discomfort.

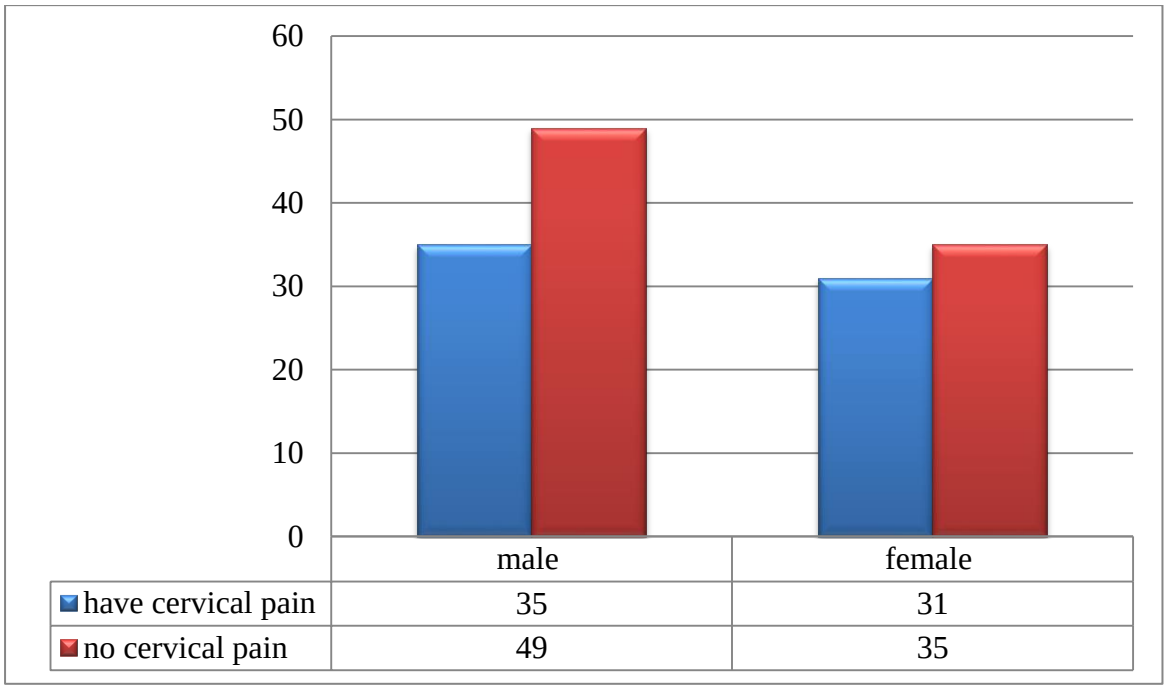

Figure (4.2): Frequencyof cervical pain and discomfort in dentists according to gender

The chi-square statistic is 0.4218. The p-value is 0.516024. Not significant at p <0.05.The figure shows that 41.6%of males and46.9%offemales have cervical pain and discomfort.

Table (4.1): Frequencyof cervical pain and discomfort in dentists according to age.

Age	**Have cervical pain**		**No cervical pain**		**Total**	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**
20-30	57	(43.5%)	74	(56.5%)	131	(100%)
31-40	6	(40%)	9	(60%)	15	(100%)
40	3	(75%)	1	(25%)	4	(100%)
Total	**66**		**84**		**150**	

The chi-square statistic is 1.6702. The P-value is 0.434, this result is not significant at P< .05

This table shows that 43.5% at the age between 20-30 years, 40% at the age between 31-40 years and75% at the age more than 40 years have cervical pain and discomfort.

Table (4.2): Frequencyof the relationship between cervical posture and cervical pain and discomfort in dentists who have and haven't cervical pain and discomfort.

Position	**Have cervical pain**		**No cervical pain**		**Total**
	Number	**Percent**	**Number**	**Percent**	
Typical posture for dentists with straight back, relaxed shoulders, neck flexion <20° without lateral tilt or rotation	18	27.2%	32	38.09%	50

Excessive neck flexion > 20°	12	18.1%	10	11.9%	22
Excessive flexion with rotation and lateral tilt	9	13.6%	9	10.7%	18
Switch between postures depending on the case	27	40.9%	33	39.28%	60
Total	**66**		**84**		**150**

The chi-square statistic is 2.579. The p-value is 0.461191. The result is not significant at p < .05.

This table shows that the majority of dentists who have and didn't have cervical pain and discomfort attended to switch between postures depending on the case.

Table (4.3): Frequency of the relationship between body mass index and cervical pain and discomfort among dentists.

BMI	**Have cervical pain**		**No cervical pain**	
	Number	**Percent**	**Number**	**Percent**
<18.5	4	6.06%	1	1.19%
18.5-24.9	28	42.4%	42	50%
25-29.9	28	42.4%	33	39.2%
>30	6	9.09%	8	9.5%
Total	**66**		**84**	

The chi-square statistic is 3.1814. The p-value is 0.364499. The result is not significant at p < 0.

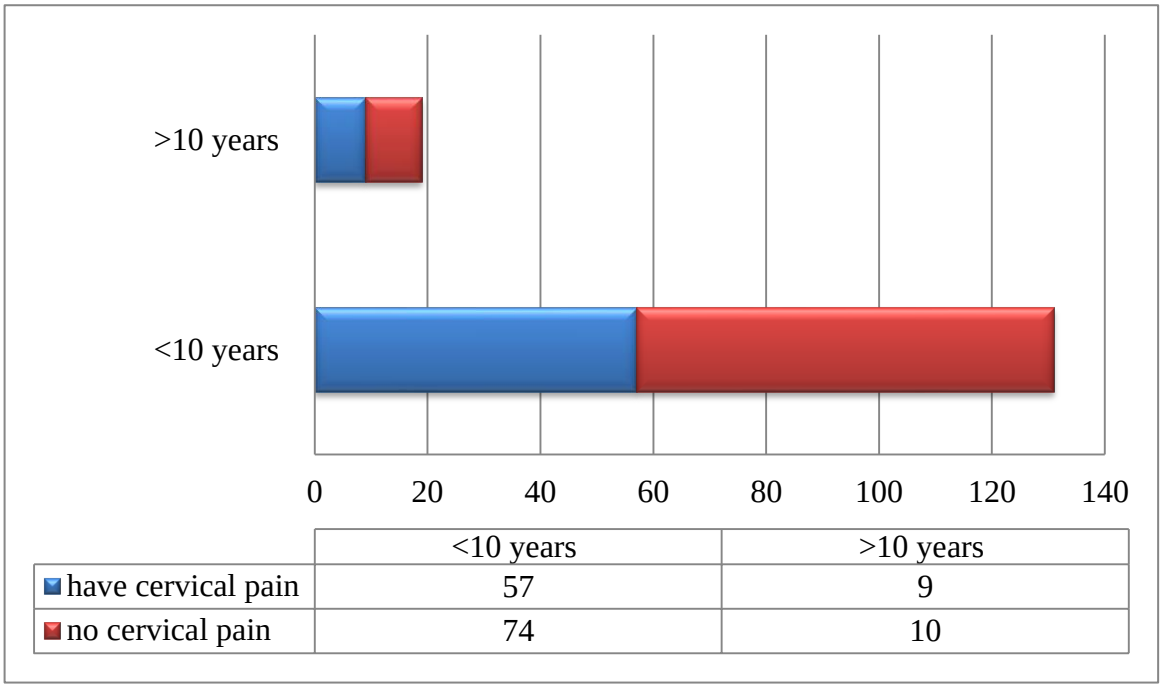

Figure (4.3): Frequencyof cervical pain and discomfort in dentists according to dentistry practitioner time

The figure shows that 43.5%dentists with dentistry practitioner time less than 10 years have cervical pain and discomfort. It also shows that 47.3% dentists with dentistry practitioner time more than 10 years dentists have cervical pain and discomfort.

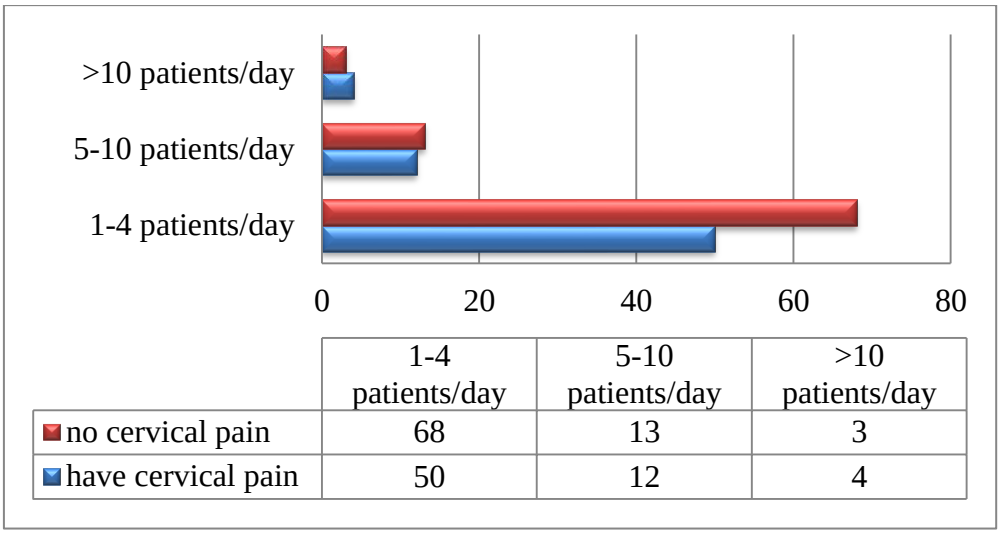

Figure (4.4): Frequency of cervical pain and discomfort in dentists according to number of treated patients.

This figure shows that 42.23%who treat 1-4 patients daily have cervical pain and discomfort, 48% of dentists who treat 5-10 patients daily have cervical pain and discomfort, while 57.14% of dentist who treat more than 10 patients daily have cervical pain and discomfort.

Table (4.4): Frequencyof the methods used by dentists to relieve cervical pain and discomfort.

Options	**Effective**		**Not effective**		**Total**
	Number	**Percent**	**Number**	**Percent**	
Seek for medical help	16	80%	4	20%	20
Correction of an awkward posture	33	94.3%	2	5.7%	35
Self-prescribed drugs	20	80%	5	20%	25
Rest only	42	91.3%	4	8.7%	46
Total	**111**		**15**		**126**
Other methods	**Result**				
	Number		**Percent**		
Exercises	3		2.2%		
Physiotherapy massage	4		2.94%		
Cervical collar	2		1.47%		
Magnification by indirect mirror and direct position	1		0.74%		
Total	**10**				

This table shows that the majority of dentists use rest only with 91.3% effectiveness in relieving of cervical pain and discomfort, while the most effective method for relieving of cervical pain and discomfort is correction of an awkward posture.

Discussion:

Cervical pain among dentists is common with various factors increasing its prevalence.

Data from the study revealed that the cervical pain is prevalent by 44% of respondents. This was significant and can be expected that there are incidents among the dentists since the cervical pain is well-documented in several studies. Previous studies have also referred to the prevalence of above-mentioned pain among dentists. A recent study reported at Erbil city conducted that cervical pain is prevalent by 55% among dentists. [7] In another study, Canadian orthodontists in Alberta showed that the back and neck pain is prevalent by 56%.[8] The previous studies showed that dentists experienced significantly high levels of cervical pain and discomfort. Females and younger dentists showed a high frequency of cervical pain and discomfort which was corroborated by another study as well. [9]

Regarding the frequency of poor cervical posture and its relation to cervical pain and discomfort in dentists, we asked 150 dentists, 44% of them have cervical pain while remaining 56% don't have cervical pain, the latter revealed 39.28% of them switch between posture depending on the case which were the highest in percentage and that have a relation to different cases variations, This study also found 38.09% of dentist tend to sit a typical posture which is straight back, relaxed shoulders, neck flexion <20° without lateral tilt or rotation, It also showed that 11.9% dentists attended to use excessive neck flexion > 20^{o} for better visualization, the remaining 10.7% attended to use excessive flexion with rotation and lateral tilt. In comparison to other study were conducted in Mina university hospitals Egypt revealed that 23.8% of dentist attended to neck forward which means excessive neck flexion, in addition this study also showed that 36.6% tend to twists their neck during work. [10]

As stated earlier, 44% of dentists in the study have cervical pain, 40.9% of them attended to switch between posture depending on the case, the study also revealed 27.2% be inclined to typical posture for dentists with straight back, relaxed shoulders, neck flexion <20° without lateral tilt or rotation, also 18.1% present as excessive neck flexion > 20°, minority of them 13.6%attend to excessive flexion with rotation and lateral tilt. On the other hand, Mina university hospitals Egypt study shows that 76.2% of dentist tend to neck forward which is higher when compared to this study, while 63.4% of dentists attend to twist the neck in work. [10] Therefore posture seems not to affect cervical pain alone unless combined with other risk factors, which can affect the results.

Cervical pain has many predisposing risk factors included poor cervical posture as it was discussed previously, in addition there are many other risk factors. Regarding BMI, this study results were not significant, which has showed that those with cervical pain and those without cervical pain nearly share the same BMI results, which is inconsistent with other study conducted in clinics and hospitals in Jordan showed that the majority of those with cervical pain have BMI above normal range, this inconsistency may be related to multifactorial predisposition to cervical pain, also there is a little fat distribution in head and neck compared to the rest of the body, which has a little to no impact on cervical spine.[2]

Concerning cervical pain and discomfort in relation to type of profession, the study revealed that dentistry students were the least to be affected by cervical pain with about 42% compared to dentistry practitioners 46.6% and dentistry specialist 45.5%. As for dentistry practice time those who practice less than 10 years 43.5% of them have cervical pain compared to those who practice more than 10 years 47.4% of them have cervical pain, those results were consistent with other study conducted in clinics and hospitals in Jordan and also supported by another study were conducted in Hisar city in India, the reasons behind those results may be related to the number of treated patients which may be increases with age, sustained bad posture as well as the degenerative changes related to the spine with ageing as stated previously.[2,4]

About number of treated patients per day, the study revealed that cervical pain increases with increasing the number of treated patients, which is not surprising as working more puts more stress on musculoskeletal system

as stated previously on pathophysiology of stress related MSDs. Regarding cervical pain in relation to average time spent on each patient, the study revealed inconsistent results with cervical pain more common in those who spent less than 30 minutes and those who spent more than 60 minutes compared to those who spent 30-60 minutes, which couldn't be explained alone unless related to other risk factors such as poor cervical posture.

Regarding dentist with cervical pain who sought for medical help, the study revealed that only 14.7% sought for medical help compared to other study conducted in clinics and hospitals in Jordan with 15.6% and another study in Riyadh in Saudi Arabia with 25.23% sought for medical help and this may be related to the severity of MSDs symptoms. [1,2]

Concerning self-prescribed drugs, the study revealed that only 18.4% of dentists used this method for relieving pain while dentists in other study conducted in clinics and hospitals of Jordan revealed that 61% use this method, again this may be related to severity but this may cause serious side effects without medical specialist supervision. [2]

With respect to physiotherapy in treating MSDs, the study revealed that only 2.9% of dentists used this method compared to other study conducted in Bialystok, Poland, which revealed that 26.79% of dentists used physiotherapy for relieving pain, but this method must be under supervision of physiotherapist and depend on underlying cervical pathology. [11]

Concerning correction of posture for relieving of pain, this study revealed that 25.7% of dentists tried this method and it revealed that it was effective in 94.3% for relieving pain, which reflect that poor cervical posture is the strongest and most modifiable predisposing factor responsible for cervical pain and discomfort among dentists. Regarding rest only for relieving cervical pain, this study disclosed that 33.8% of dentists use rest only, which accounts for the majority of them and it has efficacy of 91.3%, this reflects that the majority have only mild cervical pain that was relieved with rest only, thus rest is an important preventive measure for relief and prevention of further progression of MSDs.

Conclusion

- Cervical pain and discomfort is a common condition affecting both males and females dentists of Tikrit city equally.

- Posture seems to be the strongest factor that can affect cervical pain and discomfort, but it can't cause cervical pain alone unless related to any of other risk factors.

- Cervical pain and discomfort increases with increasing age, dentistry practice years, number of treated patients per day and time spent on each patient, but decreases with increasing rest time during work.

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