

*Research Article*

## Prevalence of Musculoskeletal Disorders in Upper Egypt Dental Society

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### Abstract

The **aim** of this study was to assess the prevalence of musculoskeletal disorders in group dentists in Upper Egypt. **Subjects and methods:** a total of 430 dentists were included in the current study after sample size calculation. They were randomly selected from four governorates in Upper Egypt (Bani Sweif Minia, Assuit, and Sohag). Data were collected by face-to-face interview and email using pre-validated questionnaire. The questionnaire consisted of 2 parts; first part demonstrates sociodemographic and 2<sup>nd</sup> part assess musculoskeletal disorders and treatments received of participants (5 questions). **Results:** revealed high response rate among participant (93%). About 40.3% have complain related to Wrist /Hand, 53.8% have complain related to neck/shoulder, 54.8% have complain related to low/ high back, 52.5% have complain related to knees, ankles, and feet and 12.8% have treatment for musculoskeletal disorders. **Conclusion:** Dentists in Upper Egypt have obvious musculoskeletal problems. Unfortunately, these shortages in knowledge and practice are a real cause of the musculoskeletal disorder. **Keywords:** dentists, Upper Egypt and Musculoskeletal disorders

### Introduction

Dentistry is a visually dependent occupation where the visual demands may require adoption of fixed postures for extended periods of time. Also, the job profile of dentists exposes them during their work to many burdensome and harmful factors which put them at high risk for musculoskeletal disorders (Khare and Gupta, 2018).

Musculoskeletal disorders (MSDs) are a wide range of inflammatory and degenerative disorders of muscles, tendons, and nerves which can result in pain and functional impairment affecting the neck, upper back, lower back, shoulders, elbows, wrists, and hands (CDC, 2016) which can be classified according to their clinical presentation as clinically well-defined (such as tendonitis and carpal tunnel syndrome), less clinically well-defined (such as tension neck syndrome) and nonspecific (such as repetitive strain injury, cumulative trauma disorder, and overuse syndrome) (Hales, 2016)

There are many types of MSDs that related to work and can affect different body parts as; wrist (carpal tunnel syndrome, tendonitis and Guyon's syndrome), fingers (DeQuervain's tenosynovitis and trigger finger), elbow (epicondylitis cubital tunnel syndrome), shoulders (bursitis, thoracic outlet syndrome, rotator cuff tear and rotator cuff tendonitis), neck (myofascial pain disorder and cervical spondylosis), and back (general pain, disc problems and sciatica (Pejčić, 2019). These disorders can result in detrimental effects on work efficiency among dental surgeons (Alyahya 2018).

Many authors reported the prevalence of MSDs in between dentists to be high (Feng et al., 2014, Hassan et al., 2017 and Ohlendorf et al., 2020).

### Participants and Methods

Before beginning of study, the number of recorded licensed dentists in Egyptian dental syndicate in each governorate was 2900 dentists

(900 dentist in minia, 750 dentist in assuit, 700 in sohag and 550 in Bani Sweif ). The study included 400 dentists who were randomly selected from licensed dental practitioners in four governorates in Upper Egypt.

The sample size was calculated using the following equation formula:  $n = t^2 * p(1-p) / m^2$ , n: the required sample size, t: confidence interval at 95% (standard value of 1.96), p: estimated dentist knowledge (50%), m: margin of error at 5% (standard value of 0.05) and  $n = (1.96)^2 * 0.5(1-0.5) / 0.05^2 = 384$ . Then an additional number of dentists were added to guard against non-response.

Surveying literature was carried out to find suitable instrument for assessment of Musculo-skeletal disorders (MSDs) that affect upper Egypt dental society, the results rendered several published studies using questionnaire (Kritika et al., 2014, Kalghatgi et al., 2014 and El-sallamy et al., 2018). A validated questionnaire which assessed the prevalence of MSDs in between dentists was used. The questionnaire was statistically tested for validation from a pilot study which was performed in 100 participants (20 participants for each question).

The face-to-face interview method and e-mail were used to complete the study questionnaire from voluntary participated dentists working in hospitals of Egyptian Ministry of Health, private clinics or both in selected governments. The participants were of all academic degrees (bachelor, master and doctoral degree)

The questionnaire consisted of the following sections: 1) a cover information sheet that contained participant contact information, participation invitation, and studies summary, 2) demographic data section, 3) MSDs assessment (5 questions).

Statistical analysis was performed with IBM SPSS Statistics 20.0 (SPSS Inc., Chicago, IL, USA) using Chi-square test, Fisher’s Exact according to type of data and number of compared groups.

**Results**

Out of 430 questionnaires, 400 fulfilled questionnaires were adopted for statistical analysis whereas 30 incomplete questionnaires have been excluded. The response rate in this study was high, 400 (93%). Statistical analysis of demographic data revealed the following:

**Distribution of participant by age:**

Age groups	Frequency (percentage)
25–30	136(34.0%)
31–35	217(54.3%)
36–40	28(7.0%)
41–45	14(3.5%)
46–50	5(1.3%)

**Gender of the participant**

Out of 400 included study members, males were 220(55%) while females’ number was 180 (45%)

**Distribution of the participants according to last scientific degree**

The last scientific degree of participants (GDP) demonstrates that 331(82.8%) were general dental practitioners and 69(17.3%) had master or diploma degree

**Distribution of the participants by years of experience**

Groups	Years of experience	Fruquency (percentage)
Group 1	1-5	96(24%)
Group 2	6-10	257(64.25%)
Group3	11-15	23(5.75%)
Group 4	16-20	20(5%)
Group 5	21-25	4(1%)

**Distribution of the participants according to work place**

There were 71 (17.8%) of participants work in hospital, 63 (15.8%) work in clinic, 266 (66.5%) work in both MSDs are a wide range of inflammatory and degenerative disorders,40.3% have complaints related to Wrist /Hand , 53.8% have complain related to neck/shoulder, 54.8%have complain related to low/ high back,52.5% have complain related to knees, ankles and feet and12.8% have treatment for musculoskeletal disorders.

**Distribution of the studied dentists according to musculoskeletal disorders related questions (n =\_400)**

Q	V-Musculoskeletal disorders related questions	Yes		No	
		No.	%	No.	%
1	Have you any complain related to Wrist /Hand?	161	40.3	239	59.8
2	Have you any complain related to Neck/shoulder?	215	53.8	185	46.3
3	Have you any complain related to Low/ high back?	219	54.8	181	45.3
4	Have you any complain related to knees, ankles and feets?	210	52.5	190	47.5
5	Do you have treatment for any musculoskeletal disorders?	51	12.8	349	87.3

The study resulted that there is 156 (39%) have no complains, 193 (48.3%) have complains without treatment and 51 (12.8%) have complains with treatment.

**Distribution of the studied dentists according to v-musculoskeletal disorders related questions: in (n = 400)**

Musculoskeletal disorders	No.	%
No complain	156	39.0
Complain without treatment	193	48.3
Complain with treatment	51	12.8

**Discussion**

Sample was obtained from four governments (Bani Sweif, Minia, Assuit, and Sohag)) as these governments represented the main bulk of dentists distribution in Upper Egypt society as recorded by Egyptian dental syndicate up to January 2018.

In the current study a face to face interview and email was used to complete predesigned validated self-administered questionnaire thus allow combination of two most commonly used methods for surveying with combined advantages as high quality of data and larger cover of

participants (Feng et al., 2014 and Kritika et al., 2014).

The current study result revealed that, 40.3% have complain related to Wrist/Hand, 53.8%

have complain related to neck/shoulder, 54.8% have complain related to low/ high back, 52.5% have complain related to knees, ankles and feets and 12.8% have treatment for musculoskeletal disorders.

The current study results were in accordance to, and Hassan et al., 2017 who reported Neck (63.4%), low back (54.3%), shoulder (53%), wrist (49.4%) and upper back (44.5%). While being lower than that reported by Feng et al., 2014 who reported 83.8% suffered from neck pain, 73.5% had shoulder pain. Also higher than

that reported by Chamani et al., 2012 who reported symptoms among dentists was neck (46.4%), wrist (33.8%), low back (28.8%) and shoulder (27.5%).

### Conclusions

Dentists in Upper Egypt have obvious musculoskeletal problems. Unfortunately, these shortages in knowledge and practice are a real cause of musculoskeletal disorder.

### Recommendations:

From the current study, authors could recommend introducing methods for early diagnosis and prevention of musculoskeletal disorders and continuous education for graduated ones

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