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Research Article

Prevalence of Musculoskeletal Disorders among Dentists in Aseer Region, Saudi Arabia

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Abstract

Background: Musculoskeletal disorders affect the health care of the society in general and dentist in particular. Repeated unnatural, deviated or inadequate working postures, forceful hand movements, inadequate equipment or workplace designs and inappropriate work patterns are likely to be the particular risk factors for these disorders. Physiological changes that accompany these disorders can be related to practices used by today's operators – primarily being seated for prolonged periods.

Aims and Objectives: This study aims to assess the prevalence of musculoskeletal disorders among dentists in Aseer region, Southern region of Saudi Arabia.

Material and methods: A total of 300 questionnaires were circulated and were given a response time of 5 days. Of the 198 questionnaires, 114 were Saudi nationals and the rest 84 non-Saudis.

Results: Both Saudi and non-Saudi professionals had headache prominently as a leading complaint as compared to shoulder pain, backache, neck discomfort. Males had significantly higher symptoms as compared to females. Age group 2 i.e., 31-45 years had significantly higher symptoms. Headache was the prominent complaint in males whereas neck discomfort was the chiefly the complaint in females. Dentists working in University/academic set up had higher prevalence of musculoskeletal disorders than the private dentists.

Summary: The prevalence of musculoskeletal disorders is high though if not alarming among dentists in Asser region, Kingdom of Saudi Arabia. Results are statistically similar to other studies performed.

Keywords: *Musculoskeletal; Disorders; Dentists; Saudi Arabia*

Introduction

Musculoskeletal disorders have become increasingly common worldwide during the past decades [1]. It is a common cause of work-related disability among workers with substantial financial consequences due to workers compensation and medical expenses. Dental professionals commonly experience musculoskeletal pain during the course of their careers [2]. The physical load among dentists seems to put them at risk for the occurrence of musculoskeletal disorders [3]. Repeated unnatural, deviated or inadequate working postures, forceful hand movements, inadequate equipment or workplace designs and inappropriate work patterns are likely to be the risk factors.

The prevalence of general musculoskeletal pain ranges between 64% and 93%. The most prevalent regions for pain in dentists have been shown to be the back (36.3-60.1%) and neck (19.8-85%), while the hand and wrist regions were the most prevalent regions for dental hygienists (60-69.5%) [4]. The overall prevalence of musculoskeletal disorders varies with the age, expertise of the dentist and the overall hours of work. Accordingly, the symptoms vary which ranges from back pain to discomfort and neck discomfort. This has been represented in various studies i.e., prevalence of back pain as 57 percent, while the prevalence of low-back pain as 35.5 percent [5,6]. Musculoskeletal disorders affects the younger generation more. As such, musculoskeletal disorders represent a major occupational health issue [7].

This study aims to assess the prevalence of musculoskeletal disorders among dentists in Aseer region, Southern region of Saudi Arabia. No similar studies so far have been conducted in the southern part of Saudi Arabia. Results of similar studies conducted elsewhere have been compared in this study.

Aims and Objectives

1. To assess the prevalence of musculoskeletal problems among dentists in Aseer Province, Saudi Arabia.
2. To assess the most common symptom among dentists (shoulder pain, back ache/back pain, neck discomfort, headache).
3. To assess the age group and gender with higher prevalence.
4. To assess the specialty and type of work with higher prevalence of symptoms.
5. To suggest recommendations in teaching curriculum to create awareness of musculoskeletal disorders and thereby reduce them.

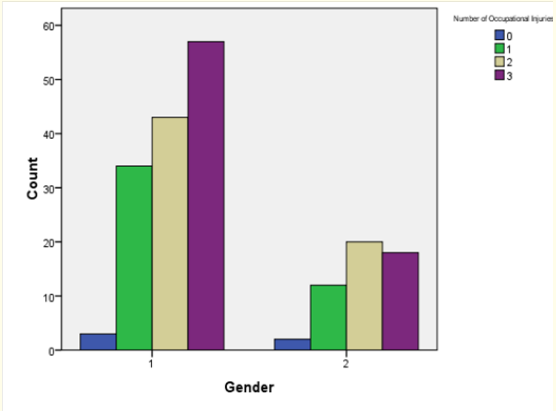
Materials and Methods

A self-administered questionnaire was designed. This was circulated among dental students, interns, specialists. Both governments, academic and private dentists were involved in the study. A total of 300 questionnaires were circulated and were given a response time of 5 days. 260 questionnaires were answered; of which only 198 were acceptable in terms of data entered.

The respondents are expected to give details of demographic data, work history and questions related to symptoms of musculoskeletal problems.

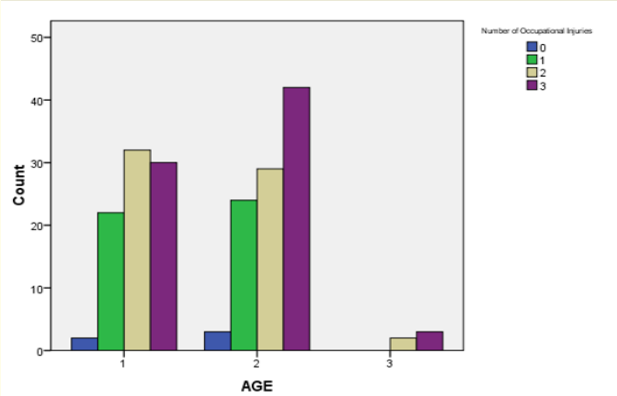
Results

Of the 198 questionnaires, 114 were Saudi nationals and the rest 84 non-Saudis. Both Saudi and non-Saudi professionals had headache prominently as a leading complaint as compared to shoulder pain, backache, neck discomfort. Males had significantly higher symptoms as compared to females (Graph 1).



Graph 1: *Musculoskeletal Disorders in relation to Gender.*

1. Male
2. Female



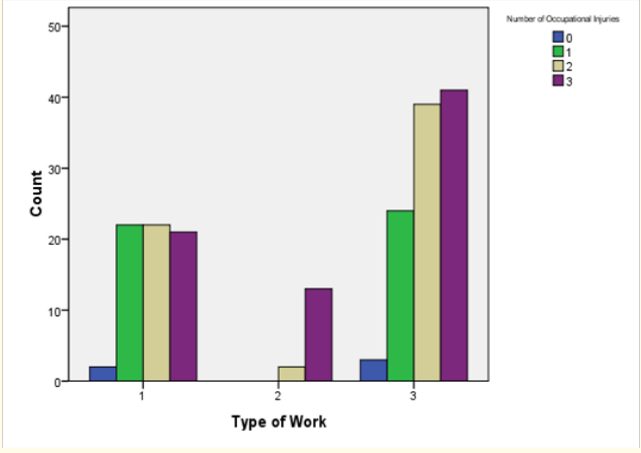
Graph 2: *Musculoskeletal Disorders in relation to Age Group.*

1 – 15 – 30 years

2 – 31 – 45 years

3 – 46 – 60 years

As shown in Graph 2, age group 2 i.e., 31-45 years had significantly higher symptoms. In this age group, again headache was the prominent symptom. In the age group 1. i.e., 15 - 30 years, neck discomfort was the prominent symptom. Headache was the prominent complaint in males whereas neck discomfort was the chiefly the complaint in females. Dentists working in University/academic set up had higher prevalence of musculoskeletal disorders than the private dentists (Graph 3).



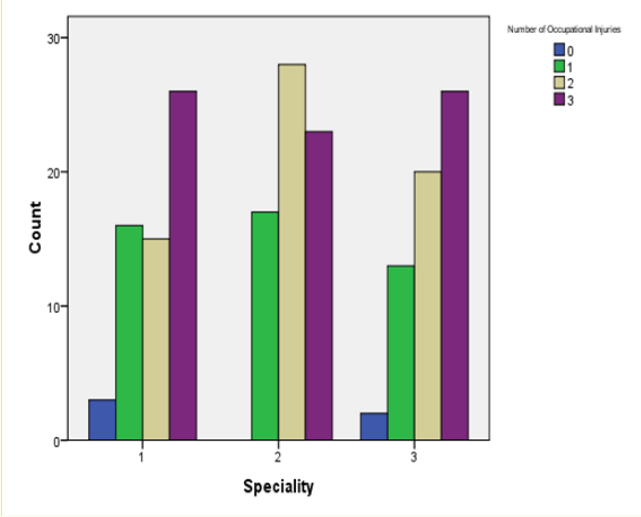
Graph 3: *Musculoskeletal Disorders in relation to Type of Work.*

1- Government

2- Private

3- Academic

Among the specialists and students, headache was the prominent symptom. However, general dentists had significantly higher complaint of neck discomfort (Graph 4).



Graph 4: *Musculoskeletal Disorders in relation to Type of Specialty.*

1 -Specialists

2-General Practitioners

3-Students

Discussion

Musculoskeletal problems have become a significant issue for profession of dentistry and dental hygiene [4]. These disorders develop over a period of time and are responsible for significantly affecting the working capacity of a dentist. Moreover, musculoskeletal disorders affect the health care of the society in general and dentist in particular. MSDs can affect the body's muscles, joints, tendons, ligaments, and nerves from the neck to the feet [8]. Repeated unnatural, deviated or inadequate working postures, forceful hand movements, inadequate equipment or workplace designs and inappropriate work patterns are likely to be the particular risk factors for these disorders [9]. According to Sartorio F., *et al*. there is a sharp rise in the incidence of work-related musculoskeletal disorders (WMSD) [10]. There have been reports that the physical burden of clinical work is strongly associated with MSDs in dental health workers [11,12]. Stress, tension, and postural practices are other contributing factors which causes back and neck problems [13]. Abdul Jabbar TA conducted a study among Saudi population involving 140 dentists from the public dental service clinics in Dammam and Riyadh cities [3]. He was of the opinion that the high frequency of musculoskeletal disorders probably reflects the specific work load in dentistry, with high demands on vision and precision and fine manipulative hand movements and working with unsupported, elevated arms.

According to Hayes M., *et al*. the most prevalent regions for pain in dentist's have been shown to be the back and neck [4]. In the present study, headache was the prominent symptom. Santos Filho SB and Barreto SM conducted a study among dentists in Brazil through a self-administered questionnaire and concluded that 58% reported with upper limb pain [14]. Akesson I., *et al*. conducted a study among Nordic population over a period of 5 years through questionnaire and stated that the symptoms of pain in elbows/wrists/hands increased over a period of time [15]. Alexopoulos EC., *et al*. conducted a study involving 430 dentists in Greece and concluded that the physical load among dentists seems to put them at risk for the occurrence of musculoskeletal disorders [1]. The present study did not evaluate the reason for symptoms such as headache or backache. But, certainly it is due to long appointments/physical strain, improper ergonomic posture along with psychosocial and other personal characteristics. Physiological changes that accompany these disorders can be related to practices used by today's operators - primarily being seated for prolonged periods [16]. Turp JC and Werner EP discussed the pathophysiological mechanisms which are responsible for damages in detail and suggested gymnastic training program for dentists [17]. In a specific study to assess the musculoskeletal disorders among dentists in Saudi Arabia, apart from a questionnaire, other specific points

were recorded. These included ergonomic examination, the sitting work postures, the clock-related working position, use of dental mirror and active neck mobility [3].

In the present study, headache was the prominent symptom. This must be related to longer periods of work, improper ergonomic posture, use of dental mirror and non-scheduled appointments. Age group 31 to 45 years had higher frequency of symptoms and these decreased with increasing age. This is related to higher work load and stress at this age group as pointed out in many studies. Males in our study had a more frequent complaint of headache whereas females complained more of neck pain closely followed by headache. Private practitioners were the least affected by any of the symptoms. University dentists had the highest complaints. This is obviously related to more number of patients in the university setup and the students and interns involved who ignore or are not aware of the musculoskeletal disorders in the long term practice. This is one basic reason why we suggest that the subject of musculoskeletal disorders be incorporated in the teaching schedule and a clinical demonstration be given for the ergonomic postures. Further, we recommend that specific percentage of marks be allotted in the examinations for dental graduate students. This must be followed by active interactive sessions by the interns who must present and demonstrate the impact of musculoskeletal disorders in community camps and CME programs.

Conclusion

1. The prevalence of musculoskeletal disorders is high though if not alarming among dentists in Asser region, Kingdom of Saudi Arabia. Results are statistically similar to other studies performed elsewhere.
2. The most common symptom was headache. This is in contrast to pain as primary symptom in other studies.
3. Age group 31-45 years complained of higher complaints. Males had a higher frequency of complaints than females.
4. University group had more prevalence of symptoms. Private Practitioners reported the least. This must be related to increased patient load in University set up and younger age group of students.
5. We recommend allotting specific percentage of marks related to musculoskeletal disorders in the teaching curriculum. Further, active interactive sessions by the interns and dental graduates are required. They must present and demonstrate the impact of musculoskeletal disorders in community camps and CME programs.

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