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RESEARCH ARTICLE

PAIN IN PAIN HEALERS: A STUDY OF MUSCULOSKELETAL DISORDERS AMONG DENTAL STUDENTS

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ABSTRACT

Introduction: Musculoskeletal disorder is disorder of the muscles, tendons, peripheral nerves or vascular system not directly resulting from acute trauma or instantaneous events. Dental work often involves time spent in static, uncomfortable positions, which can lead to musculoskeletal symptoms. The aim of this study was to find the characteristics of musculoskeletal disorders amongst the dental students from a health university.

Material and methods: A pre-designed and pre-tested questionnaire was administered to 150 dental students of Health University in Western Maharashtra after explaining the purpose and need for study.

Results: Out of the 150 respondents, 22 had experienced pain in neck or back at least once a week. This figure increased to 67 when pain in last one month was considered. In our study, neck and lower back were the commonest affected sites in females while in males it was neck and upper back.

Conclusion: Findings of this study can help in building awareness of the musculoskeletal symptoms and can help the future dental professional to take measures to avoid the potential causes like the incorrect postures; enable early diagnosis due to early identification of the signs and symptoms and benefit from timely treatment measures like physiotherapy modalities.

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INTRODUCTION

Dentistry is one of the unique professions dealing with measures to provide pain relief to the patients, who often report with excruciating dental pain. To quote Ogden Nash, "Some pains are physical, and some pains are metal, but the one that's both is dental." Paradoxically, it is these dental service professionals themselves, who are vulnerable to a variety of musculoskeletal disorders which has now come to be recognized as an occupational hazard. Musculoskeletal disorder is a disorder of the muscles, tendons, peripheral nerves or vascular system not directly resulting from acute trauma or instantaneous events (Kakosy, 2003). This musculoskeletal pain, weakness and paresthesia can affect many areas including head, neck, back and arms. Dental practitioners are vulnerable to various musculoskeletal disorders due to prolonged awkward postures, repetitive movements, poor flexibility, poor equipment, grasping small instruments for prolonged periods, improper static neck, back and shoulder posture, stress and infrequent breaks, prolonged use of vibrating hand tools.Many of these dental professionals develop their working postures and habits during their student life itself (Shaik, 2011). Melis M *et al* studied upper body musculoskeletal symptoms in Sardinian dental students. They concluded that dental studies and dental work often involve time spent in static, uncomfortable positions, which can lead to musculoskeletal symptoms even over the relatively short clinical training period (Melis, 2004).

Available data on MSDs in dental and dental hygiene students are sparse in comparison to data on dental professionals. However, more recently, attention has been given to students, either as a control group or as a newly exposed group (Morse, 2010). Hence this study was conducted to find the characteristics of musculoskeletal disorders amongst the dental students from a health university.

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MATERIAL AND METHODS

After getting university ethical clearance, this cross sectional study was conducted amongst 150 dental students of Health University in Western Maharashtra, after taking prior permission from higher authorities. Students were randomly selected depending on the inclusion criteria of being well versed in English and those who had at least six months of clinical work exposure. A pre-designed and pre-tested questionnaire was administered to the students after explaining the purpose and need for study. Data was collected to elicit information on demographic variables included age, gender and year of course. Information regarding musculoskeletal disorders included nature and site of pain, any medical treatment, time for exercise, preference for practice position, use of indirect vision, etc.

RESULTS

Table 1 shows the distribution of the various sites of pain affected in the last 12 months for the respondents of the study. Out of the 150 respondents, 22 had experienced pain in neck or back at least once a week. This figure increased to 67 when pain in last one month was considered. This is in contrast to the study by Werner, Franzblau, Gell, *et al*. who found very low rates of MSDs in dental and dental hygiene students with only 1.7% of dental students and 3.6% of dental hygiene students had physician-diagnosed shoulder tendonitis (Werner, 2005). In a survey of 590 U.S. dental students, Thornton, Barr, Stuart-Buttle, *et al*. found similar results, with 48% reporting neck symptoms (Thornton, 2008).

Have you had at any time during the last 12 months had trouble/ ache/ pain/ discomfort/ numbness in:

Site of pain	Yes	No
Neck	86	64
Shoulder	68	82
Elbows	36	114
Wrist/ Hand	60	90
Upper back	69	81
Lower back	75	75
One or both hips/ thighs	27	123
One or both knees	19	131
One or both ankles/ feet	24	126

Table 1 showing the distribution of the site of pain affected in the last 12 months for the respondents of the study

Nearly half the population, 68 students had sought medical advice or treatment within the last 6 months itself while 55 had to take a leave due to pain.

Only 29 of the 150 did not take even a single break during the daily working schedule, while 70 students took just one break in a day. Regarding regular exercise, only 41 of the 150 students replied that they exercised regularly. Regarding preference for working position 121 out of 150 preferred the sitting working posture for dental practice while 29 preferred standing posture. However, only 84 out of 150 adjusted the working stool/ dental chair height to a comfortable personal working position. When the respondents were asked about use of indirect vision, while working on the maxillary arch, only 62 out of 150 said that they use the mirror for indirect vision. When data regarding pain at different sites was compared in our study, neck was the most frequent with 86 respondents (57.33%) followed by lower back, upper back and neck. As shown in Fig1. This pattern of distribution was similar to studies from Queensland (Hayes, 2009) and New Zealand (Ayers, 2009). These results indicate that most of the practitioners adopt positions which frequently result in MSD of the neck and low back regions.

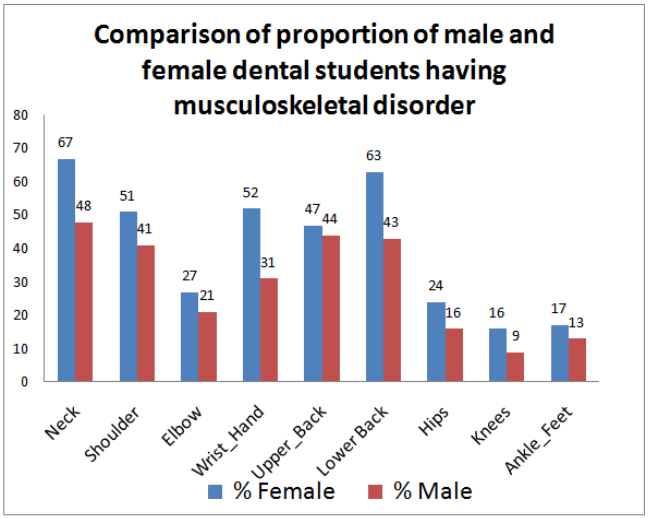

Fig. 1. Showing the comparison of proportion of male and female dental students having a musculoskeletal disorder

Morse *et al*. found self-reported neck symptoms in 37% of dental hygiene students, in 43% of dental hygiene students who had previously been dental assistants and in 72% of experienced dental hygienists. The corresponding frequencies for physician-confirmed neck findings were 22%, 38% and 47%, respectively. Shoulder pain in the past 12 months was reported by 26.9% of the respondents (Morse, 2007). In our study, neck and lower back were the commonest affected sites in females while in males it was neck and upper back. According to Rising, Bennett, Hursh, *et al*, female dental students in California, USA, reported the neck and shoulders as the most affected regions, while back complaints were more common in male students (Rising, 2005). Rising *et al*. also found that 46%–50% of female students had neck or shoulder pain, compared to 29%–58% of males (Rising, 2005).

DISCUSSION

Dentistry is a demanding profession involving high degree of concentration and precision. Dentists require good visual acuity, hearing, depth perception, psychomotor skills, manual dexterity, and ability to maintain occupational postures over long periods (Ayers, 2009). Diminution of any of these abilities affects the practitioner's performance and productivity. Despite numerous advances in dentistry many occupational health problems still persist in modern dentistry (Leggat, 2007). The mechanism of musculoskeletal pain production has been studied extensively. The onset of modern dentistry, as evidenced by four-handed dentistry, has made the major part of the dentist tasks purely sedentary in nature. This has resulted in dramatic rise in musculoskeletal symptoms (Pope, 1993). India has a population of 1.21 billion people and 1,04,603 registered practicing dentists providing oral health care for the people. The dentist population ratio of India is 1: 12, 437.46 when compared to the WHO recommendation of 1: 7500. Against this background of large population, rising oral health care needs, and inadequate dental manpower, the

health and efficiency of the dental care practitioner play a key role in the providing optimal oral health care (Muralidharan, 2013). It is important to highlight this issue as WMSD in dentistry might contribute considerably to sick leave, reduced productivity and future possibility of leaving the profession at an early age. It has been reported that dentists who suffer musculoskeletal symptoms are more susceptible to neuro-circulatory disease, including varicose vein and postural defects with subsequent effects on their general health and well being. This study highlights the important aspect of development of musculoskeletal disorders in budding dentist. Habits formed during early life can have lifelong ramifications. Hence it is important for the dental students to be aware of these and take preventive measures for the same. Prevention programmes should be introduced into dental education to prevent musculoskeletal discomfort during educational and professional years (Morse, 2010). Valachi B *et al* suggested strategies to address deficiencies in operator position, posture, flexibility, strength and ergonomics (Valachi, 2003).

Conclusion

Dentists are susceptible to musculoskeletal problems since the beginning of their student life including the preclinical and clinical phases. Awareness of the musculoskeletal symptoms can help the future dental professional to take measures to avoid the potential causes like the incorrect postures; enable early diagnosis due to early identification of the signs and symptoms and benefit from timely treatment measures like physiotherapy modalities. The findings of such studies can also aid in laying down guidelines regarding the adoption of a healthy lifestyle with regular exercise and correct work and play balance. Strategies to reduce the effects of occupational hazards should be developed and implemented to ensure the well-being of the future of dental practice.

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