Relationship of Musculoskeletal Disorders and Familial History of the Disorder, Exercise, Varicose Veins of Lower Extremities and Painkiller Use among Dentists in 2013-2014

Mehrafrouz Daneshian¹, Mohammad Reza Paknahad¹, Mohammad Reza Ataollahi², Abbas Paknahad³

1. Student Research Committee, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.
2. Department of Microbiology, Faculty of medicine, Fasa University of Medical Sciences, Fasa, Iran.

*Corresponding author email: Arg.abbas@yahoo.com.

ABSTRACT: musculoskeletal disorders and resulting chronic pains are challengeable for dentists because this profession demands certain requirements, which causes high incidence of musculoskeletal disorders and chronic pains. This was a cross-sectional – descriptive study, which was conducted on 102 dentists from September 2013 to April 2014. The required data was collected using a check list consisting of demographic data and specific questions. The collected data was analyzed using SPSS with chi-square test, independent t-test, and descriptive statistics of mean, standard deviation and frequency. 102 dentists participated in this study among which 63 dentists (61.8%) were males and 39 dentists (38.2%) were females. In this study, the most common symptom were neck pain among 24 (23.52%) males and 15 females (14.70%) as well as back pain among 19 (18.62%) males and 14 (13.72%) females. In this study, a statistically significant relationship was found between painkiller use and musculoskeletal pain (P=0.034). The results showed that most dentists complained about musculoskeletal pain among which neck pain and back pain were mostly frequent in both genders among all dentists.

Keywords: dentist, musculoskeletal pain, job, exercise, health

INTRODUCTION

According to World Health Organization, health refers to perfect physical, mental and social welfare, not just absence of disease(1, 2).

Individual performance declines as individual discomfort and pain increases, which leads to less satisfaction and efficiency. The results of present study similar to international studies showed that 65% of dentists suffered from a range of work-related problems from musculoskeletal disorders to losing their job(3).

Musculoskeletal disorders are the most common work-related problems among dentists(4) because dentistry is a complex and delicate job in which wrist and finger muscles are involved. Then, delicate jobs cause motor muscular fatigue. Long-term muscular activities lead to muscular discomfort and weakness(5, 6).

Based on results of extensive studies about occupational risks in most global countries, dental practitioners are prone to work-related physical discomforts. With development of technology and scientific vision of this segment of society as a part of healthcare program administrators toward their problems, work-related diseases are increasing among dentists in the world day by day(3).

MATERIALS AND METHODS

This was a cross-sectional-descriptive study. The statistical population consisted of all dentists. This study lasted for seven months from September 2013 to April 2014. The participants were selected by census. Total number of dentists who participated in the study was 102. A check list was distributed among them. Information and statistics Department of Hormozgan University of Medical Sciences was visited to access names and addresses of the participants. All individuals were given a representation letter and a check list by Investigative Committee of Hormozgan University of Medical Sciences. The check list contained a number of questions on demographic data such as gender, age, height, weight, along with questions about family history,
exercise, varicose veins of lower extremities and painkiller use and pain in various parts of the body. If present, pain intensity was measured and defined as mild, moderate, and severe in the check list as follows. 

Mild pain: local pain does not need painkillers and does not disturb an individual’s business and comfort.

Moderate pain requires non-narcotic analgesics (narcotics). The individual can work and rest by taking painkillers.

Severe pain disrupts work and rest and demands regular use of painkillers and sometimes narcotics (7, 8).

Inclusion criteria for this study consisted of all dentists in Hormozgan in the studied period. Exclusion criteria for the study were incomplete questionnaire or an unsatisfactory individual.

Following variables were measured in this study: gender, age, working hours, working at standing or sitting position (dentist’s position at work), pain in various parts of the body, pain intensity, the number of breaks between examining patients and working experience.

The collected data was analyzed using SPSS with mean, standard deviation, frequency, chi-square test for qualitative data and independent t test for comparison of quantitative data. In addition, all information in the check list of dentists was kept confidential.

Findings

In this study, 102 dentists participated among which 63 (61.8%) were males and 39 (38.2%) were females. In this study, the most common symptoms were neck pain among 32 (50.79%) males and 26 (66.66%) females (Table 1).

<table>
<thead>
<tr>
<th>Disorder type</th>
<th>Males (%)</th>
<th>Females (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neck pain</td>
<td>24 (23.52%)</td>
<td>19 (18.62%)</td>
<td>44 (43.14%)</td>
</tr>
<tr>
<td>Shoulder Pain</td>
<td>15 (14.70%)</td>
<td>14 (13.72%)</td>
<td>29 (28.43%)</td>
</tr>
<tr>
<td>Elbow pain</td>
<td>11 (10.78%)</td>
<td>7 (6.86%)</td>
<td>18 (17.64%)</td>
</tr>
<tr>
<td>Wrist pain</td>
<td>15 (14.70%)</td>
<td>7 (6.86%)</td>
<td>22 (21.55%)</td>
</tr>
<tr>
<td>Back pain</td>
<td>19 (18.62%)</td>
<td>14 (13.72%)</td>
<td>33 (32.35%)</td>
</tr>
<tr>
<td>Hip pain</td>
<td>14 (13.72%)</td>
<td>7 (6.86%)</td>
<td>21 (20.58%)</td>
</tr>
<tr>
<td>Knee pain</td>
<td>4 (3.92%)</td>
<td>10 (9.80%)</td>
<td>14 (13.72%)</td>
</tr>
<tr>
<td>Ankle pain</td>
<td>8 (7.48%)</td>
<td>4 (3.92%)</td>
<td>12 (11.76%)</td>
</tr>
</tbody>
</table>

The tallest individual was 188 cm and the shortest individual was 156 cm. Mean height of the participants was 171.75 ± 7.65 cm. There was no statistically significant relationship between height and musculoskeletal pain. The results are shown in Table 2 (P > 0.05).

<table>
<thead>
<tr>
<th>Variable (musculoskeletal pain)</th>
<th>Number</th>
<th>Percent</th>
<th>Height</th>
<th>Standard deviation</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>82</td>
<td>80.39</td>
<td>171.61</td>
<td>7.99</td>
<td>0.62</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>19.60</td>
<td>172.30</td>
<td>6.22</td>
<td></td>
</tr>
</tbody>
</table>

The heaviest individual weighted 125 kg and the lightest individual weighted 50 kg. The average weight of participants was 71.45 ± 13.41 kg. There was no statistically significant relationship between weight and musculoskeletal pain (P > 0.05).

<table>
<thead>
<tr>
<th>Variable (musculoskeletal pain)</th>
<th>Number</th>
<th>Percent</th>
<th>Weight</th>
<th>Standard deviation</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>82</td>
<td>80.39</td>
<td>72.58</td>
<td>13.16</td>
<td>0.16</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>19.60</td>
<td>77.55</td>
<td>14.02</td>
<td></td>
</tr>
</tbody>
</table>

The relationship between musculoskeletal pain and familial history of the disorder, exercise, varicose veins of lower extremities and painkiller use among dentists was also evaluated in this study.

In this study, 45 individuals (44.1%) were physically active and 57 dentists (55.9%) were not physically active. The results showed that 27 participants (26.5%) had a familial history of musculoskeletal pain. Furthermore, 11 dentists (10.8%) reported varicose veins of lower extremities and 36 (35.3%) dentists used painkillers to alleviate musculoskeletal pain.

Contents of Table 4 showed a significant relationship between painkiller use and musculoskeletal pain (P = 0.034).
Table 4. The relationship between painkiller use and musculoskeletal pain among dentists

<table>
<thead>
<tr>
<th>Variable (musculoskeletal pain)</th>
<th>Number</th>
<th>Percent</th>
<th>Painkiller use</th>
<th>Standard deviation</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>82</td>
<td>80.39%</td>
<td>1.59</td>
<td>0.49</td>
<td>0.034</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>19.60%</td>
<td>1.85</td>
<td>0.36</td>
<td></td>
</tr>
</tbody>
</table>

No statistically significant difference was observed between musculoskeletal pain and familial history of the disorder, exercise and varicose veins of lower extremities (P> 0.05).

**DISCUSSION AND CONCLUSION**

In various studies, neck pain was mostly common among dentists (9-13). In this study, neck pain also had the highest prevalence among dentists. The results of other studies were in line with those obtained in this study.

This is because dentists suffer from many work-related problems due to specific conditions of their jobs(8). Fisher et al. found that musculoskeletal disorders such as prolonged bending of neck and rotating the upper arm upward and static contractions lead to neck pain among dentists because of specific conditions of their jobs in 2001(14).

On the other hand, the results of American Dental Association in 1999 showed that work-related posture is associated with neck pain(15).

Another study conducted in Australia showed that 53.6% of male dentists have complained about back pain, which is roughly the same as prevalence of back pain among male dentists in the present study (49.20%)(16). The prevalence of back pain among dentists was reported as 60% in Denmark and as 63.1% in Poland, which was more than average back pain (32.35%) in this study(9, 17).

Different factors increase the risk of lower back pain, pain and limit functional activities(18, 19). There is also strong evidence of back pain and its relationship with wrong habits and improper posture(20).

In this study, the relationship of height and weight with musculoskeletal pain was not statistically significant but musculoskeletal pain in tall people was more evident. Many studies showed the significant relationship between body mass index and prevalence of back pain in public population(21-23).

In this study, no statistically significant relationship was found between physical activity and incidence of musculoskeletal pain. These results were in line with those obtained by Karimi et al(24).

In this study, a statistically significant relationship was found between using painkillers and musculoskeletal pain. In other studies, there was no specific relationship between these two variables.

According to findings of this study and other studies and given that musculoskeletal pain is a challenging issue in dentistry profession, it is recommended that results of this research be used in the field of occupational safety for training dentists and dental students, so that they would be equipped with the necessary knowledge to prevent work-related problems.

**ACKNOWLEDGEMENTS**

We thanks from all individuals who helped us during this study.

**REFERENCES**


