


The presence of musculoskeletal disorders in dentists related to the specialty practiced and length of work

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ABSTRACT

Introduction: Dentistry, in its practice, requires some physical exhaustion, due to the repetition of movements and the adoption of unnatural postures required, which cause discomfort and can evolve into disorders in the musculoskeletal and peripheral nervous system, increasing the chances of the appearance of injuries that culminate in the absence of work. **Objective:** To describe the presence of musculoskeletal disorders in dental surgeons related to the specialty practiced and length of work. **Materials and methods:** this study was approved by CEP UNICEUMA, opinion No. 4,055,586, and was a descriptive, cross-sectional study aimed at identifying the prevalence of musculoskeletal disorders in dentists in the state of Maranhão, Brazil, throughout their professional lives. A non-probabilistic sample consisted of 125 dentists from the public and private networks, with data collection obtained through a questionnaire developed in the Google Forms tool and applied remotely. **Results:** Of the 125 interviewees, 77% reported pain, with a higher prevalence in those with more than 10 years of work. Regions with the highest number of complaints: neck 46.2%, dorsal and lumbar spine 38.5% and shoulders 26.9%. Of the symptomatic patients, 40.7% worked more than one specialty and 79.6% worked 3 to 4 hours a day. **Conclusion:** The years of work combined with the multi-specialty routine were more determinant for the presence of MSDs than the hours of work, alerting to the need for changes in work habits in the early years of the profession, since MSDs worsen over the years worked.

Keywords: Musculoskeletal Disorders, Working time, Dental Surgeons.

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INTRODUCTION

Working conditions play a key role in health, in addition to interfering in the social performance of human beings and in society itself. These conditions can significantly interfere, either in a positive or negative sense, in the quality of life of the worker, highlighting here the environment and the requirements related to poorly performed work positions lead to several musculoskeletal problems (AGHAHI et al., 2018).

With regard to occupational diseases, the designation of several diseases that cause changes in the health of the worker, caused by factors related to the work environment, modern society has been increasingly a victim of occupational or work-related diseases and the work activity for a long period of time has made the dental surgeon a potential professional for this group (ARAUJO and SILVA, 2020).

Whereas, the dental surgeon, during his daily routine, always seeks to provide patients with satisfactory results in their procedures, whether in the recovery of an aesthetics compromised by the wear of a tooth or simply in the restoration of the masticatory function of a molar, for example. However, due to the exacerbated concern to provide such results, care is often not taken to follow protocols that will govern their relationship with the work environment in which they are inserted. It has become common to witness dentists complaining of pain in the back, wrists, hands, and even neck after a consultation (RIBEIRO, P., 2021).

This reality is aggravated in the profession of the dental surgeon, as it is a job that requires great physical exhaustion, either due to the repetitiveness of movements, or due to the ergonomic risk factors to which this professional is exposed, or also due to the adoption of unnatural postures required, because according to Araújo and Silva, (2020), these are problems arising from the daily work positioning of these professionals.

As for unnatural postures, Ribeiro (2021) describes it as a posture typically characterized by suspension of the upper limbs, rotated trunk, and flexed head, causing stress on the cervical, scapular, and thoracic-lumbar muscles. It also adds that, when adopted repeatedly, it can cause discomfort and even disorders in the musculoskeletal and peripheral nervous systems, and can generate fatigue in the structures responsible for its maintenance, thus maximizing the chances of acute or chronic injuries (RIBEIRO, P., 2021).

Although the literature points to the high frequency of musculoskeletal symptoms in dentists, there are still not well defined issues regarding the aggravation of these pains, and one of them is whether pain conditions and MSDs are potentiated or minimized by years of work.

As a result, the present study aims to describe the presence of musculoskeletal disorders in dentists related to the specialty practiced and time of work, with regard to hours and years worked.



METHODOLOGY

This is a descriptive, cross-sectional study that aimed to identify the prevalence of musculoskeletal disorders in dentists in the state of Maranhão, related to the specialty practiced and length of work.

Dentists of any specialty who had been practicing for at least 1 year and practiced for at least four hours/day were included, whether in the public or private sector.

Those diagnosed with systemic pain diseases, such as fibromyalgia, arthrosis, arthritis, among others, as well as those diagnosed with musculoskeletal disorders proven by imaging tests, were excluded. Those who did not fully answer the questionnaires were also excluded.

The collection procedures followed the following flow: Initially, a list with e-mail and telephone contact of dental professionals registered in the state of Maranhão was provided through the CRO. We sent via Whatsapp an explanatory text of the study and an invitation letter for participation and a free and informed consent form (ICF). For those who answered and accepted, we provide a link with a questionnaire built through the *Google Forms tool*.

The questionnaire contained questions to explore sociodemographic data and work characteristics, as well as personal and health habits such as: smoking, physical activity, information on working hours, health history, prepared by the researchers and supporting data on factors associated with musculoskeletal disorders. Regarding musculoskeletal symptoms and their respective areas of affection, we used the *Self-Estimated Functional Inability because of Pain* for Brazilian workers. PINHEIRO (2020).

This instrument was chosen because it allows not only the evaluation of muscle pain or discomfort, but also how much it affects the professional activity and is divided into 5 levels: (0) No pain, (1) Some pain, but not many problems, (2) A lot of pain, but I can bear it, (3) A lot of pain, I avoid certain movements and (4) I can't work because of the pain. They were also asked if they were prevented from carrying out their work, daily living or leisure activities; and/or sought health services such as physicians or physiotherapists due to these symptoms in the last 12 months. Of the 550 questionnaires sent, only 125 answered them in full and became part of the sample.

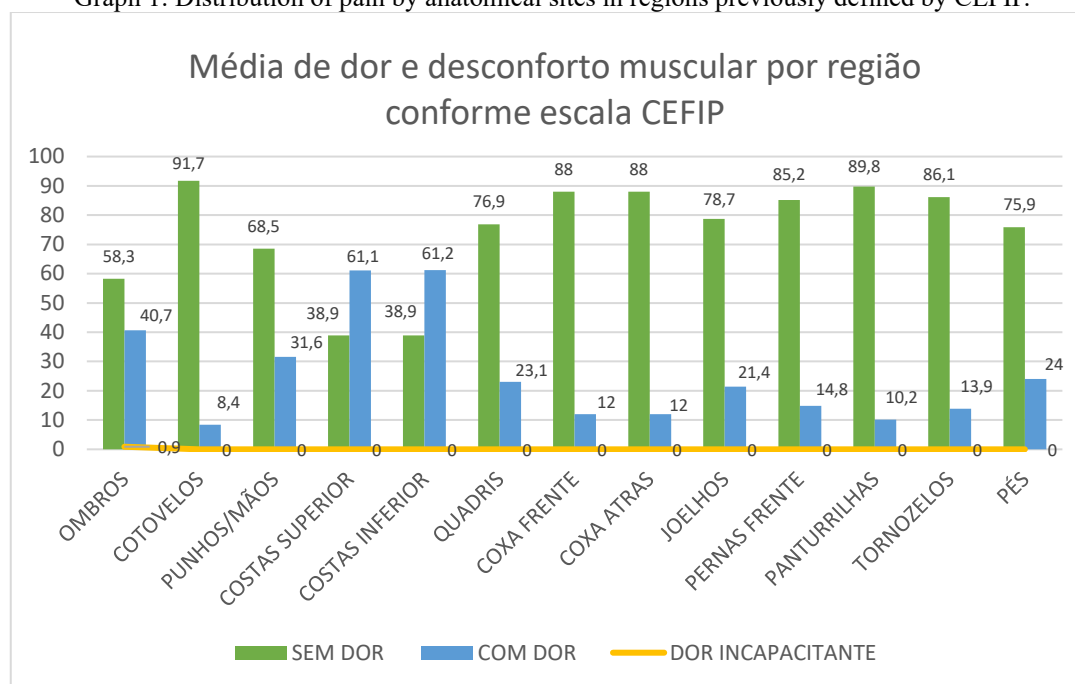
The collected data were presented as means, standard deviations (SD), differences between means and 95% confidence intervals (CI) of differences, and significance level was set at 5%.

This study was based on Resolution 466/12 of the National Health Council that regulates research involving human beings, submitted to the Human Research Ethics Committee of CEUMA University and approved by opinion No. 4,055,586.

DISCUSSION RESULTS

One of the objectives of this study was to observe the presence and intensity of musculoskeletal pain and discomfort in different body segments in a sample of 125 professionals. The main affected sites will be shown in graph 1, following the criteria of the CEFIP scale.

Graph 1: Distribution of pain by anatomical sites in regions previously defined by CEFIP.



It is already known that, during work, dental professionals need to perform precise movements with their hands, adopt awkward working postures, use vibrating dental instruments and perform administrative work and repetitive monotonous tasks for a long time and that can lead to pain and aggravation of these leading to MSD, whether at an acute or chronic level. (LIETZ, ULUSOY, NIENHAUS, 2020).

Of the 125 professionals evaluated, 77% reported feeling pain in some part of the body. As can be seen in the graph above, the regions with the most reports of musculoskeletal pain and discomfort are the lower back with 61.2%, followed by the upper back with 61.1%, shoulders with 40.7% and wrists and hands with 31.6%.

Presenting similar results to the study by (Carmo et al. 2011; Mascarenhas and Novaes 2015; Fernandes et al 2021), the pain presents in similar and characteristic sites, that is, in the same regions. To which the authors explain that one of the main causes related to pain in dentists is the maintenance, for several hours in a row, of a static body posture. In addition, the use of equipment with inadequate lighting and color combinations and exposure to an irritating sound load, which can affect both mental and physical health. Castilho et al (2021).

A study conducted with 1,250 dentists from Belgium, Luxembourg and the Netherlands showed that 64% of the professionals evaluated had disorders in the neck, shoulders and spine; 42% suffered from headaches; there was a higher occurrence of postural disorders in women; a higher occurrence of disorders in dentists over 1.80 m in height; a higher occurrence of neck and shoulder disorders among dentists who worked with direct vision of the maxilla; and 1/3 of the dentists presented fatigue muscular. It was also shown that the more difficult the treatment, the worse the posture, and also that the neck muscles were the ones that most contributed to the occurrence of fatigue and disorders according to Castilho et al (2021).

For the development of our study, we had a sample of 125 professionals, 68% women and 32% men, from various specialties as long as they had been working for at least one year, whether in public or private service.

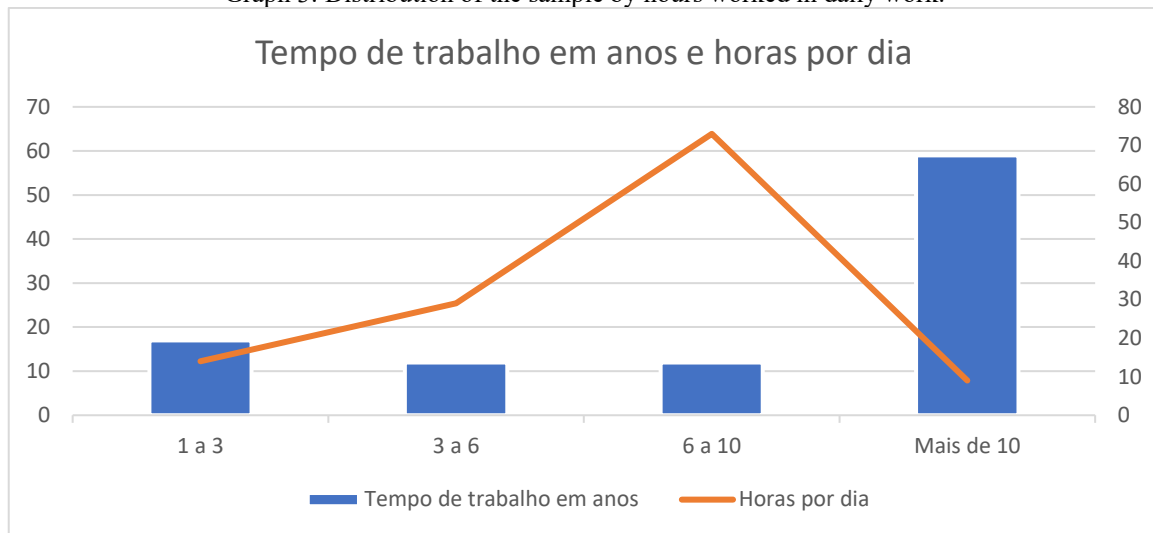
It was possible to observe that most of these professionals, 32%, practice more than one specialty, with emphasis on general practitioner, 19%, as shown in the graph below.

Graph 2: Distribution of the sample by specialties



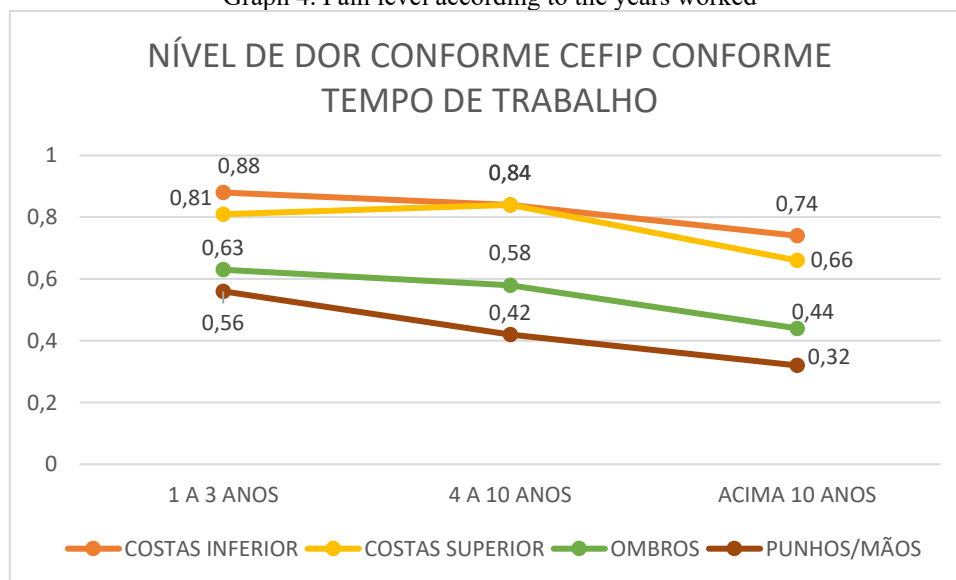
Regarding the length of work, 17% had been in the profession for one to three years, 12% for three to six years, 12% for six to ten years and 59% for more than ten years, and 58% worked six to ten hours for more than ten years.

Graph 3: Distribution of the sample by hours worked in daily work.



According to Fernandes et. al (2021), the presence of musculoskeletal symptoms in dentists is the result of the sum of poor posture during work with hours at a time in uncomfortable positions. Such positions demand a lot from the cervical and scapular muscles which, due to the lack of support, support the upper limb and the thoracic and lumbar regions. However, when we relate the pain complaints of these most mentioned regions with the time of work of these professionals, we found that they are not related, as shown in the graph below.

Graph 4. Pain level according to the years worked



Graph 4 shows that the longer the profession has been practiced, the lower the intensity of pain in all regions, as there is an average drop of 15% for the lower back, 18% for the upper back, 30% for the reported pain in the shoulder region, and 42% for the wrists and hands.



In an integrative review conducted by Bassoli (2023) through 20 selected articles that included questionnaires in their collection instruments, all of them related pain to the work of a surgeon and this was related to the variables gender, length of work, age, and hours worked. These data agree with ours and complement those of Grado (2019), who identified dentists with fewer years of experience or in the middle of their career with more frequent pain than those with more years of practice, or those practicing for the shortest time.

This information is important, because pain at the beginning of the professional career indicates the lack of experience in analgic adaptations, lack of knowledge of ergonomic rules and a high number of consultations. Hence the need for more information on the prevention of pain and musculoskeletal disorders, even in academic life, so that these future professionals already assimilate and adopt them from the early years, in order to minimize them in favor of a better quality of life and work.

CONCLUSIONS

The years of work combined with the multi-specialty routine were more determinant for the presence of MSDs than the hours of work, alerting to the need for changes in work habits, already in the initial years of the profession, since MSDs worsen over the years worked.

Stress in the early years is common among dental surgeons, especially if combined with the large number of appointments, culminating in a relatively high rate of sick leaves. Our results reinforce the need to implement strategies to reduce this stress, through ergonomic and preventive information during academic life, as well as ergonomic interventions in the workplace.



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