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The Musculoskeletal Difficulties in Dental Professionals

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Abstract: The appearance of musculoskeletal symptoms in dental professionals is increasing worldwide. In Brazil, has already begun acquires expressive and socially relevant numbers. Since the 80's, it has become a problem of public health and social, because of their scope and magnitude. These professionals are constantly subjected to a number of risks for the appearance of injuries attributed to their work. The objective of this study is to determine the prevalence of signs and symptoms in musculoskeletal dental professionals in the city of Barbalha- Ceará**,** Brasil**.** This is a quantitative field study, with 25 dentists. The instrument was the Nordic questionnaire for musculoskeletal symptoms and another for verification of professional knowledge about MDRW *(Musculoskeletal disorders related to work).* The results were worrying because some work more than one shift, and 40% of them showed signs and musculoskeletal symptoms. The superior limbs seemed more affected and 36% was in column dorsal, lumbar and lower limbs. With regard to the procedure with a higher rate of pain, was extracted. For the pathologies, the tendonitis was the most diagnosed. It was concluded that the dental surgeons in Barbalha-Ceará, Brasil, seemed very exposed to risk factors, with respect to the emergence of MDRW.

Keywords: MDRW, musculoskeletal, symptoms, pain.

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Introduction

The Dentistry is a profession in the health area with a wide range of possibilities of action, since the dental office to the administration, through teaching, research, and, even in the area of expertise civil and criminal liability. However, there is a great competition in the labor market, being subjected to a load of stress of various kinds.

In the dental office, the dental surgeon (CD) is exposed to various injuries, especially those concerning the repetitive movements, emotional charge and the posture assumed during the professional exercise.

The musculoskeletal disorder related to working conditions (WRMD) reaches many areas of professional activity as, for example: dentists, physiotherapists, drivers, teachers, clerks, typists, among others. In relation to dental surgeons, the WRMD represents an important cause of removal functional. Furthermore, it should be noted that this professional is often exposed to emotional burden related to the number of patients, the course load, the working environment (including lighting), noises, closed environment, ventilation and even the low financial yield of the profession.

Another determinant factor of lesions is the posture adopted during the professional activity, which includes the seating positions, as well as the dynamics of movements executed, speeds and inclines lasting, large and repetitive. The WRMD that are often associated with the exercise of Dentistry are: bursitis, thoracic outlet syndrome, lateral epicondylitis, carpal tunnel syndrome and tenosynovitis de Quervain (Araujo & Paul 2003).

The MSDs is defined by Social Welfare (1998) as a set of conditions related to the activities work in which affect muscles, tendons, muscle fascia, ligaments, joints, nerves and blood vessels.

The appearance of musculoskeletal symptoms is increasing worldwide and in Brazil, began to acquire expression in number and social relevance, since the 1980s, becoming a serious public health problem and social, on the basis of their scope and magnitude. Being that the WRMD represent one of the groups of occupational diseases more controversial in Brazil and others countries, and has assumed an epidemic character.

The Barbalha City wich is situated in the southern region of Ceará State, is one of the oldest county of the Cariri Region, with approximately twenty-five dental surgeons working in both the public and private sectors (CRO-EC, 2009).

In this context, given the reality of dentists became interested in performing this work from observation during the monitoring of dentists and the need to educate these professionals about the ergonomic aspects, to prevent the appearance of lesions and symptomatology related. .The objective of this study was to determine the prevalence of signs and musculoskeletal symptoms in dental surgeons

in the city Barbalha- CE, Brasil. In this sense, it was also necessary: a) trace the clinical procedures of dental surgeons that produce pain; b) To analyze the prevalence of signs and symptoms related to the WRMD; c) verify the presence of knowledge among the professionals studied about the activities and the involvement of the MSDs; and d) Identify preventive strategies implemented in relation WRMD.

Methodology

The field research, the type of epidemiology, with exploratory methodology, drawing and descriptive based on strategies for quantitative analysis. According to Richardson *et al. apud* Marconi; Lakatos (2009), " the quantitative analysis, characterized by the use of quantification in both methods of collecting information regarding the treatment of them by means of statistical techniques being used questionnaires, interviews and observations. With this we can say that the quantitative method consists in quantifying data through information collected."

The study was developed in the city of Barbalha, Ceará, Brasil in private dental offices and public network. The sample was composed by dental surgeons (n=25) were active in the cities of Barbalha, Ceará, Brasil registered in the Regional Council of Dentistry being made by those who meet the inclusion criteria and fail to meet the criteria for exclusion.

The inclusion criteria adopted for the sample were: dental surgeons of both sexes were active in the town of Barbalha, CE; minimum period of professional activity of two years; that meet patients with work load more than six hours; voluntary acceptance to participate in the study, confirmed by signing a Consent Form (Appendix A). The individuals who presented a visual disability crippling were not included in the study.

The data collection instrument

The research was carried out with an instrument adapted from the Nordic questionnaire for musculoskeletal symptoms for the verification of the prevalence of signs and musculoskeletal symptoms in dental surgeons in the city of Barbalha, Ceará, Brasil .In accordance with Kilbom *apud* Sousa (2009), the questionnaire was developed to facilitate and standardize the measurement reports of musculoskeletal symptoms. Being developed by the National Council for Occupational Safety and Health in Solna. Since then is being used to record and analyze information about the WRMD, because the questionnaire is not suitable as a basis for clinical diagnosis, but rather for the identification of musculoskeletal disorders and, consequently, contributing to the diagnosis of

the environment or workplace. A specific questionnaire to determine the degree of knowledge of the professional in relation to the WRMD, as well as check the main procedures of dental surgeons that produce pain, and the main signs and symptoms related to the WRMD.

The Dentistry as a profession

The Dentistry is a profession in the area of health care, which has as its goal the work involving the general health of the patient, oral hygiene, prevention, diagnosis and treatment of various dental anomalies, as well, the main pathologies that involve the teeth, mouth and jaw structures and their proper prognosis (CRO-EC, 2009).

According to Oliveira e Oliveira Junior (1999) the professional works in liberal regime, i.e., their hours of work are directly related to clinical treatments provided in clinics of private and public networks.

According to Nunes and Freire (2006) several researchers studied the health of dental surgeons in some countries, in which concluded that one of the reasons for the absense of the profession and of origin, ergonomic between these countries the Brazil follows the same pattern.

In relation to the main findings ergonomic, the CD's are predisposed to occupational diseases, mainly those of the muscleskeletal system.

> In addition to the fatigue, there is an increase in muscle tension, increase of heartbeats, chemical changes in the blood, formation of toxins, increase in the level of aging, headaches, numbness of the retina and even loss of vision. The stress that arises from these problems, is reflected in the organism as a whole, the productivity and quality of work fall considerably (Garbin *et al.,* 2007, p.29).

Daily, the professional of Dentistry comes overtaxing their anatomical structures of the axial skeleton and APPENDICULAR by repetitive movements and excessive load.

Anatomy of the Axial skeleton and APPENDICULAR

The Vertebral Column

The vertebral column is composed of a series of bones called vertebrae, as shown in figure 01. The vertebral column acts as a stem strong and flexible, which can rotate and move earlier, subsequently and laterally. Closes and protects the spinal cord, supports the head and point of

attachment to the ribs, the cingulate gyrus of the lower limb and the muscles of the back (Tortora, 2006).

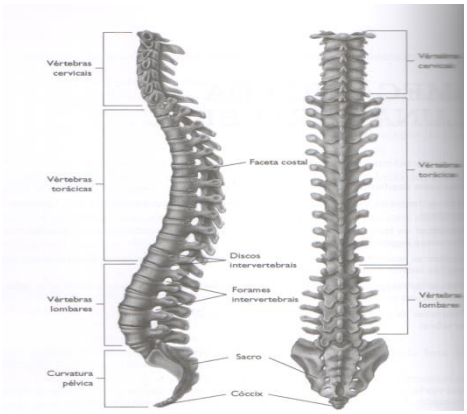

Figure 01: The Anatomy of the vertebral column. (Hall, 2005, p.264).

In daily activities, the dentists suffer heavy wear of the vertebral column, because the same conduct various movements of large and repetitive as the rotation and inclination of trunk, causing the disks to move earlier, subsequently and laterally, according to figure 02.

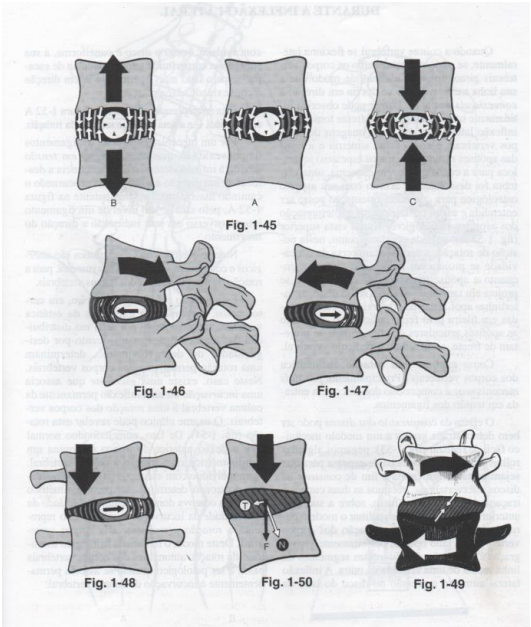

Figure 02: Displacement of intervertebral discs during the movements of the vertebral column (Kapandji, 2000, p.43).

Upper Limb

It is divided basically into four appropriate structures for the accomplishments of its functions, among them: cincture of the upper limb, arm, forearm and hand; having as main feature the domain of mobilization, ability to grasp and manipulate object (Moore, 2004).

The main nerve nourishment of the upper limb is the brachial plexus (Figure 03) which is between the union of the branches of the primary nerves C5 to C8 and the greater part of the anterior branch of the nerve T1, where this union form the nerve roots of the brachial plexus, which are located in the trine posterior neck. Among the major branches found in the brachial plexus are nerves: median, ulnar, radial, axillary and musculocutaneous nerve (Tortora, 2006).

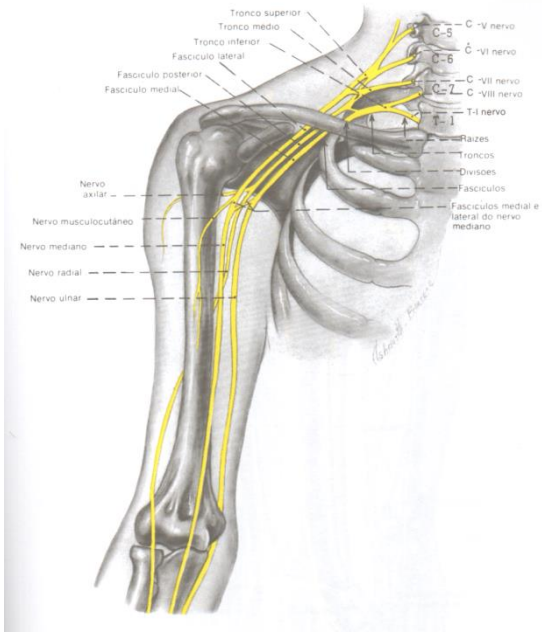

Figure 03: anatomy of the brachial plexus. The innervation of the upper limb. (Jacob *et al.*, 1982, p.239).

During the activity the dental surgeons use the movements of abduction, internal rotation, supination of the forearm, among others. The professional after a long period with the upper limb high, there is a compression of the scalene muscles, hindering the innervations to the level of the brachial plexus, causing numbness and pain in the upper limb.

The dental surgeons in their work day are with arm in internal rotation, the forearm in pronation and the hand in flexion. The thin movements are those of thin tweezers and Thick tweezers, due to use of overreact to these structures, occurring a mechanical overload of the upper limb use.

Lower Limb

The lower limb is characterized by the function of body weight support, as well as, the locomotion (Hall, 2005).

Due to the prolonged periods in posture sitting in a chair, which is not often, ergo the dentist fits wrong postures, overtaxing the lower limb by movements of plantar flexion and dorsiflexion, in addition to leaving the state exposed to vibration resulting from the pedal, which is used to drive the pen of high and low speed, the footer.

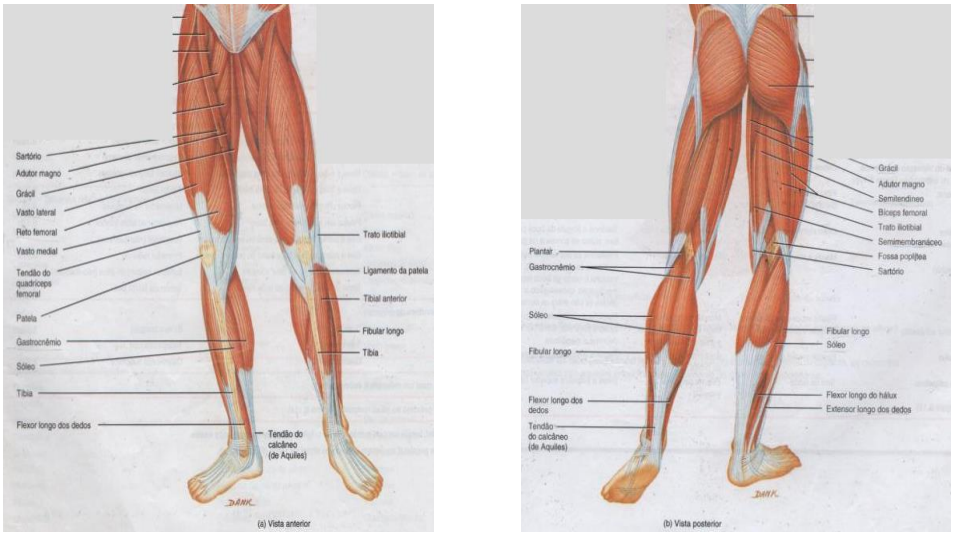

Figure 04: The Anatomy of the lower limb. (Tortora & Gradowski, 2006, p.194-195).

Front View Back View

Ergonomics and Dentistry

Work station ergonomics

Ergonomics word that is derived from the Greek language (ergo: work and nomos: laws, i.e., laws governing the work), several authors have proposed different definitions for ergonomics, but currently, the definition found in the literature is that of Wisner (1987) which gives the ergonomics the meaning of a set of scientific knowledge relating to man and to their needs in the conceptions of machines, tools and devices, which will prioritize the maximum welfare, security and efficiency (Deliberato, 2002).

We can consider that the ergonomics seeks a vision between the conditions of work and a triad formed by well-being, security and the condition of the worker in his work situation, being distinguished from the other areas of knowledge for its characteristic interdisciplinary and by its nature. The characteristic interdisciplinar is referred to by multiple base of knowledge (Deliberato, 2002).

Second Pequini (2005) between the aspects studied in ergonomics, include the posture and its various bodily movements as the sit, pushing, stand, turn, pull and lift weight; environmental factors such as climate, noise, vibration, lighting, chemical agents and the information visual and auditory sensations. The appropriate combination of these factors allows designing secure environments, healthy, comfortable and efficient, both at work and in everyday life.

The ergonomics in dental practice aims at streamlining, the main movements inadequate in the field of Dentistry, i.e., has as its goal the production of movements, postures and anti-anatomic, causing the professional can produce more and better, avoiding fatigue, physical and mental health is unnecessary, thereby obtaining a greater financial yield, as well, giving the patient a greater degree of security and comfort (Barros 1989; Barbosa *et al.*, 2004).

With this in dental practice the ergonomics operates by simplifying the work, having as a goal the prevention of stress both physically and mentally, thus providing greater comfort for the professional (Rabelo *et al.*, 1989; Barbosa *et al*., 2004).

> The first contribution of ergonomics in the field of dentistry is aimed at improving the working conditions of CD's and perfecting the tools, instruments and furniture used by these professionals (Dependencies, 2004, p.22).

Work-related Musculoskeletal Disorders (WMSD) and Dentistry

History (WMSD)

In accordance with Deliberato (2002) The Read's represent a worldwide phenomenon, and by their combined varies from country to country, the World Health Organization (WHO), recommended the unification of the nomenclatures, today cited among the countries with the term of *Wort Related Musculoskeletal Disorders,* translated in Brazil as Musculoskeletal Disorders Related to Work (MDRW).

The (WDRW) is a phenomenon that involves the permanence to work, where is characterized by the occurrence of various signs and symptoms, which are directly related to the injuries of tendons,

nerves, muscles, supporting structure among others, being more common in the upper limbs and vertebral column. The (WDRW) is among the most frequent causes of disability employment, temporary or permanent. As a result, the super use of anatomical structures of the musculoskeletal system and lack of time for an ideal recovery (Rassia, 2004).

According to Barbosa (2009) there are three settings on the WDRW which are considered in the scenario physician, especially because it is legal definitions institutionalised in the case of the application before the INSS.

The WDRW as being a functional disorders, mechanic and lesions of muscle and/or tendons and/or fascias and/or nerves and/or scholarships and tips of bone (Barbosa, 2009).

Oliveira (1991) defined as a disorder of neuro-muscle-tendon damage that can be of origin, reaching the upper limbs, scapula and neck being caused by the use of repetitive movements and by the strength of the muscle groups or maintenance of improper posture.

The standard technique for assessment of incapacity (1993) reports that the WDRW is an inflammation involving the synovial tissue, tendons, fascias, muscles, ligaments and nerves, whose cause may be of origin, even being associated with other pathologies.

According Deliberato (2002) divided the main into two groups where the pathophysiology of Dort influences in each group, they are:

1. Compressive neuropathies: where the nerve is compressed by some structure through which it travels, in the vast majority affect the limbs, within this group we can highlight the thoracic outlet syndrome, syndrome of the longus, syndrome of the round pronator, carpal tunnel syndrome, syndrome of previous interosseous syndrome, cubital canal syndrome and channel of guyton.
2. Tendonitis and tenosynovitis: are inflammatory diseases that compromise the sheaths tendinous cords and the tendons as a result of demands, and within this group can highlight the disease of De Quervain, trigger finger, lateral epicondylitis, epitrocleíte, tedonitis biciptal, tendinitis of the supra-thorny, tendonitis of the distal biceps and tenosynovitis of the brachioradialis.

In addition to these groups, we find the following WDRW: Synovial cysts, reflex sympathetic dystrophy, miofascial syndrome and contracture of the palmar fascia.

When the dental professional adopts in their daily activities, he is predisposed to the onset of musculoskeletal injuries, these lesions can be uncomfortable and even debilitating. When the job is poorly designed ergonomically, the professional will tend to use the wrong postures, predisposing to lesions that affect the structures muscleskeletal disorders (Barbosa *et al.*, 2004).

In the routine work of dental surgeons There is a great use of upper limbs especially of hands, who suffer with the repetitive movements in a same pattern, as well as by mechanical compression of

the structures located in the regions and many times due to the work being under pressure temporarily (Barbosa *et al.*, 2004).

The Signs and Symptoms

According to the MINISTRY OF HEALTH (2002) the most common manifestations found in WDRW are: pain, tingling, numbness and burning sensation of the state or specified location, may be predisposed to edema, decreased sensitivity, weakness, cold or heat, atrophy of muscles of specific and functional capacity loss.

According to Oliveira *apud* Mendes (2008) the diagnosis of WDRW is basically analyzed by clinical data, physical examinations and complementary and by clinical history to work, due to the signs and symptoms present so unspecific and indefinite, they are often ignored, thus justifying the appearance of other injuries.

Among the main WDRW that affect the dental surgeons are:

- Cervicobraquialgy: is the presence of cervical pain that occurs when the headquarters of discopathy is postero-lateral, occurs the protrusion of the spinal canal producing neck pain through irritation of the brachial spinal sensory and braquialgiy by contact with the root. Often, the clinical picture of cervicobraquialgy is unilateral, and the pain starts in the cervical region and radiates to the upper limb, with root topography usually associated with paresthesy of one or more fingers (Przyvara & Resende, 2009).

Second Maehler (2003), The cervicobraquialgy is a disorder organic and functional that is caused by repetitive work, increasing the load static muscle, secondary to job losses, inadequate due the CD's make movements of cervical flexion, lateralization and slope, The cervicobraquialgy is very common in these professionals. The individual injured feels pain in the cervical region and shoulders, headache, weakness and muscle fatigue, in addition to paresthesy and dizziness. It presents with contracture in cervico-thoracic spine and "nodules" (trigger points) pain to palpation, limitation of cervical motion and reduction of the cervical lordosis and shoulders depressed.

- Carpal tunnel syndrome is considered as a neuropathy of higher incidence. It is the compression of the median nerve and other structures that pass through the carpal tunnel syndrome. Between the main signs and symptoms are: a night pain with heartburn, ATROPHY tênar and paresthesia. Having as consequence, limitation of activity and incapacity for work (Karolczak; Vaz; Freitas & Merlo, 2005).

Second Zuffo (2006) the CD's in your work environment perform repetitive movements of flexion and extension of the wrist, causing numbness in the hands, thus making the achievement of tweezers and apprehension.

- Bursitis: is characterised by the occurrence of inflammation of the bursae, i.e., of small pockets of fine wall, consisting of collagen fibers and lined with synovial membrane located in the vicinity of the tendinous insertions and joints. Bursitis are more frequently in the shoulders and cause pain, especially during the execution of certain movements such as abduction, external rotation and elevation of the upper limb. When the treatment is not suitable, the pain radiating to the scapular region or arms, generating functional disability, which culminates with the installation of the "frozen shoulder" (adhesive capsulitis) or hand-shoulder syndrome (reflex sympathetic dystrophy) (Loduca *et al.*, 2007).

The professional CD's to use the upper limb to achieve certain long procedures and repetitive may have inflammation in the bursae, having as consequences and limitations of movements.

- Thoracic outlet syndrome. Occurs due to a compression of the neurovascular bundle in the region of the chest, better known as the canyon, formed by the clavicle, first rib, scalene muscle middle and anterior and fascia. Has as signs and symptoms of paresthesy and pain radiating to the upper limbs (ULS), especially during the rise of one of them, you can also occur neurovegetative changes (temperature, color, sweating), hypoesthesia, deficits of strength and muscular in the upper limbs (Boiler, 1999).

According Zuffo (2006), a good portion of the time, the professional uses the upper limb of a non-ergonomic, using lateral flexion of the neck and lifting the shoulders, occurring as well, a compression over the shoulder, echoing in painful sensation in the upper limb.

- Lateral Epicondylitis of the elbow: Also known as "elbow of tennis star" is a an inflammatory syndrome painful located in the region of the lateral epicondyle (extensors of the carpus) and in the proximal of the flexor muscles, the osseous part more prominent on the lateral of the elbow, and site of origin of the longus the forearm extensors of the wrist and fingers (Deliberato, 2002).

According to Machado (2004) This syndrome occurs due to excessive effort of extension or flexion of the brakes of the wrist used daily. The pain is located in the elbow, but can be spread to the shoulder or for the hand, thereby undermining the productivity of other professionals.

- Stenotic tenosynovitis de Quervain's or Syndrome de Quervain: is characterized by acute or chronic pain in the upper part of the thumb, near the wrist. The pain decreases the functional movements of the hands especially in the action of jaw or collet (Chambriard *et al.*, 1998).

- Tendonitis is an inflammation that involves the tendons, there may be a degeneration of its fibers (Deliberato, 2002).

Tendonitis is easily found in these professionals, because they often use the position of flexion of the wrist, when performing procedures for teeth extractions and restorations, causing headaches and complaints of numbness in the state.

Analysis of Results and Discussion

The sample was composed by dental surgeons (n=25) were active and legalized in the Regional Council of Dentistry (CRO-CE). Among the professionals (9) were female and (16) male.

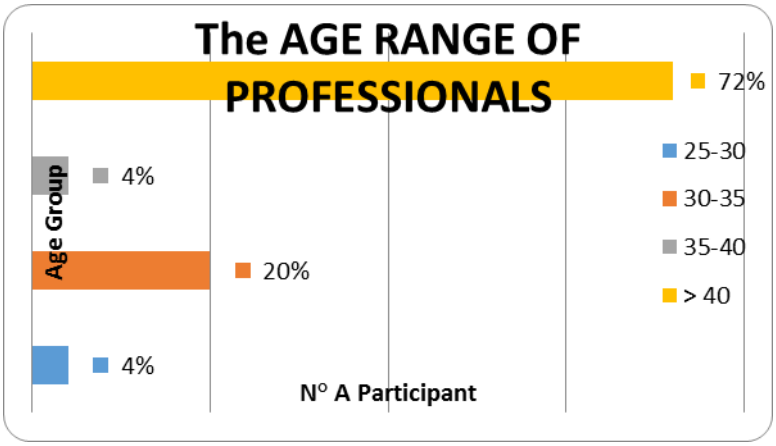

Chart 01 - Distribution of the age of the professionals.
Source: Direct Search. Tipperary.2009.

The participants presented age greater than 40 years (72%). Then 30 to 35 years (20%), and finally between 25 to 30 years (4%), 35 to 40 years (4%).

According to Oliveira (1998) the relative age where there are more frequency of work-related musculoskeletal disorders is in the period of productive age that is between 29 and 35 years.

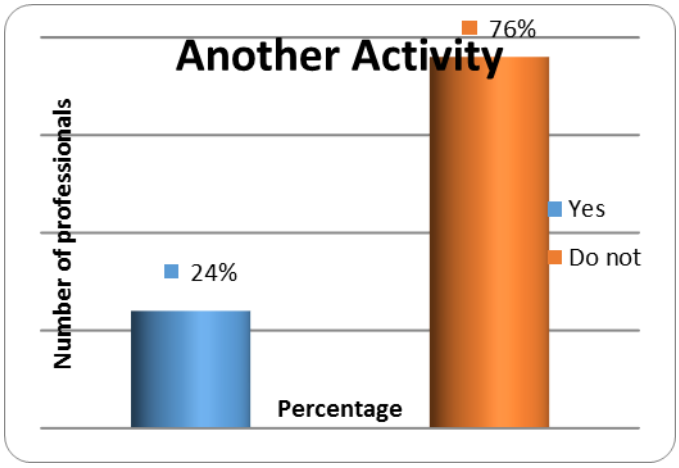

Chart 02 - Implementation of other occupational activity.
Source: Direct Search. Tipperary.2009.

Among the professionals 76% reported they do not perform another occupational activity beyond the dentistry and 24% said they would develop another activity. This gains importance when we know that the majority of respondents work exclusively as CD's, this way we can say that the pain musculoskeletal disorders referred to the interviewees are linked only to the work of CD's that they exercise.

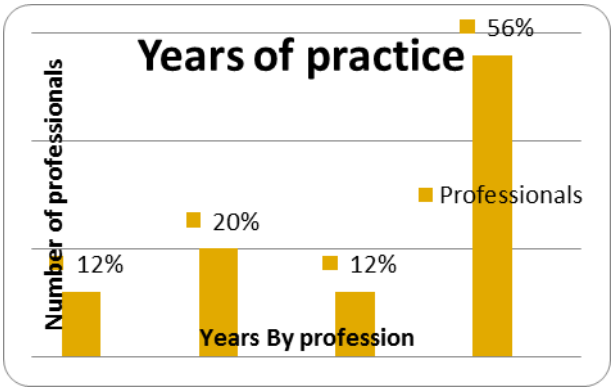

Chart 03 - Distribution of years of practice.
Source: Direct Search. Tipperary, 2009.

The highest prevalence were those with more than 20 years of experience (56%), then those with ages varying between 10 to 15 years (20%), 5 to 10 years were found (12%), and 15 to 20 years (12%).

In a study by Regis Filho *et al* (2006) he noted that dentistry is a profession that requires the CD's to use in carrying out the tasks the same pattern of movement, often with repetitiveness,

mechanical compression of the structures, assuming often incorrect postures and in most cases using excessive force, the fact of working many years and consequently several hours in various locations, increasing the likelihood of development of musculoskeletal injuries.

In relation to distribution of schedules of visits of professionals can be observed in the graph 04 the main work shifts.

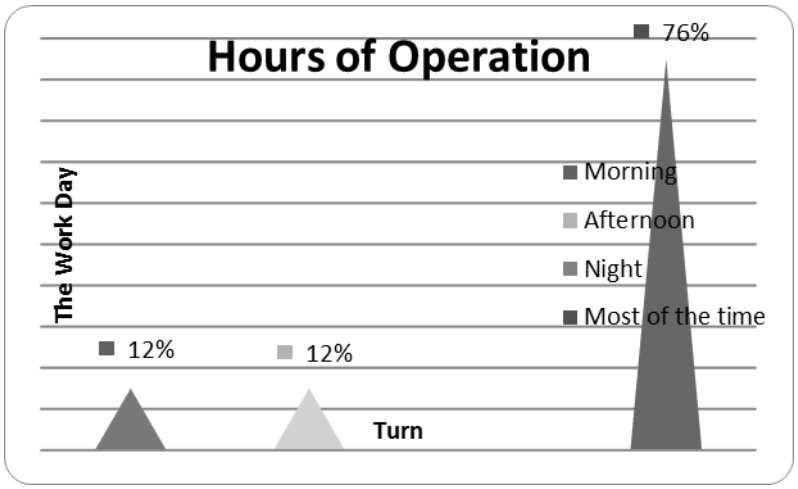

Chart 04- Distribution of hours of operation
Source: Direct Search. Tipperary.2009.

The data found cause concern, since the majority of the professionals work more than one shift (76%), then (12%) of dental surgeons met in the morning and (12%) in the afternoon.

According to Mota (2009) in current world the practice of running more than one zone has become routine, because several health care professionals work more of a schedule, including the surgeon dentist. The work load is a determining factor for the main sintomatologias related to work: the fatigue muscle, the repetitive motion, the pain, the tiredness of mind are gifts for those who work beyond their physical limits and disorders, the dentist is inserted in this group.

In relation to the amount of patients treated daily, we can observe the values found in the graph 05.

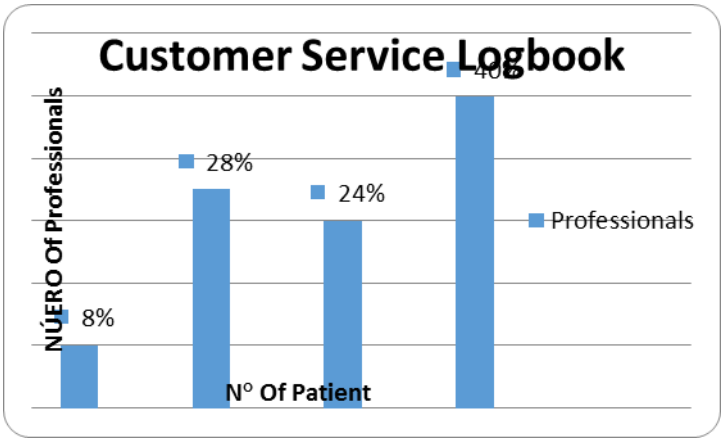

Chart 05 - Distribution of the number of patients per day attended by professionals.
Source: Direct Search. Tipperary,2009.

Between the calls every day, (40%) of the respondents said meet more than 20 patients (28%) who met from 10 to 15 patients (24%) patients aged 15 to 20 and (8%) of 7 to 10 patients.

According to Trunk (2002) mentions that the pause between the handles of dental equipment is a physiological mechanism of compensation and prevention of chronic fatigue. Being that certain small breaks will allow the individual to change position, stand, walk, causing the stretching of some structures and improving the oxygenation of the tissues.

In terms of where the interviewees reported that the procedures that produce pain, we can observe the results in Graph 06.

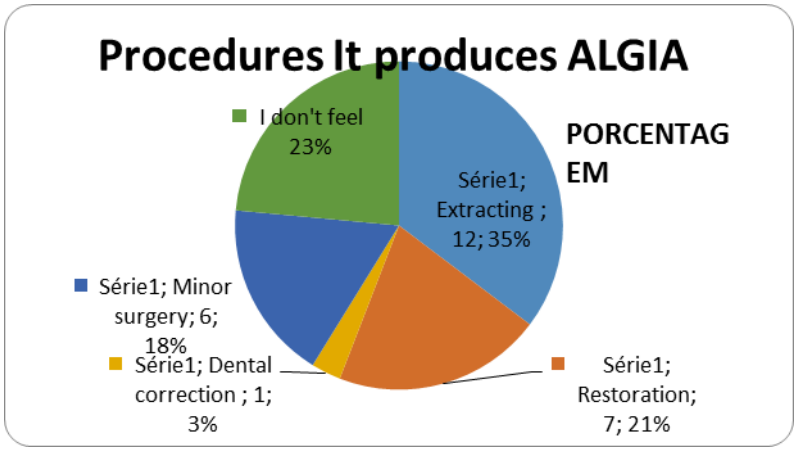

Chart 06 - Distribution of procedures that produce pain.
Source: Direct Search. Tipperary, 2009.

Among the procedures that produce pain we observed that extraction is equivalent to a percentage (35%), followed by the restoration (21%) of (18%) in minor surgery and (3%) in dental corrections, while (23%) said they would not feel any kind of pain.

In relation to the main pathologies that surgeons have sought medical assistance we can observe the results in Table 01.

Table 01 - Main pathologies reported among the dental surgeons.

	Tendonitis	**Cervico-Braquialgy**	**Shoulder Pain**	**Thoracic outlet syndrome**	**Epicon-dilitis**	**Carpal Tunnel Syndrome**	**Lombaci-atalgy**	**Herniated Disc**
%	20	0	12	4	0	0	4	4

Source: Direct Search. Tipperar, 2009.

The study agrees with the research of Mendes (2008) the author recounts in his study that tendonitis is the most common lesion found, among the most pathologies reported by professionals in the field of dentistry. Table 02 describes the regions with the highest incidence of pain found among respondents.

Table 02- Incidence of signs and symptoms

Signs and symptoms of Dort	**The Cervi-cal**	**Om-bro**	**Bra-b**	**Cotove it**	**Forearm-b**	**Wrists, hands fingers**	**Pain-sal**	**Lom-bar**	**Limbs**
Do not	30%	28%	56%	80%	72%	24%	28%	36%	48%
Rarely	38%	28%	36%	12%	24%	32%	32%	28%	16%
With a frequency	32%	40%	8%	8%	4%	40%	36%	36%	36%
Always	The Percent	4%	0%	0%	0%	4%	0%	0%	0%

Source: Direct Search. Tipperary, 2009.

A worrying statistic found in search concerns that 40% of respondents showed signs and symptoms of WDRW with frequency in the upper limbs and 36% in dorsal spine, lumbar spine and limbs.

In a study by Mendes (2008) the most indicated by the dentists was the region of shoulders (34%), followed by the cervical area (21%), and subsequently the lumbar spine (15%), the dorsal region, hands and wrists were attributed to the percentages (12%), (9%) and (6%), respectively. Being that the elbows just refer (3%). In the majority of studies between CD's to the cervical and lumbar spine reaches values above those for the shoulder.

Already in the study by Koltiarenko (2005) among the areas most involved in musculoskeletal symptoms, the cervical spine with (69.93%), the shoulders with (64.72%), lumbar spine with (62.50%), (51.97%) for wrists and hands to the arms (50%), to the thoracic spine (38.82%), forearms with (26.32%) and finally the elbows with (18.42%). The author also reports that the anatomy more indicated with frequency, which presented symptoms of origin musculoskeletal is the cervical spine, followed by the shoulders and lumbar spine, since the region that least mentioned symptoms was the elbows with the first indication of never or rarely have symptoms and in the last place when their presence.

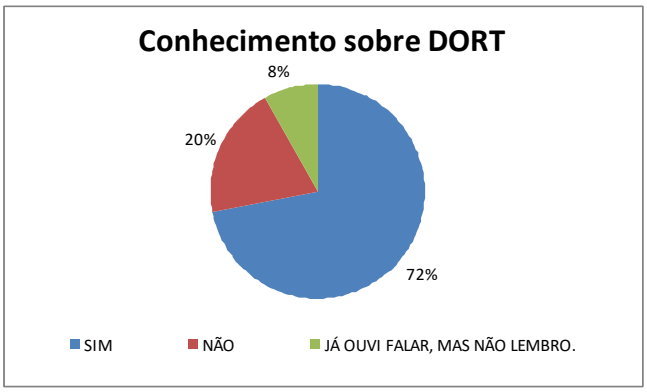

Chart 07 - Distribution of the knowledge of professionals about the DORT.
Source: Direct Search. Tipperary, 2009.

Among those interviewed (72%) reported having some knowledge about the WDRW, (20%) say they do not know the WDRW.

In accordance with Michellin *et al* (2000) indices as levels of dental surgeons with headaches due to WDRW are related to the fact that these professionals, in their majority, do not give due importance to the use of methods for preventing this type of injury, despite having knowledge about the risks and implications to which they are subject.

As the ergonomic conditions of the work environment your results may be observed in chart 08.

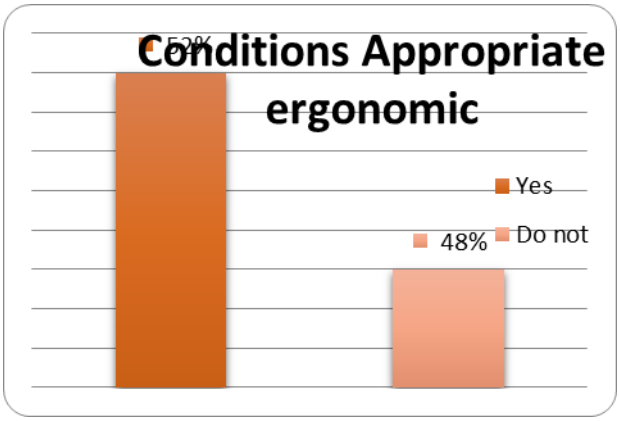

Chart 08 - Distribution of the presence of an environment suitable ergonomically.
Source: Direct Search. Tipperary, 2009.

The ergonomic conditions of the work station the majority of respondents (52%) reported that their job is sufficiently appropriate as that (48%) believe that is ergonomically inappropriate.

According to Barbosa *et al* (2004) among other factors related to the high incidence of WDRW in this professional category is the use of equipment ergonomically unsuitable, resulting in the adoption of inappropriate postures during the service. Such attitudes in addition to cause disturbances in the vertebral column can affect the cardiovascular and respiratory systems.

In a study by Regis Filho *et al.* (2004) inadequate ergonomics is present both in the furniture, as, for example, the owl with the seatback is inappropriate, as in dental equipment which, in addition to being poorly distributed by the office, are designed to perform dental procedures themselves, without a concern that there should be a set of ergonomic instrument at the dental surgeon, which can lead to the development of diseases of the musculoskeletal system, which cause the incapability to work.

The graph shows the percentage of completion of stretching before the clinical procedures.

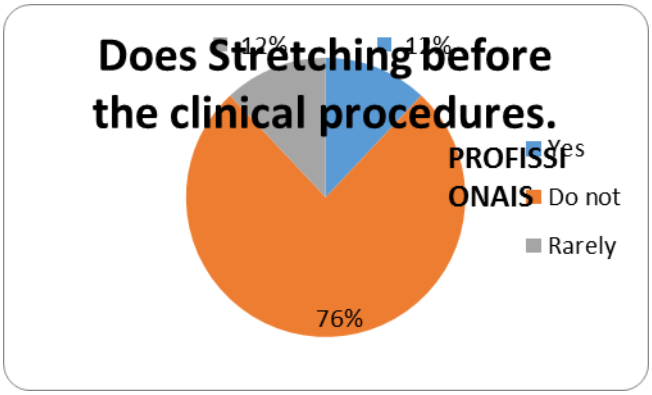

Chart 09 - Distribution of professionals with the habit of stretching.
Source: Direct Search. Tipperary, 2009

In relation to the habit of stretching the result was not satisfactory, because (76%) of the interviewees reported not perform the practice of stretching before the dental care, (12%) perform stretching and with the same percentage (12%) perform rarely the practice of stretching.

According to Pinto (2003) the stretching is a form of work that seeks to maintain the levels of flexibility obtained and the realization of the movements of normal amplitude with minimal physical restraint as possible. It is a simple activity, smooth, quiet, which provides great relaxation and well-being. Done properly, you can avoid many problems related to work, with the advantage that it can be done almost everywhere and at any time, without requiring any special equipment, i.e., the individual can lengthen regularly throughout the day.

The Chart 10 shows the practice of physical activity in your daily life.

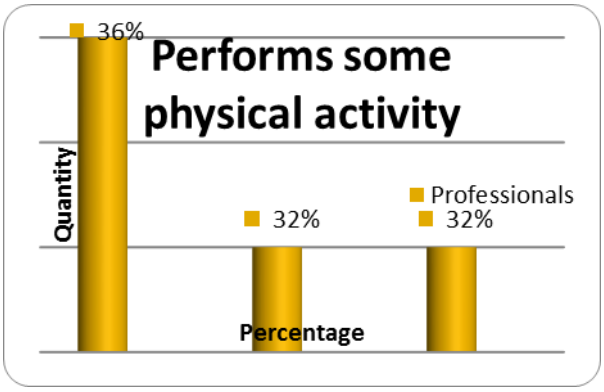

Figure 10 - Percentage of physical activity.
Source: Direct Search. Tipperary, 2009.

The results obtained are satisfactory, since the majority of respondents (36%) stated to practice any physical activity, (32%) do not make any type of physical activity or práticam rarely activity.

According to Rucker and Sunele (2002) Some factors contribute to the increase of musculoskeletal symptoms such as examples: the question of the standard of living of the professionals, a sedentary lifestyle, the deviations of irregular shape of the vertebral column, visual problems and vision, among others. Perform physical activities, moderately decreases the probability of presenting symptoms related to the WDRW.

According to Michelin *et al.* (2000) when you have a careful planning in relation to clinical duties, the execution of daily physical activities, the precautionary principle as the posture, among others, an improvement over the health professionals and their performance in their physical activities.

Conclusions

According to the collected data could be verified that the average age of professionals is greater than 40 years (72%).

In relation to the realization of other occupational activities (76%) reported not practicing them.

Among the years of practice (56%) operates more than 20 years and (76%) work more than one shift, (40%) since more than 20 patients daily.

Among the clinical procedures that more produce pain to extract had the highest incidence (35%) and of the pathologies more frequent among professionals to tendonitis obtained (20%).

About the knowledge of professionals about the WDRW (72%) reported knowing the disorder (52%) stated that her job is ergonomically appropriate.

One relevant fact was on the habit of stretching, where (76%) of the interviewees did not perform stretching exercises before the clinical procedures and (36%) do some physical activity.

The appearance of signs and Musculoskeletal Symptoms Related to Work, was alarming, because 40% of the respondents reported the onset of signs and musculoskeletal symptoms with frequency in the upper limbs and 36% in dorsal spine, lumbar spine and limbs.

Throughout the study, it was observed that there is a great lack of research with respect to dental surgeons. Since this class has been increasing the number of removals temporary staff, due to the appearance of signs and symptoms musculoskeletical, deserving of more research and studies related to health professionals and the main deterrents that professionals must perform on a day-to-day work.

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