

# An epidemiological profile of cashiers holders carpal tunnel syndrome in a grocery store chain<sup>1</sup>

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**Resume.** Occupational diseases are those acquired in the work. Statistics show an increase number of cases, victims like typists, telephone's operators, cashiers and many others with varied levels of involvement. It is composed of disorders affecting the upper limbs being recognized by the Ministry of Social Welfare. Among these diseases stands out for its high occurrence Carpal Tunnel Syndrome (CTS). It has been considered a disease of the century, because its incidence has increased in 40.8% of repetitive stress disorders, with prevalence in females, and predominant age ranging from 25 to 40 years. It is characterized by pain and paresthesia in the first four fingers and wrists, and arm pain, weakness, numbness in the territory of the median nerve, preserving or not the palmar sensation and numbness in the median sensory distribution. This study aims to assess functional capacity and severity of symptoms presented by cashiers diagnosed with CTS. It is a descriptive and quantitative in nature. The population consists of 13 grocery store cashiers of both sexes, with a workload of 42 hours. We will be used as an instrument called the Boston Carpal Tunnel Questionnaire. That purports to be an effective means of measuring the numbness and pain in hands and wrists. Exclusion criteria we consider the subjects who have other diseases associated with CTS. The collection is with the possibility of partial results to be entered in a spreadsheet in Microsoft Excel for data analysis and subsequent discussion and correlation with the current literature.

Keywords: Carpal Tunnel Syndrome, Cashiers, Occupational Diseases and Repetitive Strain.

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## 1. Introduction

Occupational diseases, those acquired at work, are not recent phenomenon in Brazil; start to appear in the 80s, when they began to be described the first reported cases.

Statistics show an increase in the number of cases, victims like typists, bankers, telephone operators, cash registers, workers at the production lines in factories and many others, with greater or lesser degree of involvement. [1, 2]

The syndrome resulting from occupational hazards, consisting of disorders affecting the upper limbs, were recognized by the Ministry of Social Welfare at first with the name of Repetitive Strain Injury (RSI), through the Technical Standard Evaluation of Disability made in 1991

Later, in 1997, this standard was revised and introduced a new term: Work Related Musculoskeletal Disorders (WMSD), a term most widely used today. [1, 2]

Among these diseases stands out for its high occurrence Carpal Tunnel Syndrome (CTS). It has been considered a disease of the century, because its incidence is increasing by 40.8%, the prevalence varies from 51 to 125:100.000, occurring more often in females, and the predominant age ranging from 30 to 60 years.[1]

The STC is characterized by pain and paresthesia in the first four fingers and wrists, and arm pain, weakness when performing fine movements, hypoaesthesia in the territory of the median nerve, preserving or not the palmar sensation and numbness in the distribution median sensory , especially at night.[2, 3]

The evolution of this disease can lead to atrophy of the thenar and when there is prolonged ischemia, axonal damage may occur and be irreversible nerve dysfunction, leading to functional damage of the hand. [2]

Moreover, it can initiate disorders in other areas. Repetitive work may be the cause of some psychological disorders or vice versa, so that biomechanical and psychosocial factors interact in the formation and evolution of the phenomenon musculoskeletal. [1-2]

The repercussions of this pathology are not recent, according to Reis (2000), it is been observed an increase of medical cases, being sent to physical therapy because of occupational injuries. [3]

Facing the repercussions and symptoms of CTS and the functional disabilities found and told by workers; the purpose of the actual study is to ana-

lyze the severity of the symptoms on the supermarket workers' functional state thorough questionnaire of Levine et al. (1993),thus, making a epidemiological profile of cashiers. [4]

## 2. Methodology

It is descriptive and quantitative research. The population is made up of supermarket's cashier that works 42 hours weekly. 30 cashiers of both sexes, working regularly at a supermarket in Recife city, will be the sample. Place where one of the researches is an intern, studying ergonomics and realized many CTS diagnosis. An epidemiologic profile was done, considering these subjects: sex, age, workload and workday. The Quiz from Levine et al. [4] as a reference and the symptoms will be evaluated according these subjects: how long does the patient feels pain, frequency of pain, paresthesia presence, weakness, anesthesia and the functional scale:(to write, button up, hold a book, hold a phone, open bottles, house related works, take showers and dress up).

As inclusion criteria the people included were regular workers in the company, with, at least, 3 months working in the same position, diagnosed with CTS and had agreed with the present research. As exclusion criteria, was taken out of the research, people who had diseases associated with CTS. The survey instrument was Levine's quiz called Boston Carpal Tunnel Questionnaire; it was validated and translated by Campos (2003). [1]

The questionnaire deals with six CTS critical domains: pain, paresthesia, weakness, anesthesia, night symptoms and global functional states. The Scale of Severity (scale S) is made by eleven multiple questions, shown as 1-5; 1 representing the mild symptoms and 5 severe. The scale is calculated by the average score of the 11 individual questions and the functional state scale (scale F) has 8 usual activities. Activities that range from young workers who have their occupation-related carpal tunnel syndrome even older individuals.

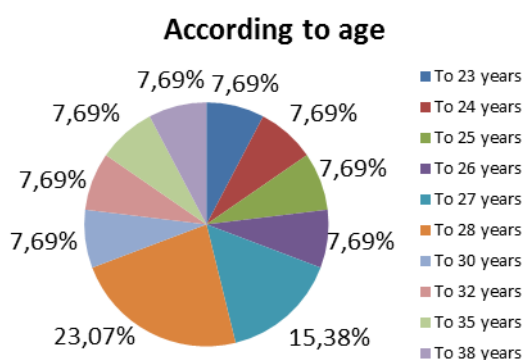
The answers vary from 1 a 5 points, where in 1 is no difficult at all to perform and answer 5 in which the employee has its activity impaired. The final score is the average of the 8 items.

### 3. Results

#### 3.1 Epidemiological Profile

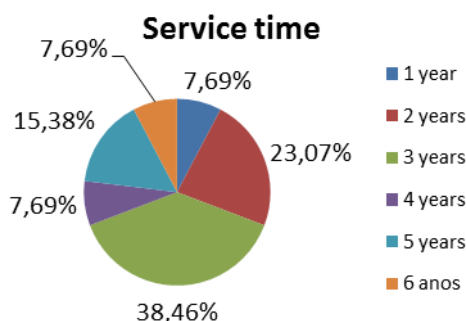
The sample was made by thirteen subjects (N=13) distributed according to the variables already said. The biggest part affected were women (N=12) with 92,3%, and men had only one (N=1) 7,69%.

At the age of 28 years old is when it most occurred (N=3) with a quantitative of 23,07%; as observed in the chart 1.



Charter 1. Workers affected by age.

Everyone's working hours are 7 hours and 20 minutes, split in 2 hours of work, 2 hours break and then nonstop 5 hours of work. According to the time of service (charter 2) it prevail in the employees that are 3 years with the company (N=5), 38,46% and then who has 2 years with the company (N=3). 23,07%; these two groups being the majority of workers.



Charter 2. Classification of employees according to Time working in company

#### 3.2 According to the symptoms' scale

The charter 3, analyses intensity, frequency of pain and behavior; shows pain at night time more intense in Five people (38,46%) and only two people (15,38%) feel a little bit of pain or no pain at all.

In respect to awaken during sleep, four individuals (30,76%) did it in a moderate period three times a week and only two persons (15,38%) did wake up once a week.

When it comes to feeling pain during day time, eight individuals (61,53%) felt a little or moderate. Only one person (7,69%) feel no pain.

How long does the pain last, nine individuals (69,23%) evaluated none, a little or moderate. Only two persons (15,38%) the pain lasts longer.

The frequency of pain, four individuals (30,76%) considering intense and three (23,07%) evaluating very intense. Only three (23,07%) feels little.

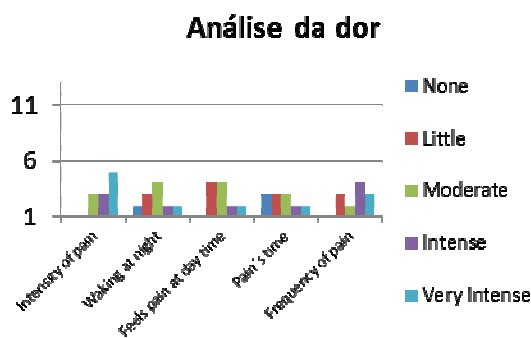


Gráfico 3. Escala da Gravidade da dor.

In chart 4, there is the severity of other symptoms, such as: numbness, weakness, tingling sensation and difficulty to handle small objects. We observed that six individuals (46,15%) had a little bit of numbness and none of the workers had absence of the symptoms.

The weakness symptom, seven individuals (53,84%,) or more than half of it, had a little bit of weakness. Only three individuals (23,07%) had moderate weakness. Concerning tingling sensation, four employees (30,76%) had some and only one (7,69%) had none. The intensity of numbness, four individuals (30,76%) had it moderate and only one (7,69%) had it intense. The difficulty with objects, six individuals (46,15%) had trouble with small ob-

jects and one person (7.69%) had a little difficulty as well as (7.69%) had difficulty very severe.

**Other Symptoms Analysis**

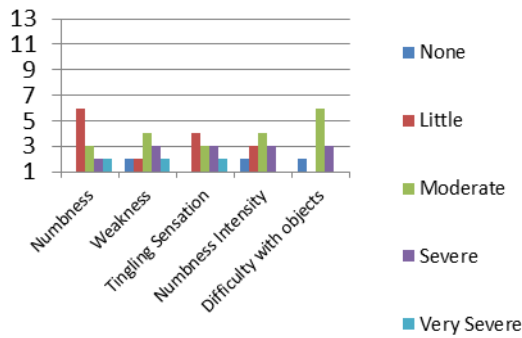


Chart 4. Symptom scale.

**3.3 According to the functional scale**

Figure 5, categorizing Functional Scale in Activities of Daily Living (FSADL), identifies that, to write four persons (30.76%) had no difficulty, while nine subjects (69.23%) had some difficulty.

With Buttoning clothes eight people (61.53%) had no difficulty and four (30.76%) had little difficulty. As for holding a weight, four (30.76%) had moderate difficulty and only one (7.69%) had no difficulty in this activity.

To hold the phone, five employees (38.46%) had no trouble and no person was incapable of performing the activity.

**Functional Scale**

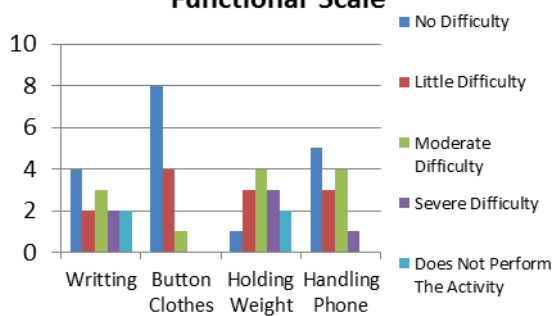


Chart 5. FSADL

In Chart 6, which represents the second part of the functional scale, it is observed that four people (30.76%) have little difficulty opening a jar and, two individuals (15.38%) cannot perform the activity. With the housework, five (38.46%) had little

trouble and only one person (7.69%) failed to accomplish the duties.

With regard to carrying bags, five subjects (38.46%) had moderate difficulty and only one person (7.69%) failed to accomplish. We found that nine people (69.23%) had no trouble taking bath and none is unable to perform the activity.

**Functional Scale**

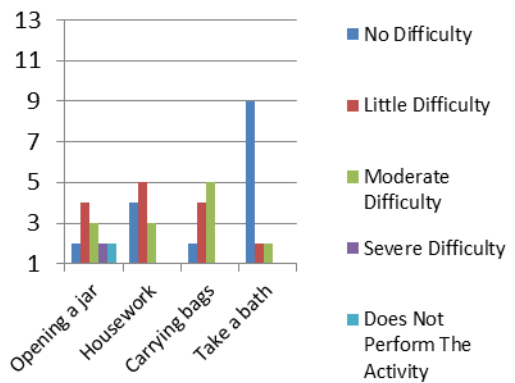


Chart 6. FSADL

**4. Discussion**

The cashiers are a professional category with closely tendency to injury, since its activity helps the installation of CTS symptoms. This group performs manual tasks with repetitive movements, excessive workload and relies on the lack of ergonomic features on your working environment. [1]

The presence of pain, paresthesia in hands and wrists, as a result of long working hours are signs and symptoms experienced by these employees, and also reported by the subjects of this research, as well as psychosocial problems helping in the formation and installation of musculoskeletal problems. [2]

The cause of symptoms may be repetitive movements, extended work overloads, greater time spent standing up, excessive force, among others. [2-3]

Worth pointing out that RSI / WMSD is not considered an illness in fact represents a set of disorders of the musculoskeletal system and these conditions are related to the work environment. [5]

In our sample the workload was 7 hours and 20 minutes spread over 2 hours of early work, a break of 2 hours and 5 hours of uninterrupted service remaining, being equal for everyone, it was noted that

they do not adopted the recommendation to take a break every hour. [6]

The average age of this population's type varies from 25 to 30 years; its prevalence among females is due to double work shift and according to the RSI / WNSD epidemiological profile, corroborating therefore the findings. [6]

The prevalence among female is much discussed, several studies demonstrated physiologic differences (muscle muscle fibers and height related) or exposure type (inappropriate time off work, overload of services, lack of protection)[6]

With regard of pain and others symptoms reported, Moraes and Miguez emphasize that WNSD are lesions that affect both muscles and tendons in places like neck, trunk, lower and upper limbs, which progresses to chronic inflammation and functional losses. [7]

The workload and length of service are consistent with argues of the literature where majority of supermarket cashiers have completed high school and work on two years average about seven hours a day. [8]

The pain can be justified also by the repetitive movements performed by professionals such as supermarket cashiers, running activities standing or sitting [9]

Another factor worth mentioning is that most operators perform their professional activities in a work week from Monday to Saturday, however some establishments work on Sunday, leading the workers to rest after 13 days of working hours, which interferes with the recommended weekly rest.[10]

## 5. Conclusion

Knowing that the carpal tunnel syndrome is an occupational disease and affects about 40.8% of the population, being mostly women between 25 to 30 years and characterizing clearly the symptomatology was used the Boston Carpal Tunnel Questionnaire.

As a result of a quick and easy questionnaire application, we could characterize individuals in relation to pain, numbness, weakness, anesthesia, night symptoms and global functional status; and observe the implications that cause this disease, generally in the life of each individual, with little, moderate or

much involvement. We observed that in general the lives of these employees have some restrictions due to the syndrome, but the great majority occurs in a moderate way.

With regard to service time at the company, the peak of the syndrome would be between 2 and 3 years. This time may not extend due to the fact that they, with the progression of the syndrome, come on sick leave and often getting the benefit, resulting change in the section's company.

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