

WRMD IN SUPERMARKET CHECKOUT CLERKS: A PREVALENCE STUDY

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ABSTRACT

The work-related musculoskeletal diseases, known in Brazil as Repetitive Strain Injuries (LER), represent the main group of health problems, among the occupational diseases in our country. The main object of this work is to verify the prevalence of WRMD (Work-Related Musculoskeletal Disorders) in checkout operators in an supermarket in Londrina-PR. The studied sample was composed by 56 checkout operators, being 50 (89.3%) females and 6 (10.7%) males, with average age of 22.80 years. The data were collected through a questionnaire, raising personal and professional data, and musculoskeletal symptoms. Among the 56 researched subjects, 41 (73.2%) reported to present symptoms referring to WRMD in the last twelve months and 21 (37.5%) in the last seven days. The anatomic areas more achieved related to the last twelve months were: low spine (35.7%), shoulders (28.6%), wrists and hands (12.5%) and thoracic spine (16.1%). Then most attained anatomic areas related to the last seven days were: low spine (16.1%), thoracic spine (14.3%), shoulders (7.1%), wrists and hands (3.6%). Related to the tiredness due to work, 75% of the interviewed workers reported to present physi-

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cal and/or mental fatigue . Due to the symptoms presented, 12 (21.35%) of the workers reported day work lost. It was realized a high checkout operators WRMD prevalence, being it a function developed mainly by female young individuals in their productive age. This study shows the need of preventive works directed to the checkout operator's health.

KEY WORDS: Worker's Health; Checkout; WRMD

INTRODUCTION

Musculoskeletal disorders related to work, which in Brazil are known as Repetitive Strain Injuries (LER) or/and Working Related Musculoskeletal Disorders (DORT), are the main group of health problem among occupational diseases in Brazil. LER/DORT are defined as a group of occupational origin affections compromising tendons sinovia, muscles, nerves, fascia, ligaments, isolated or in association, with or without tissue degeneration, involving upper limbs, shoulder and neck (BRASIL, 2000).

The National Institute for Occupational Safety and Health has classified LER/DORT among the top ten health problems, being half the reported occupational disease among workers in US (WÜNSCH FILHO apud BRASIL, 2000).

In the US, according to the United States Institute of Labor Statistics, there was a 14-fold increase in the number of LER/DORT cases between 1981 and 1994 (SETTIMI et al., 2001). In 1988 there were 650,000 new cases of LER/DORT accounting for 2/3 of absenteeism from work in the American population (O'NEILL, 2001). In Canada and Denmark respectively 50.5% and 45.6% of occupational diseases reported in 1993 were LER/DORT.

In Brazil, this condition, according to INSS (National Institute of Welfare), LER/DORT are the second cause of working absence leading to suffering, incapacity and long period of working absenteeism with working compensation (O'NEILL, 2001).

The incidence of LER/DORT is common in many professional activities, including the checkout operators in supermarkets. In this category the LER/DORT is related to the introduction of new technologies such as computers and optical reading without adaptation of working posts and the working rhythm to the new condition (DINIZ; FERREIRA, 1998). In fact, Carrasco et al. (1995) referred that the introduction of optical bar code scanner in the checkout has improved services to clients at a cost to the health of wor-



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kers due to occurrence of lesions such as LER. In Canada, it was observed an increase in incidence of fatigue complaints after the introduction of optical bar code scanners. Diniz E Ferreira Jr (1998) referred that frequently the scanner is introduced in conventional checkout posts without any previous modification. Besides that, operators are urged not to allow long lines in order to achieve a better service to clients. Therefore, operators speed up their working rhythm with a consequent increase in mental and physical overload.

According to Estil and Kroemer (1998) and MacKay et al. (2000) the cashier sector shows an incidence of LER/DORT that is 2 to 3 times greater than in other sectors at any supermarket.

The present study aims to study the prevalence of LER/DORT among checkout clerks in a supermarket in Londrina, Parana.

MATERIAL AND METHOD

The study was done in a large Londrina, Paraná, supermarket (more than 30 checkouts) in Londrina, Paraná. Sample included 56 checkout clerks, being 50 (89.3%) females and 6 (10.7%) males. The study was approved by the Bioethics Committee of the Regional University Hospital of North Parana according to the pertinent legislation (BRASIL, 1997), and carried an informed consent.

The data collection instrument was based in the Nordic Questionnaire (KOURINKA et al., 1987), which is validated to analyze musculoskeletal symptoms related to work. The questionnaire consisted of open and semi-open questions involving personal and professional information and musculoskeletal symptoms related to work in the last 12 months and last 7 days and its consequences. To the analysis of the anatomical regions it was used the diagram proposed by Jefferson & Mcgrath (1996).

Data collection was done by interviewing participants in a private room in the working place.

Statistical treatment was one with Epi Info 6.04b and Microsoft Excel. Chi square test with correction by Yates was used to analyze the variables and the Test of Fischer was used when the expected value of a cell was less than 5. It was adopted a level of significance of 5% (SOARES; SIQUEIRA, 1999).

RESULTS AND DISCUSSION

Sex distribution shows that the sample was predominantly constituted by females. Out of 56 operators, 50 (89.5) were females and only 6 (10.7%) males.

Average age was 22.8 years being the younger 18 years old and the older 56. 78% showed age varying from 18 to 25 years and only one was above 35 years.

18 (32.1%) participants were married and 38 (67.9%) were single.

Predominance of young single females as checkout operators was also reported by Mackay (2000), Diniz e Ferreira (1998) e Trelha et al. (2001).

Liedke (2001) referred that age of most workers in commerce vary from 18 to 24 years and that most of them find in commerce its first employment due to the need of no or little previous experience or technical knowledge.

The time in the function varied from less than one month to 8 years, mean 17.63 months, median 8.0 and standard deviation 23.90. Circa 35% of checkout operators was in the function for 6 months or less and circa 40% for more than one year (TABLE 1).

TABLE 1- Distribution of checkout operators according to time in function.

Time in function (in months)	n	%
0 a 6	20	35.7
7 a 12	14	25.0
13 a 18	7	12.5
19 a 24	3	5.4
Above 25	12	21.4
Total	56	100.0

Commerce has a high turnover with an average time in job of one year for both sexes and the majority stays in job till one year and a considerable percentage leaves job after the 3rd month (LIEDKE, 2001).

The day's work varied from 6 to 11 hours a day, mean 7.55 hours, median 6.0 and standard deviation of 0.89. It is observed that the majority of checkout operators are new in the job.

Out of the 56 checkout clerks interviewed 41 (73.2%) reported some musculoskeletal symptoms in the last 12 months and out of these, 21 (37.5%) reported symptoms occurring in the last 7 days.

Most affected body regions in the last 12 months can be seen in TABLE 2.



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In the present study it was observed a high prevalence of musculoskeletal symptomatology among checkout operators both in the last 12 months and seven days. This data reveals that, potentially, these workers are under a mental and physical overload that may lead to symptoms of pain and discomfort. Cañete (2001) mentions that pain is a warning sign to threatening situation to the structural or functional integrity of the organism.

It should be stressed that the musculoskeletal symptomatology has a direct effect in the health situation of the individuals and in the quality of work; it also reduces productivity and increase absenteeism and medical costs. Besides that, pain leads to limitation of some body movements reducing efficiency, productivity and satisfaction in the performed task.

Checkout clerks works in a static and or thostatic position associated to movements of rotation and lateral and anterior trunk inclination. According to Diniz and Ferreira (1998), the prevalence of musculoskeletal symptoms is associated to the need of ample movements to reach merchandises, need of static work to support the weight, incapacity to alternate seated and standing positions, unbalances postures with rotation and lateral inclination of the trunk, lack of scheduled working breaks, irregular density of work with overload peaks in the weekends and on the eve of holydays and the lack of alternative tasks.

Considering the overload of work faced by checkout clerks it is easy to understand they are becoming ill. Analyzing the organization and the process of work and the rates of symptomatology among operators it is difficult to identify the major components of such suffering. "There is not a single factor responsible for the suffering of workers, but a network of processes that interwoven to generate a situation of suffering" (PALÁCIOS apud MACHADO, 1997).

Results obtained in this study are similar to those by Mackay (2000) and Diniz and Ferreira (1998), in which the most affected areas were: lumbar backbone, shoulders, wrists and hands. Panzone et al. (1996) analyzed 100 Italian checkout operators in supermarkets and found 74% with complaints of musculoskeletal symptoms in the upper limbs, mainly in shoulders.

TABLE 2 - Prevalence of occurrence of musculoskeletal symptoms in checkout clerks by body region in the last 12 months and last 7 days.

Anatomical area	PAIN		PAIN	
	Last 12 days		Last 7 days	
	n	%	n	%
Lumbar backbone	20	35.7	9	16.1
Shoulders	16	28.6	4	7.1
Dorsal backbone	9	16.1	8	14.3
Wrist and hands	7	12.5	2	3.6
Knee	7	12.5	2	3.6
Neck	5	8.9	4	7.1
Feet and ankle	4	7.1	3	5.4
Elbow	2	3.6	2	3.6
Fingers	1	1.8	1	1.8
Total de ocorrências	71	—	35	—

* Checkout clerks were free to report pain in more than one region. Therefore, the number of occurrences and the percentage are higher than the sample size.

Lumbalgia is presently one of the top health problem in the average population. According to Wood apud Knoplich (1982) lumbalgia is so frequent that may be considered as a social and epidemic disease. Verbeek apud Hildebrandt (1995) stresses that most of the musculoskeletal diseases are problems related to backbone.

Studies show that lumbar pain is associated not only to heavy workers, such as lifting and transporting loads, but also to workers exposed to trauma of accumulative effect commonly found in activities taken as light (HILDEBRANDT, 1995). Besides the risk factors some authors point out to psychical factors to the development of symptoms (MARRAS; LAENDER, 1995; MCGIL; NORMAN, CHOLEWICKIL, 1996).

Forty-two workers (75%) reported that the job causes some type of fatigue, being 10 (17.9%) linked to mental fatigue, 13 (23.2%) to physical fatigue and 19 (33.9%) to both. In the study by Diniz & Ferreira (1998) it was also observed a greater prevalence of physical and mental fatigue caused by the work.

Lundberg et al. (1999) studied the psychological and physiological stress and the muscular tension of 72 checkout operators of supermarket and found high levels of stress and muscular tension with alteration in the levels of catecholamines and blood pressure, as well as in electromyography. These authors suggest that musculoskeletal symptoms referred to by employees may be related to stress.

Ribeiro (1997) and Sato (2001) propose a strong association between LER/DORT and psychic suffering. This emotional wastage



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may be related to a wearisome working journey, no breaks, low salary for an adequate living and difficult interrelation among working matters. This sum of causes may lead workers to a mental and psychic unbalance.

The consequences of such unbalance can be exemplified by absenteeism. Twelve workers (21.35%) were absent from work for a couple of days due to muculoeskeletal symptoms and 4 (7.1%) were absent for more than 30 days.

Besides absenteeism, these symptoms affect familial life and conjugal relations. In this regard, some studies show that serious LER/DORT lesions may lead to consequences in the labor and daily life activities of affected persons (RANNEY, 2000).

In analyzing the musculoskeletal symptoms, sex was not found to be significantly associated (X^2 0.35; $p=0.5536$). Taking the last 7 days group into consideration it was also not found a significant association (X^2 2.01; Fischer=0.156).

Concerning the age of check out clerks and the symptoms in the last 12 months and last 7 days it was not found significant association between the variables (X^2 2.01; Fischer=0.156 and X^2 0.01; Fischer = 0.6272, respectively). It is important to stress that 91% of employees are young (18-30 years old).

With a high and increasing prevalence, LER/DORT has been disabling a considerable number of workers in a very productive age with serious economical consequences both by joblessness (high cost of medical treatment, recruiting, selection and training of new employees) and by the high value of compensations paid to affected workers.

CONCLUSION

It was observed a high prevalence of musculoskeletal symptoms among checkout operators in the studied supermarket, mainly in body areas of lumbar backbone, dorsal backbone and shoulders. LER/DORT may cause suffering and disability to individuals with familial, working and governmental repercussion.

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