

Musculoskeletal Symptoms in Urban Cleaning Agents

ORIGINAL

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Abstract

Introduction: The work raises the dignity of man, but it is also a tool to develop diseases, which can also be identified among the agents of urban cleaning.

Goals: To assess the prevalence of musculoskeletal symptoms in urban cleaning workers; checking the musculoskeletal symptoms related to work; ascertaining body regions that show most often pain, discomfort or numbness caused by the occupation; correlating musculoskeletal symptoms with age, income and working time in months.

Method: This is a descriptive, transversal study with quantitative approach. The research was conducted with employees of public cleaning in Patos county, Paraíba. Forty-five cleaning agents responded to the validated instrument called Nordic Musculoskeletal Symptoms Questionnaire. Data were tabulated through Microsoft Excel[®] software, version 2007 and the Statistical Package for Social Sciences program (SPSS - version 21.0). Means were collected, minimum and maximum, median and standard deviation. In parallel was adopted inferential statistics.

Results: It was found that most (60%) presents at least one complaint against pain requiring within the working hours. The regions

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of the body that present most often pain, discomfort or numbness caused by the occupation were: lumbar region (37.8%), hip/lower limbs (26.7%), dorsal region (24.4%) shoulder (17.8%), wrists/hands/fingers (13.3%). There was no correlation between musculoskeletal symptoms with age, income and working time in months.

Conclusion: The results presented in this study are relevant and confirm the need for interventions in health and the development of new studies with the group of workers as well as suggest the implementation of programs such as work gymnastics.

Keywords

Work; Cumulative Trauma Disorders; Urban Cleaning.

Introduction

The work raises the dignity of man, being essential to his livelihood and his family, it values the man, identifies him and inserts in society. But it is also a tool for developing diseases, in ancient times, the sages related diseases to working groups. But the major milestone happened through the studies of the doctor Bernardino Ramazzini (1633-1714), where he studied diseases associated with over 50 professions, considered the father of occupational medicine, and today his works are study references [1].

With the framework of the Industrial Revolution, it was possible to detect injuries in workers stemmed that stemmed requirements of their occupation, entering in conflicts their tasks and functional capabilities. In the current days, employees from the most diverse professions have work-related diseases, some adopted by the Ministry of Health and the Ministry of Social Security as Repetitive Strain Injuries and Musculoskeletal Disorders Related to Work [2].

The country was among the countries where there epidemics of Repetitive Stress Injury/Musculoskeletal Diseases related to work (RSI/MSDs), later some of them were able to present different aspects, Brasil does not. The diseases related to work have become of compulsory notification from the GM Ordinance No. 777, from the Ministry of Health, of

April 28 2004, in order to minimize the appearance of new cases and control complications provided for those that already exist [2].

Said that the onset of symptoms does not appear to be so much trouble, and over the years can lead to major problems, the first symptoms are short-lived and mild. Most of the time, workers reported passenger fatigue, and gradually the symptoms become more intense and present during the workday [3].

The According with define the work or occupational diseases, "[...] are those that the individual acquires due to his exposure to agents or conditions that may trigger it. [4]"

The category of workers known as public cleaning agents, popularly known as scavengers or street cleaners plays an important role in public health. In controversy, the health of these workers is at the mercy of many factors that harm the health of them. In addition to being exposed to several factors such as physical, chemical, biological and psychosocial, still tend to build conditions that may cause the onset of MSDs due to imposition of physical exertion such as walking, running, carry heavy loads, lowering and rising sharply associated with poor posture and other [5].

However, the street sweeper work involves occupational hazards for which they are exposed during the work process. Thus occupational health of this

working class, therefore the health/disease process, requires attention in respect of studies for public health interventions [6].

The interest in this topic stems from concerns about the occupational risks to which cleaning agents are subject in the performance of their functions, among which are the musculoskeletal disorders that can trigger long-term disabilities that may keep them from work indefinitely. At the same time, we realize that this labor category needs special attention with a greater investment, in order to minimize and combat work-related diseases that are clearly preventable if taken measures to these health problems.

Given the above, the questions arise: What is the prevalence of musculoskeletal symptoms in workers in the public cleaning in Patos county, Paraíba? What are the regions most affected by the presence of musculoskeletal symptoms among the public cleaning agents? These symptoms are really related to work? Therefore, this study will be of fundamental importance to contribute to improving the work of these workers, contributing to their quality of life and well-being at work.

The objective, therefore, is to assess the prevalence of musculoskeletal symptoms in urban cleaning workers; check musculoskeletal symptoms related to work; investigate body regions that present most often pain, discomfort or numbness caused by the occupation; correlate musculoskeletal symptoms with age, income and working time in months.

Materials and Methods

This is a descriptive, cross-sectional study with a quantitative approach. It was conducted in Patos county - PB, located in the backlands of Paraíba, having a population of approximately 101,000 inhabitants. Its location gives easy access to the states of Rio Grande do Norte and Pernambuco, placing it in a prominent position in the case of smaller cities around it. Having highlighted by trade, College and Universities.

For urban cleaning, the city counts with the service of 55 employees from categories of collectors, sweeping and weeding. Number too few to meet the needs of a city in the size of Patos, with this total population [7].

The investigation took place with 45 street cleaners working in Patos county - PB. For the survey, it was adopted a non-probabilistic sample for determined convenience as pre-defined inclusion and exclusion criteria: inclusion: be street cleaners from Patos county (sweeping, collection and weeding), sign the Enlightened and Free Consent Term (EFCT), taking part in the research spontaneously. Exclusion: Being at Medical License at the time of data collection, conducted from January to February 2014, after the approval of the Research Ethics Committee (REC) of Patos Integrated College (FIP) as CAAE: 37285214.7.0000.5181/Opinion No. 091563/2014.

Data collection was performed with estimated time of approximately 20 minutes per agent and in the workplace, for both there was the application of a social and demographic questionnaire and an instrument validated that identifies the presence of musculoskeletal symptoms and the regions with higher prevalence of pain, discomfort and numbness, ie the Nordic Musculoskeletal Questionnaire or Nordic Musculoskeletal Symptoms Questionnaire [8].

Data were tabulated through Microsoft Excel[®] software, version 2007 and the Statistical Package Program for Social Sciences (SPSS - version 21.0). Means were collected, minimum and maximum, median and standard deviation. In parallel was adopted inferential statistics. The reliability of the results of the instruments was performed by calculating the Cronbach's coefficient, adopting an alpha value equal or less than 0.70 for both all the items evaluated, as only for standardized items. For correlations, the Spearman correlation coefficient (ρ) will be applied. The results were presented in tables. It was accepted as significant an error of up to 5%, ie, $p \leq 0.05$.

Results

The search results are distributed in the following five tables:

Table 1. Description of social and demographic data.

Variables	n	%
Kind of work		
Weeding	5	11.1
Collect	15	33.3
Sweeping	21	46.7
Sweeping and collection	4	8.9
Sex		
Male	45	100.0
Conjuality status		
Single	5	11.1
Married	14	31.1
Living with partner	26	57.8
Leisure activity		
Yes	17	37.8
No	19	42.2
Sometimes	9	20.0
Physical activity		
Yes	25	55.6
No	16	35.6
Sometimes	4	8.9
Like the work		
Yes	45	100.0

Source: Research Data, 2015.

Table 2. Description of age, income and working time.

	Age	Income	Working time in months
Average	34.91	1005.87	70.53
Median	34.00	1000.00	48.00
Standard deviation (SD)	9,315	132,201	58,771
Minimum	19	800	12
Maximum	63	1300	192

Source: Research Data, 2015.

Table 3. Body regions that have felt discomfort in the last year.

Anatomic Regions	n	%
Neck/Cervical Region		
No	35	77.8
Rarely	6	13.3
Frequently	1	2.2
Always	3	6.7
Shoulders		
No	36	80.0
Rarely	5	11.1
Frequently	2	4.4
Always	2	4.4
Arm		
No	39	86.7
Rarely	2	4.4
Frequently	2	4.4
Always	2	4.4
Elbows		
No	43	95.6
Frequently	2	4.4
Forearm		
No	43	95.6
Frequently	1	2.2
Always	1	2.2
Wrists/hands/fingers		
No	37	82.2
Rarely	2	4.4
Frequently	5	11.1
Always	1	2.2
Dorsum region		
No	34	75.6
Rarely	5	11.1
Frequently	2	4.4
Always	4	8.9
Lumbar region		
No	27	60.0
Rarely	8	17.8
Frequently	4	8.9
Always	6	13.3

Anatomic Regions	n	%
Hip/lower limbs		
No	32	71.1
Rarely	6	13.3
Frequently	4	8.9
Always	3	6.7
Ostermuscular disorder cases		
No report	18	40.0
With at least one report	27	60.0
Frequently	4	8.9
Always	3	6.7

Source: Research Data, 2015.

Table 4. Location of discomfort given to the work.

Anatomic Regions	n	%
None of them		
No	35	77.8
Yes	10	22.2
Neck/Cervical Region		
No	40	88.9
Yes	5	11.1
Shoulders		
No	37	82.2
Yes	8	17.8
Arm		
No	40	88.9
Yes	5	11.1
Elbows		
No	43	95.6
Yes	2	4.4
Forearm		
No	44	97.8
Yes	1	2.2
Wrists/hands/fingers		
No	39	86.7
Yes	6	13.3
Dorsum region		
No	34	75.6
Yes	11	24.4

Anatomic Regions	n	%
Lumbar region		
No	28	62.2
Yes	17	37.8
Hip/lower limbs		
No	33	73.3
Yes	12	26.7

Source: Research Data, 2015.

Table 5. Correlations between physical discomfort and age, income and working hours.

	Age	Income	Working time in months
Discomfort	0.17	0.07	0.14
Discomfort assigned to work	0.11	0.20	0.06

Source: Research Data, 2015.

Discussion

In the **Table 1** shows the description of the social and demographic data. It was found that almost half of the sample works with Sweeping (46.7%), all are male, 57.8% live with a partner, 42.2% does not have leisure activity, 55.6% practice physical activity and all they reported that they like the work.

The social and demographic questionnaire is directly linked to the quality of life of these individuals. The World Health Organization (WHO) states that quality of life is a set of individual life perceptions in the context of culture and value systems in which they live in relation to their goals, expectations, and standards concerns [9].

The quality of life is the standard established by the company and the continuity of this, be given through public and social policies. From the society is conclusive by different people, responding at the same time a goal, which is the human welfare, single or of the society. Including the relationship of family life, love, environmental and social [10].

Say that family relationships and health promotion are linked to working conditions, which are

conditions that influence the quality of life of these individuals. As mentioned above, this study shows that 57.8% of workers interviewed said they live with companions [11]. Does the job satisfaction index is directly related to the care/encouragement of women's presence?

In the present study it can be seen that 100% of respondents reported liking the work. Yet other research contradicts this result, as the study in the Federal District, it found that 79.2% of waste pickers defined themselves as stressed, sad or tired with the type of work performed by them [12]. Claim that individuals who work with waste, are discarded, devalued by modern society, not being recognized because of the work they do, do not seen as humans becoming to be treated as waste [13].

It is understandable, as the authors mentioned, that to handle with trash, the individual is exposed to various factors that cause problems for their health, but also to the environmental conditions, such as contamination of soil, water resources, disease vectors proliferation. Thus, it emphasizes the importance of the work performed by them, directly contributing to the reduction and prevention of diseases due to exposure of the waste.

In the **Table 2** shows that the sample has an average age of 34.91 years ($SD = 34$), a middle-income real 1005.87 ($SD = 1000$) and works on average 70.53 hours per month ($SD = 58.77$).

In this table, we should take into account the results obtained with the maximum age of the workers, who was 63 years, with a maximum of 70.53 hours of work. The workload may interfere with the development of musculoskeletal pain, is worth highlighting that, in Brasil, it can not exceed 8 hours of daily work [14]. The survey data, the garbage collectors work on average 8.5 hours a day, even coming close to 14 hours, in the case of commemorative days and Mondays, which increase the volume of waste, according to the garbage collectors [5].

To enhance claim that must be appreciated and organize the work environment so that employees

feel satisfied with the attributes that the locus of work, such as excessive exposure to the sun [minimum of eight hours], the risk of accidents and infections among others is appropriate [15].

Regarding the age, in the study suggests that staying in the work world appears to be determined by the physical ability, and the emergence of diseases can be directly associated with the work, because research confirms that the trunk extension strength, good aerobic capacity appears to be related to workers with low workload, little service time and little physical exposure in labor activity [16].

In relation to minimum and maximum difference of income, it gives up the work overtime. Does the emergence and prevalence of musculoskeletal symptoms could also link up the work hours exceeded?

In the **Table 3** shows the regions of the body that has felt discomfort in the last year. It was found that the most affected regions were lumbar and dorsal. The least affected were the elbows and forearm. Furthermore, it was found that 60% ($n = 27$) of the workers showed at least one reporting musculoskeletal disorder.

The pain and musculoskeletal discomfort are part of different groups of workers, highlighting cleaning agents from various fields, including in a special way, street cleaning agents. In this study, there is a high prevalence of musculoskeletal symptoms, as at least 60% of the agents complained of some of this disorder. This fact can be explained by risk factors present in the activity.

The prevalence of pain in these regions is directly related to the frequent use of upper and lower limbs in the labor activity of the cleaning agent, given that throughout the workday, these members are quite ordered, together with incorrect postures and repetitive movements.

In the study the data were apparently compatible, however the percentage differences may result from numerical differences in the sample, after this survey was conducted with 624 cleaning workers,

resulting in the prevalence of pain or discomfort in the past 12 months and musculoskeletal disorders (DME) considering any action of the body, was 77.4 and 62.8%, respectively. For low back pain and lumbar DME, prevalences were observed in 45.5 and 37.0%. Among the lumbar DME cases, it was found that 62.8% of workers attended with pain in the last 7 days [17].

In the study in the city of Pelotas and Rio Grande, with 127 garbage collectors, the results were still higher compared to studies cited, with a percentage of 88.2% from prevalence of musculoskeletal symptoms in workers. The same author also compared to the results of research done in other regions of the world such as Mansoura, Egypt, 60.8% and Tehran, 65% of prevalence of these symptoms [5].

In the population studied, we observed that are common the musculoskeletal symptoms appear in more than one anatomical region. This condition was observed in studies, that aimed to study the lesions by the prevalence of musculoskeletal symptoms [18-23].

Complaints of low back pain of workers can be related to long period passing sometimes running, sometimes lowered wrongly or taking weight. Related to wrong postures, cause muscle pain, therefore caused by back muscle fatigue. A wrong posture occasions, also, changes in the column that cause increase in pressure on intervertebral discs of the lumbar spine, resulting in frequent pain in the region [24]. In the study, carried out with Salvador cleaning agents, the prevalence of low back pain was (45.5%), result higher than that of present research [17].

For street sweepers, one of the factors that is highlighted in the appearance of occupational diseases are ergonomic, in the case of the posture required for their work activities. Ergonomics is the science that studies the relationships between man and the working environment, which seeks a set of techniques in order to offer a better adaptation to result in human efficiency and well-being at work.

Given that the implementation of that improves the quality of life, reduces health care, but also reduces the number of accidents, resulting in work efficiency and minimizes employee turnover [25].

In the **Table 4** describes if site of discomfort can be assigned to the job. The regions that the participants had more discomfort associated to work were respectively the low back with 37.8%, hip and lower limbs with 26.7% and back to 24.4%.

The body regions most affected by musculoskeletal disorders in the last 12 months were, respectively, the legs (40.9%), knees (36.2%), lower back region (35.4%) and the thoracic column (34.7%). These data confirm that the associations of pain are directly related to work [5]. It become notorious for the work feature because, often the garbage collectors need to perform their jobs at a fast pace, they need to carry many bags of trash at the same time, supported on their hands, arms and chest, which thus increase the risk of accidents, may suffer cut, injury the muscles, as well as the spine. Being perceived the everyday efforts to move up and down the truck, and thus become common the complaints of musculoskeletal pain. With sharp features, garbage collection requires physical exertion that wears the worker to require that collectors go up and down in slopes and walk for kilometers [26].

In the **Table 5** shows the correlations of physical discomfort with age, income and working hours. It was found that there were no significant correlations between the variables.

The results may have been presented in this way due to the sample size. The data were discrepant to this approach, although the investigation has been made with 55 bus drivers in the city of São Paulo. The time variable in function was ($p = 0.16$) correlated with symptoms [27].

Conclusions

It could be observed that there is a significant prevalence of musculoskeletal symptoms, however, are

not directly linked to working hours, years of service and the requirements determined by the type of work. The regions of the body that are most often pain, discomfort or numbness caused by the occupation were: lumbar region (37.8%), hip/lower limbs (26.7%), dorsal region (24.4%), shoulders (17.8%), wrists/hands/fingers (13.3%).

The results presented in this study are relevant and confirm the need for interventions in the health sector, with adequacy and improvement of environmental conditions, work organization and also provide levels of knowledge for workers. Similarly, it is important to develop new studies in order to achieve a more accurate assessment of physical, mental and social workers as cleaning agents, class so little studied, as also suggested the implementation of programs that minimize the appearance musculoskeletal symptoms, as an example, work gymnastics.

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