QUALIFICATION OF PAIN IN WOMEN WORKERS OF A TEXTILE FACTORY IN THE SOUTH OF BRAZIL

Qualificação da dor em trabalhadoras de uma malharia no sul do Brasil

Cualificación del dolor de trabajadoras de una tienda de mallas del sur de Brasil

Original Article

Marina Cauz[1]
Jussara Cassol[1]
Franciele Marques Vanderlei[1]
Josiane Schadeck de Almeida Altemar[1]

ABSTRACT

Objective: To analyze and qualify pain in women workers of a textile factory in the south of Brazil. **Methods:** Cross-sectional descriptive study, with quantitative approach, in which 15 women workers were interviewed on a single day in May 2012. The assessments for pain qualification and analysis were performed by means of three instruments: multidimensional adapted questionnaire, Wisconsin Pain inventory (pain analysis) and McGill Pain questionnaire (qualification). For data analysis, descriptive statistics was employed, by calculating the average, standard deviation, percentage and absolute numbers. **Results:** The participants' mean age was 33.4 (± 14.9) and they worked 9 hours a day. As for the painful posture in the workplace, the major complaint regarded abducted shoulders and flexed elbows (n=7, 46.6%). The most commonly painful anatomic sites were shoulders (n=8, 22.2%), cervical spine (n=7, 19.4%) and elbows (n=7, 19.4%). Pain analysis through the Wisconsin inventory, classified by the Visual Analogue Pain Scale (VAS), demonstrated moderate interference with work, sleep, mood, enjoyment of life and general activity. According to McGill questionnaire, the sensory level stood out, with highest frequencies to throbbing pain (n=10, 50%), needled (pricking) (n=4, 20%) and tingling pain (n=4, 20%). **Conclusion:** The sample showed high frequency of pain in shoulders, elbows and cervical spine, in addition to painful symptomatology regarded moderate in most of the evaluated items, which might lead to significant interference with the labor activities and daily life.

Descriptors: Occupational Health; Textile Industry; Physical Therapy Specialty; Women; Pain.

RESUMO

Objetivo: *Analisar e qualificar a dor em mulheres de uma malharia do sul do Brasil.* **Métodos:** *Estudo transversal, descritivo, com abordagem quantitativa, em que foram entrevistadas 15 trabalhadoras em um único dia de maio de 2012. As avaliações para qualificação e análise da dor aconteceram por meio de três questionários: multidimensional adaptado, inventário para dor de Wisconsin (análise da dor) e o questionário de McGill (qualificação). Para análise dos dados, foi realizada a estatística descritiva, com o calculo da média, desvio padrão, percentual e números absolutos.* **Resultados:** *As participantes apresentavam média de idade de 33,4 (±14,9) anos e trabalhavam 9 horas diárias. Referente à postura dolorosa no posto de trabalho, observou-se maior queixa em ombros abduzidos e cotovelos flexionados (n=7, 46,6%). Os locais anatômicos dolorosos mais frequentes foram ombros (n=8, 22,2%), coluna cervical (n=7, 19,4%) e cotovelos (n=7, 19,4%). A análise da dor pelo inventário de Wisconsin, classificada por meio da Escala Visual Analógica de Dor (EVA), demonstrou interferência moderada no trabalho, sono, humor, apreciação da vida e na atividade geral. De acordo com o questionário de McGill, houve destaque para o nível sensorial, com maior frequência para dor latejante (n=10, 50%), agulhada (n=4, 20%) e formigamento (n=4, 20%).* **Conclusão:** *A amostra apresentou alta frequência de dor nos ombros, cotovelos, coluna cervical e sintomatologia dolorosa considerada moderada na maioria dos itens avaliados, o que pode levar a uma interferência importante nas atividades laborais e do cotidiano.*

Descritores: *Saúde do Trabalhador; Indústria Têxtil; Fisioterapia; Mulheres; Dor.*

1) Community University of the Chapecó Region - (*Universidade Comunitária da Região de Chapecó - UNOCHAPECÓ*) - Chapecó (SC) - Brazil

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RESUMEN

Objetivo: *Analizar y cualificar el dolor de mujeres de una tienda de mallas del sur de Brasil.* **Métodos:** *Estudio transversal y descriptivo de abordaje cuantitativo en el cual se entrevistaron 15 trabajadoras en un único día del mes de mayo de 2012. Las evaluaciones para la cualificación y el análisis del dolor se dieron a través de tres cuestionarios: el multidimensional adaptado, el inventario para el dolor de Wisconsin (análisis del dolor) y el cuestionario de McGill (cualificación). Para el análisis de los datos se realizó la estadística descriptiva con el cálculo de la media, la desviación típica, el porcentual y los valores absolutos.* **Resultados:** *Las participantes presentaron la media de edad de 33,4 (±14,9) años y 9 horas al día de trabajo. Respecto la postura de dolor en el sector de trabajo, se observó más quejas en los hombros en abducción y los codos en flexión (n=7, 46,6%). Los puntos anatómicos de dolor más frecuentes fueron los hombros (n=8, 22,2%), la columna cervical (n=7, 19,4%) y los codos (n=7, 19,4%). El análisis del dolor a través del inventario de Wisconsin clasificado por la Escala Visual Analógica de Dolor (EVA) ha demostrado interferencia moderada con el trabajo, el sueño, el humor, la apreciación de la vida y la actividad general. Según el cuestionario de McGill hubo importancia para el nivel sensorial con más frecuencia para el dolor latigante (n=10, 50%), en agujada (n=4, 20%) y hormigueo (n=4, 20%).* **Conclusión:** *La muestra presentó elevada frecuencia para el dolor en los hombros, los codos, la columna cervical y sintomatología de dolor moderada para la mayoría de ítems evaluados lo que puede llevar a una interferencia importante en las actividades laborales y del cotidiano.*

Descriptores: *Salud Laboral; Industria Textil; Fisioterapia; Mujeres; Dolor.*

INTRODUCTION

For a long time, great efforts have been made for the reduction of social inequalities between genders. Thus, women increasingly participate actively in the labor market, which, on the other hand, has given rise to a double or triple burden. Moreover, there is a gender pay gap, leading to greater emotional distress and health-related problems, such as hormonal changes, sedentary lifestyle, muscle fatigue and depression[1,2].

Workers are exposed to various types and intensities of risks in the workplace, which increase as the use of technological resources associated with different forms of control and organization grows, leading to dissatisfaction and expanded morbidity profiles in the working class. It is known that such risks produce various symptoms, among which pain is the main one[3].

As the most populous category in the textile industry, women are the most affected ones by work-related diseases, particularly musculoskeletal problems, respiratory disorders and stress[4]. The work-related musculoskeletal disorders (WMSDs) result in persistent pain, loss of functional capacity and labor impairment, and feature multifactorial causes, including physical, organizational and individual factors[5,6].

Different methods have been used to assess the perception of pain, which is a multidimensional experience with sensory, affective and cognitive-evaluative components that correlate, contributing to the pain response[5]. Unidimensional measures of intensity, among which the Visual Analogue Pain Scale (VAS) is the most used, and multidimensional scales, such as the McGill questionnaire and the Wisconsin inventory, are examples of methods that manage to quantify and qualify the various components related to pain[7,8].

Studies claim that using scales may be a more effective way to assess pain, given the recognition of the relationship between pain and the sensory, affective and temporal qualities. Thus, the use of scales makes it possible to estimate the impacts of this symptom on the daily life and labor activities of workers[9-11].

Furthermore, it is noteworthy that, according to data from the National Social Security Institute (*Instituto Nacional do Seguro Social - INSS*), 717,900 occupational accidents and diseases were recorded in 2013, resulting in sick leaves taken by 610,804 workers because of temporary disability. By comparison with year 2012, an increase of 0.55% was observed, with records of 15,226 cases of work-related diseases in this data[12].

Occupational diseases give rise to major social and economic consequences, both for the State, the companies, and the individuals themselves. For the state, a high expenditure on payments of pension benefits, treatment and rehabilitation. For the company, a decrease in productivity and service quality due to the reduction in the number of employees and hours worked; and, for the individual, suffering, incapacity for labor, activities of daily life, and social life[13].

In this context, the occupational diseases can be regarded a public health problem, requiring preventive and protective political actions aimed at the occupational risks and issues related to the worker's health, in order to reduce this high prevalence. This study aimed at analyzing and assessing the pain in women workers of a textile factory in the south of Brazil.

METHODS

This study is characterized as quantitative, descriptive, and cross-sectional. The population of women workers of a textile factory in the western Santa Catarina State was 19, but the sample of this study consisted of 15 women

with mean age of 33.4 (± 14.9) years. Data collection was performed on a single day in May 2012 and took place in the workplace, where the participants answered to three self-administered questionnaires.

The textile production of the company under investigation is divided into three sectors - cutting, sewing and ironing the articles: one person performs cutting and other irons the items, both sustaining the orthostatic posture; the others perform the sewing, sustaining the sitting posture throughout the workday. The activities in all sectors consist of repetitive movements, posing stronger demands on the upper limbs, in addition to the use of non-ergonomic furniture. The working day lasts 9 hours daily.

The study used as inclusion criteria: being present at the time of data collection, being literate and responding to the three evaluation tools in full. Within this context, four women were excluded from the sample because of their absence on the date established for data collection or refusal to participate in it.

Pain assessment was carried out by means of three questionnaires: McGill, Wisconsin pain inventory, and multidimensional questionnaire. These were applied during a single, previously scheduled visit to the company. Upon arrival and explanations about the study, the interviewees received the three questionnaires, which were self-applied. The research instruments were completely filled out within approximately 20 minutes and, after that, the participant returned to their labor activities.

The McGill questionnaire consists in a multidimensional instrument with 78 descriptors divided into four groups, namely: sensory (subgroup 1 to 10), affective (subgroup 11 to 15), evaluative (subgroup 16), and miscellaneous (subgroup 17 to 20). For the application of this questionnaire, the individual is asked to choose a word from each subcategory, being allowed the option not to choose any. The analysis is performed by categories, by adding the values associated with the chosen words (descriptor number), and the pain index is obtained by summing the intensity values of the chosen descriptors[14].

On the analysis of the overall pain intensity in labor and extralabor activity, the Wisconsin pain inventory[15] was used, comprising a body diagram featuring the characterization and location of the complaint, issues related to its intensity, description of the relief achieved, and the patient's perception of their pain complaint. The responses, however, were writen down on the VAS, which assigns a number between zero and 2 to mild pain; 3 and 7 to moderate pain, and between 8 and 10 to severe pain.

Aiming at collecting relevant data on the working conditions, the participants were given a multidimensional questionnaire, which was adapted for this study, addressing issues such as the employee's position in the company, the posture adopted while performing their tasks, performance of extra-labor activities and physical activity[16]. It is worth noting that, in addition to that tools, to support the localization of the painful area, an illustration of the human body[17] was presented.

Descriptive statistics were used to display the data, which was presented as mean values, standard deviation, percentage and absolute numbers, with use of the software SPSS, version 13.0.

The study was initiated after approval by the Ethics Committee for Research involving Human Beings of the Community University of the Chapecó Region, under Protocol no. 355/12, meeting the requirements of Resolution 466/12 of the National Health Council and its complementary resolutions, and after receiving authorization by the company where the study was conducted. The population agreed to participate by reading, understanding and signing the Free Informed Consent Form.

RESULTS

Regarding the sample characteristics, the mean age was 33.40 (±14.90) years, the majority were married and

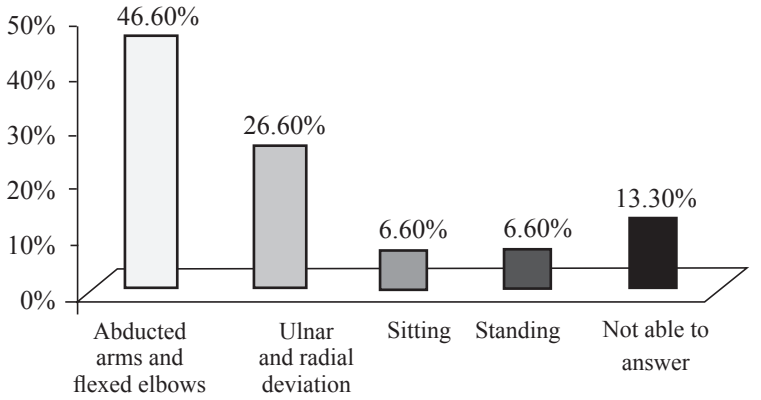

Figure 1 - Characterization of the painful posture in the workplace. Chapecó, SC, 2012.

had children (n=10, 66.7%), and had studied up to complete high school (n=7, 46.6%). As associated pathology, 40% (n=6) had arterial hypertension and 6.6% (n=1) had migraine and hypertriglyceridemia. As for the practice of physical activity, 86.6% (n=13) did not perform any and were therefore classified as sedentary. On the labor activity, 86.6% (n=13) of women worked in the sewing department, 80% (n=12) worked overtime, and 80% (n=12) were granted a pause at least once per shift. It was observed that, in addition to their labor activities, all women also performed household chores.

Figure 1 shows the data on the painful posture in the workplace. It is observed that most of the workers reported sustaining the posture of shoulders abducted and elbows flexed, used in sewing activity.

Figure 2 presents the frequency of painful anatomical sites, from the inventory of Wisconsin. As can be seen, shoulder, elbow and cervical spine were the ones most commonly affected by pain.

Table I shows the pain variables and mean values reported by workers on the scale ranging from 0 (no complaints) to 10 (the worst condition). For all the studied

Anatomical structures most frequently affected by pain		
	n*	**(%)**
Cervical spine	7	19.4
Shoulder	8	22.2
Thoracic spine	3	8.3
Elbow	7	19.4
Wrist	1	2.7
Hand	1	2.7
Lumbar spine	4	11.1
Knee	3	8.3
Ankle	1	2.7
Foot	1	2.7

Figure 2 - Frequency of anatomical sites affected by pain. Chapecó, SC, 2012.

* = One individual may report pain in more than one anatomical site.
Image source: MAGEE DJ[15].

Table I - Variables of pain referred by the female workers according to the Wisconsin inventory. Chapecó, SC, 2012.

Pain variables	Mean ± SD *	Minimum- maximum	Classification
Pain at its worst in the last 24h	3.6 ± 3.6	0.0-10.0	Moderate
Pain at its least in the past 24h	2.5 ± 1.6	0.0-5.0	Moderate
Pain as felt on the average	3.5 ± 2.1	0.0-5.0	Moderate
Pain at the moment of the interview	2.1 ± 3.2	0.0-10.0	Moderate
Pain interference with general activity in the last 24h	3.9 ± 2.8	0.0-8.0	Moderate
Pain interference with relationship with people	0.8 ± 1.4	0.0-4.0	Mild
Pain interference with the work	3.6 ± 3.1	0.0-8.0	Moderate
Pain interference with the ability to walk	1.8 ± 2.6	0.0-7.0	Mild
Pain interference with sleep	3.8 ± 3.9	0.0-10.0	Moderate
Pain interference with the mood	3.0 ± 2.9	0.0-8.0	Moderate
Pain interference with the enjoyment of life	2.9 ± 3.3	0.0-9.0	Moderate

SD: Standard deviation. h: hours

Table II - Pain characterization in female workers of a textile factory according to the McGill questionnaire. Chapecó, SC, 2012.

Category	Descriptor	n	%
	Wrenching	1	5.0
	Dull	2	10.0
	Throbbing	10	50.0
	Tingling	4	20.0
Sensory	Pricking	4	20.0
	Stinging	3	15.0
	Cramping	1	5.0
	Tender	1	5.0
	Burning	3	15.0
	Sore	1	5.0
	Jumping	2	10.0
	Tugging	1	5.0
	Tiring	6	30.0
Affective	Sickening	2	10.0
	Gruelling	1	5.0
Evaluative	Misarable	1	5.0
	Troublesome	5	25.0
	Numb	3	15.0
Miscellany	Radiating	1	5.0
	Spreading	1	5.0
	Nauseating	4	20.0

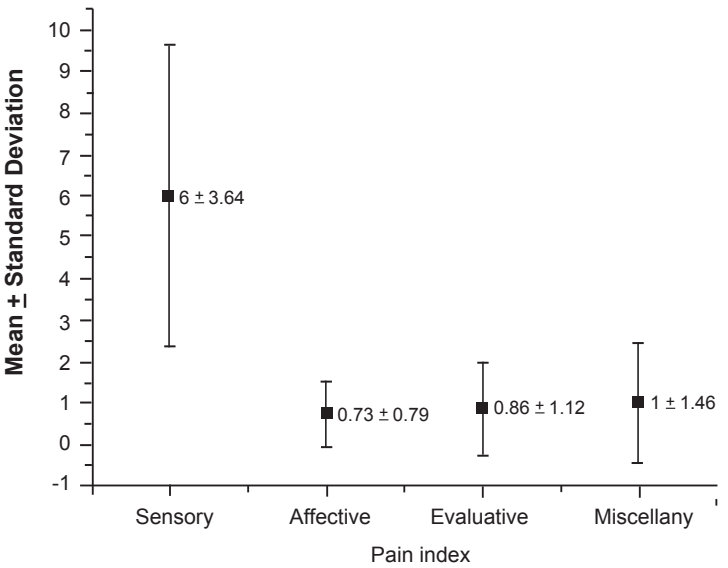

Figure 3 - Pain index referred by the female workers throuh the McGill questionnaire. Chapecó, SC, 2012.

variables, the level of pain ranged from mild to moderate, affecting mainly the general activities and the sleep.

Table II refers to the descriptors selected in McGill pain questionnaire. Descriptors were chosen in all categories, with emphasis on the sensory level. The descriptors that obtained the highest frequencies were: throbbing (50%), pricking (20%) and tingling (20%).

Figure 3 shows the pain index according to the McGill questionnaire. It was observed that the average sensory pain was the highest, when compared to the average values of affective, evaluative or miscellaneous pain.

DISCUSSION

This study aimed at describing the pain in women who work in a textile factory in a municipality in the south of the country. The results showed a high frequency of pain in the shoulder, elbow and cervical spine, mainly caused by mechanical, thermal and spatial factors. Moreover, the pain was associated with sustained posture, sedentary lifestyle, and double burden as well.

A study of workers in the textile industry demonstrates that lifestyle combined with poor working conditions may favor the onset of diseases. Therefore, occupational health policies should envision health promotion actions and better working conditions[18].

The workers analyzed in this study reported that, in addition to the working hours in the textile factory, they perform household chores, thus corroborating other research that reports the increased participation of women in the labor market, a fact that has required them to play multiple roles[19]. Furthermore, there is some evidence in the literature that the time spent by women on household chores is always longer than that of their spouses[20].

The Brazilian labor market has been marked by the continuous participation of the female gender since the last decade of the XXth century, and these workers' profile is characterized by older, married women, who are mothers, and still do not leave their housework and care for children and other family members, giving attention to both the work and the family, thus leadind to maintenance of the traditional family model. The major consequence of that is the burden on these workers[21], leading them to acquire work-related diseases due to the journey they face[22].

A study carried out in a textile industry in Divinópolis, through observations of the work environment and semi-structured interviews, concluded that the greater inclusion of women in the labor market has increased the women's duties and has rendered the working hours long, tiring and even stressful, giving rise to work overload and favoring diseases and musculoskeletal disorders related to repetitive stress, thus resulting in interferences with productivity, psychological status, and family relationships[23].

Thus, the physical stress provided by the double burden, and intensely experienced by women, has resulted in numerous pathologies, with an important impact on the quality of life[24]. Moreover, factors such as biotype, body and hormonal composition may also be involved in the onset of pain complaints in women[24,25].

The textile industry has a greater presence of female workers[16], for being regarded a more precise and delicate activity, and for the fact that, in the male imagination, "sewing is a girl thing"[25]. That corroborates the findings in this study, where the textile factory's workforce consisted only of women. It is also noteworthy that the textile industries were the first to employ female workers during the gender division of labor in the Industrial Revolution[26].

Of the interviewees in the current study, 80% reported working overtime. This result agrees with another study[27], which reports that, given the technological advances, the process and organization of work have changed, since new forms of management have been incorporated, aiming at the productivity and product quality, which has resulted in increased work pace and, consequently, in overtime, leading to social withdrawal. Additionally, it was observed that working overtime was a routine for 79.6% of the textile industry employees[16].

According to the results, it could be seen that the majority of the sample did not practice physical activity. In a study comprising patients with chronic low back pain, 64.7% did not practice any sports[28]; in another study of the painful symptoms in professionals of the textile industry, which analyzed aspects related to work and health status, a higher prevalence of pain was found among workers who reported having some pathology and not performing physical activity[16]. Thus, it can be suggested that regular physical exercise is associated with physical, mental and social well-being, providing reduction in pain intensity[29-31].

It is worth pointing that a daily program for workplace physical activity, consisting of warm-ups exercises at the beginning of the shift and two breaks for stretching, is of utmost importance, since exercises in the workplace are associated with relief from physical and mental fatigue[22].

Prolonged sitting posture demands static muscle work; with a higher prevalence of pain symptoms compared to the dynamic one, it may develop inflammation and pain[16,32]. In this study, the sewing department workforce was mainly composed of women (86.6%) who remained in static sitting posture and performed upper limbs repetitive movements, which is the anatomical site with the highest occurrence of complaints. In a study of 176 professionals who performed sedentary work, the authors demonstrated a direct relationship between repetitive movements and the origin of many musculoskeletal problems, due to continuous contractions and increased intramuscular pressure, in addition to the blood supply interruption and the compression of nerve bundles, which lead to chronic muscle pain[33].

It should also be taken into account that the sewing machine operation requires the repetitive and coordinated use of the trunk, upper and lower limbs of the workers who remain in a sitting position for a long period of time, providing high physical overload and exposing them to painful symptoms such as muscle fatigue and even injuries, particularly in the lumbar region and lower limbs[26].

Inadequate biomechanical and ergonomic conditions must be considered when analyzing the occupational risk factors that cause the high incidence of pain complaints. However, pain in the middle and lower regions of the spine and in the lower limbs were the most cited in studies of seamstresses, disagreeing with the data obtained in this study[16,34].

Note that the results pointed shoulders (22.20%), elbows (19.40%) and cervical spine (19.40%), respectively, as the anatomical sites most frequently affected by painful symptoms. This can be explained by the posture sustained by the interviewees and the biomechanical gesture adopted, characterized by forward head, abducted shoulders and flexed elbows. In comparison, other study of textile industry employees observed high prevalence of pain in the spine (cervical and thoracic region), legs and shoulders, respectively[16]. In addition, another research addressing textile factory workers highlighted the low back pain (28.8%) and the neck pain (22.0%) as main complaints, due to the physical effort associated with the repetition of movements[35].

Through the pain inventory proposed by Wisconsin, it was possible to assess the overall intensity of pain and how it interferes with daily life and labor activities, showing greater importance in the variables general activities, work, sleep, mood, and enjoyment of life, with mild to moderate intensity. By using the same instrument for assessment of pain in the lower limbs of man whose job is sewing, there was high incidence of moderate symptoms, presenting intensity at 6 ± 2.3[34].

According to the McGill questionnaire, the descriptors with higher incidence were in the sensory category, which refers to mechanical, thermal, vividness-related and spatial properties of pain, such as "throbbing", "tingling" and "pricking". The affective category concerns the aspects of tension, fear and neurovegetative responses, but the word "tiring" was the most used. In the evaluative category, which allows the individual to express the overall perception of the painful experience, the most cited descriptor was "troublesome". As for the miscellany category, with a more sensitive character, the most frequently mentioned descriptor was "nauseating". Other study of the same population showed that 85% of the seamstresses reported pain in the neck. This discomfort was classified as "pricking" in 47% of the cases and as "tingling" in 29%; Furthermore, the shoulder area was reported by 50% of the seamstresses, classified as "tingling" (50%) and "heavy" (30%)[36].

Corroborating the findings of this study, a study recorded the characteristics of pain complaints obtained by the McGill pain questionnaire applied to patients attending a physical therapy clinic, finding pain classified as "tiring" (57.4%), "numb" (42.6%) and "troublesome" (30.9%)[37]. On the other hand, disagreeing with the results, a study of pain and functional competence in patients with low back pain found the sensory category with the highest incidence of "burning" (70.6%) and "jumping" (64.7%) pain. In the current study, however, "throbbing" pain was the most frequent and, in the affective category, there was a predominance of "sickening" pain (76.5%), while "tiring" was the most frequently reported descriptor by the women in the study[30].

Finally, some limitations of the study should be pointed out. The sample was composed of a small number of workers, a fact that rendered it difficult to perform advanced statistical analysis. Additionally, studies related to this issue and presenting the use of multidimensional pain questionnaires were not found in literature, which could have enriched the discussion of the study. Nevertheless, the results obtained are expected to contribute to better understanding of the painful symptoms experienced by female workers of a textile factory, and support the planning and adaptation of prevention or physical activity programs that can contribute to health maintenance and reduction of pain complaints in this population.

It is therefore essential that the industries recognize the need for educational interventions to promote health for workers, and that these professionals assume their responsibilities and understand their role in the prevention of diseases, whether work-related or related to life habits.

CONCLUSION

A high frequency of pain in the shoulders, elbows and cervical spine was observed, mainly of sensory origin, possibly related to sustained postures, as well as to physical inactivity and double burden among the workers investigated. It was found, therefore, that the painful symptoms regarded moderate in most of the items evaluated interferes significantly with labor and daily life activities, hindering the performance of these professionals.

REFERENCES

1. Gomes KRO, Tanakka AC. Morbidade referida e uso dos serviços de saúde por mulheres trabalhadoras, município de São Paulo. Rev Saúde Pública. 2003;37(1):75-82.

2. Leone ET, Baltar P. A mulher na recuperação recente do mercado de trabalho brasileiro. Rev Bras Estud Popul. 2008;25(2):233-49.

3. Leite PC, Silva A, Mereghi MAB. A mulher trabalhadora de enfermagem e os distúrbios osteomusculares relacionados ao trabalho. Rev Esc Enferm USP. 2007;41(2):287-91.

4. Pernambuco AP. Saúde e Trabalho: o caso dos trabalhadores da indústria do vestuário de Formiga – MG [dissertação]. Divinópolis: Universidade Estadual de Minas Gerais/Curso de Mestrado em Educação, Cultura e Organizações Sociais; 2007.

5. Walsh IAP, Oishi J, Coury HJCG. Aspectos clínicos e funcionais de distúrbios musculoesqueléticos entre trabalhadores ativos. Rev Saúde Pública. 2008;42(1):108-16.

6. Caetano VC, Cruz DT, Leite ICG. Perfis dos pacientes e características do tratamento fisioterapêutico aplicado aos trabalhadores com LER/DORT em Juiz de Fora, MG. Fisioter Mov. 2010;23(3):451-60.

7. Rocha CED, Martins MI, Foss MH, Santos R Júnior, Dias LC, Forni JE, et al. Melhora da qualidade de vida de pacientes com dor neuropática utilizando de monitorização ambulatorial contínua. Rev Dor. 2011;12(4):291-6.

8. Kaye AD, Baluch A, Scott JT. Pain management in the elderly population: a review. Ochsner J. 2010;10(3):179-87.

9. Barbosa REC, Assunção AA, Araújo TM. Distúrbios musculoesqueléticos em trabalhadores do setor saúde de Belo Horizonte, Minas Gerais, Brasil. Cad Saúde Pública. 2012;28(8):1569-1580

10. Santos CC, Pereira LSM, Resende MA, Magno F, Aguiar V. Aplicação da versão brasileira do questionário de dor McGill em idosos com dor crônica. Acta Fisiátrica. 2006;13(2):75-82.

11. Kazanowiski MK, Laccetti MS. Dor fundamentos e abordagem clínica e tratamento. Rio de Janeiro: Guanabara Koogan; 2005.

12. Ministério da Previdência Social (BR). Proteção para o trabalhador e sua família. Brasília: Ministério da Previdência Social; 2013 [accessed on 2013 Mar 01]. Available from: http://www.previdenciasocial.gov.br/

13. De Vitta A, Bertaglia RS, Padovani CR. Efeito de dois procedimentos educacionais sobre os sintomas musculoesqueléticos em trabalhadores administrativos. Rev Bras Fisioter. 2008;12(1):20-5.

14. Pimenta CAM, Teixeira MJ. Questionário de dor McGill: Proposta de adaptação para a língua portuguesa. Rev Esc Enf. 1996;30(3):473-83.

15. Santos JPM, Hernandez CM. Atividade laboral sentada provoca queixas nos membros superiores e na coluna torácica. Rev Hórus. 2010;4(2):172-6.

16. Maciel ACC, Fernandes MB, Medeiros LS. Prevalência e fatores associados à sintomatologia dolorosa entre profissionais da indústria têxtil. Rev Bras Epidemiol. 2006;9(1):94-102.

17. Magee DJ. Avaliação musculoesquelética. 4ª ed. São Paulo: Manole; 2005.

18. Cecilio HPM, Costa MAR, Silva RLD, Marcon SS. Condições de saúde da mulher trabalhadora na indústria do vestuário. Rev Rene. 2013;14(2):372-84.

19. Leone ET, Baltar P. A mulher na recuperação recente do mercado de trabalho brasileiro. Rev Bras Estud Popul. 2008;25(2):233-49.

20. Hoffmann R, Leone ET. Participação da mulher no mercado de trabalho e desigualdade de renda domiciliar per capita no Brasil: 1981-2002. Nova Economia. 2004;14(2):35-58.

21. Bruschini MCA. Trabalho e gênero no Brasil nos últimos dez anos. Cad Pesqui. 2007;37(132):537-72.

22. Morguchi CS, Alem MER, Coury HJCG. Evaluation of workload among industrial workers with the Need for Recovery Scale. Rev Bras Fisioter. 2011;15(2):154-9.

23. Pedrosa CM. Trabalho e saúde: uma reflexão sobre o processo produtivo na indústria de confecção. In: XXVII Congresso Internacional da Associação Latino-Americana de Sociologia; 2011; Recife; 2011.

24. Lacerda JT, Ribeiro JD, Ribeiro DM, Traebert J. Prevalência da dor orofacial e seu impacto no desempenho diário em trabalhadores das indústrias têxteis do município de Laguna, SC. Ciênc Saúde Coletiva. 2011;16(10):4275-82.

25. Garcia AC Junior. Condições de trabalho e saúde dos trabalhadores na indústria do vestuário em Colatina – ES [dissertação]. Vitória: Universidade Federal do Espírito Santo; 2006.

26. Cardoso AC, Batista MLL, Sandoval RA. Perfil epidemiológico e fatores relacionados à lombalgia em um grupo de costureiras da empresa têxtil Marka da Paz. EFDeportes.com. 2011;16(162):1-10.

27. Praia DT, Arêas GPT, Arêas FZS, Leite HR, Freire RC Júnior. Risco ergonômico em costureiras da indústria de confecções de Coari-AM. Rev Pesquisa em Fisioterapia. 2013;3(2):107-17.

28. Mascarenhas CHM, Santos LS. Avaliação da dor e da capacidade funcional em indivíduos com lombalgia crônica. J Health Sci Inst. 2011;29(3):205-8.

29. Oliveira MAS, Campos RS, Daher SS. Impacto do exercício na dor crônica. Rev Bras Med Esporte. 2014;20(3):200-203.

30. Yeng LT, Stump P, Kaziyama HHS, Fernandes MM. Medicina física e reabilitação em doentes com dor crônica. Rev Med. 2001;80(2):245-55.

31. Andersen LL, Christensen KB, Holtermann A, Poulsen OM, Sjogaard G, Pedersen MT, et al. Effect of physical exercise interventions on musculoskeletal pain in all body regions among Office workers: a one-year randomized controlled trial. Man Ther. 2010;15(1): 100-4.

32. Martignago CS, Depiné PJ. Acidentes e doenças do trabalho na indústria têxtil do Alto Vale do Itajaí. Base na indústria têxtil Rioestense. Caminhos. 2008;1(9): 9-27.

33. Vitta A, Canonici AA, Conti MHS, Simeão SFAP. Prevalência e fatores associados a dor musculoesquelética em profissionais em profissionais de atividades sedentárias. Fisioter Mov. 2012;25(2): 273-80.

34. Freitas FCT, Barbosa LH, Alves LA, Marziale MHP, Robazzi MLCC. Avaliação Cinesiológica e Sintomatológica de Membros Inferiores de Costureiros Industriais. Rev Enferm UERJ. 2009;17(2):170-5.

35. Emmerich LBB. Análise das queixas musculoesqueléticas de trabalhadores de uma indústria têxtil da região metropolitana de porto alegre que receberam tratamento quiroprático [dissertação]. Novo Hamburgo: Universidade FEEVALE; 2011.

36. Oliveira CCES, Oliveira NMLO, Silva MD, Caldeira LC, Silva FS. Estudo da localização e caracterização da dor na coluna cervical e nos membros superiores de costureiras de uma microempresa. Coleç Pesqui Educ Fís. 2010;9(6):137-44.

37. Batista AGL, Vasconcelos LAP Principais queixas dolorosas em pacientes que procuram clínica de fisioterapia. Rev Dor. 2011;12(2):125-30.

First author's address:
Marina Cauz
Universidade Comunitária da Região de Chapecó - UNOCHAPECÓ
Av. Senador Atíllio Santana, 591 E
Bairro: Engenho Braun
CEP 89809-000 - Chapecó - SC - Brasil
E-mail: marinacauz@unochapeco.edu.br

Mailing address:
Josiane Schadeck de Almeida Altemar
Universidade Comunitária da Região de Chapecó - UNOCHAPECÓ
Av. Senador Atíllio Santana, 591 E
Bairro: Engenho Braun
CEP 89809-000 - Chapecó - SC - Brasil
E-mail: jsa_fisio@yahoo.com.br