

Musculoskeletal disorder and quality of life in seamstresses in the city of Indaial, Santa Catarina, Brazil

Sintomas osteomusculares e qualidade de vida em costureiras do município de Indaial, Santa Catarina

Síntomas osteomusculares y calidad de vida en costureras del municipio de Indaial, Santa Catarina, Brasil

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ABSTRACT | Health problems arising from employment relationships have become a worldwide phenomenon. The objective of this study was to evaluate the musculoskeletal symptoms and the quality of life in seamstresses in the city of Indaial (SC), Brazil. This is a descriptive cross-sectional study, with quantitative approach. The sample consisted of 118 seamstresses, located in 48 companies, who responded to three questionnaires: sociodemographic, musculoskeletal symptoms and quality of life. About 71.1% of the evaluated seamstresses presented musculoskeletal symptoms in the last seven days and 88.1% in the last 12 months. The body region most reported was shoulders (18.6%) and the causes of work leave were dorsal and lumbar pain (19.1% and 19.1%, respectively). The most affected quality of life domain was the General health condition (57.03±16.08), followed by Vitality (58.89±17.65), Pain (60.53±22.28), Mental health (66.81±19.19), Emotional aspects (67.72±38.29), Physical aspects (73.94±32.91), Social aspects (75.63±23.10) and Functional capacity (77.16±19.19). It is noticed that the higher the quality of life score, the lower the number of anatomical regions with pain. The combination of preventive measures at work with periods of micropauses, correct postures and workplace exercises can influence in reducing pain, preventing diseases and improving the quality of life.

Keywords | Seamstresses; Myalgia; Quality of Life; Workers Health.

RESUMO | Os problemas de saúde decorrentes da relação de trabalho têm se tornado um fenômeno mundial. O objetivo deste estudo foi avaliar os sintomas osteomusculares e a qualidade de vida em profissionais do ramo da costura no município de Indaial (SC). Trata-se de um estudo de natureza transversal com abordagem quantitativa. A amostra foi constituída por 118 costureiras de 48 empresas que responderam a três questionários: um sociodemográfico, outro de sintomas osteomusculares e, por fim, um de qualidade de vida. Das costureiras avaliadas, 71,1% apresentaram sintomas osteomusculares nos últimos sete dias e 88,1% nos últimos doze meses. A região corporal mais afetada de acordo com a maioria dos relatos foi a dos ombros (18,6%) e as causas de afastamento foram as dores dorsais e lombares (cada uma correspondendo a 19,1% dos casos). O domínio de qualidade de vida mais comprometido foi o estado geral de saúde (57,03±16,08), seguido pelos de vitalidade (58,89±17,65), dor (60,53±22,28), saúde mental (66,81±19,19), aspectos emocionais (67,72±38,29), aspectos físicos (73,94±32,91), aspectos sociais (75,63±23,10) e capacidade funcional (77,16±19,19). Percebe-se que quanto maior o escore de qualidade de vida, menor o número de regiões anatômicas com dor. A associação de medidas preventivas ao trabalhar, como períodos de micropausas, atenção para posturas corretas e ginástica

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laboral, podem influenciar a redução de dor e prevenção de doenças, como também aprimorar a qualidade de vida.

Descritores | Costureiras; Mialgia; Qualidade de Vida; Saúde do Trabalhador.

RESUMEN | Los problemas de salud decorrentes de la relación de trabajo se han resultado en un fenómeno mundial. El objetivo de este estudio fue evaluar los síntomas osteomusculares y la calidad de vida en profesionales del ramo de la costura en el municipio de Indaial (SC), Brasil. Se trata de un estudio de naturaleza transversal con enfoque cuantitativo. La muestra fue constituida por 118 costureras de 48 empresas, que contestaron a tres cuestionarios: uno sociodemográfico, otro de síntomas osteomusculares y, por fin, uno de calidad de vida. De las costureras evaluadas, 71,1% presentaron síntomas osteomusculares en los últimos siete días y 88,1% en los últimos doce meses. La región corporal más afectada de

acuerdo con la mayoría de los relatos fue la de los hombros (18,6%) y las causas de alejamiento fueron los dolores dorsales y lumbares (cada uno correspondiendo a 19,1% de los casos). El dominio de calidad de vida más comprometido fue el estado general de salud (57,03±16,08), seguido por los de vitalidad (58,89±17,65), dolor (60,53±22,28), salud mental (66,81±19,19), aspectos emocionales (67,72±38,29), aspectos físicos (73,94±32,91), aspectos sociales (75,63±23,10) y capacidad funcional (77,16±19,19). Se percibe que cuanto mayor sea el score de calidad de vida, menor será el número de regiones anatómicas con dolor. La asociación de medidas preventivas al trabarse, como períodos de micropausas, atención para posturas correctas y gimnasia laboral, pueden influenciar la reducción de dolor y prevención de enfermedades, como también aprimorar la calidad de vida.

Palabras clave | Costureiras; Mialgia; Calidad de Vida; Salud del Trabajador.

INTRODUCTION

Health problems arising from employment relationships have become a worldwide phenomenon. When related to occupational illnesses, the most common are Repetitive Strain Injuries (RSI) and Work-related Musculoskeletal Disorders (WMSD). The RSI/WMSD are characterized by temporary or permanent work incapacity, resulting from the combination of musculoskeletal system overload with the lack of time for recovering the muscles, which can cause functional limitation and psychosocial disorder¹. Brazil follows the international trend and adopt the same term used globally, called WMSD. Thus, it facilitates a standard nomenclature with a greater scope in the study of occupational diseases, not restricted only to those occasioned by RSI, but also the most common causes of WMSD, such as: repetitive movements, stress, inadequate posture, lack of flexibility, shocks and emotional stress².

It is observed that RSI/WMSD is the second occupational disease with higher incidence in Brazil, which gives it an epidemic character. The increase in the incidence of work diseases occurs due to the current model of work, limiting the employee autonomy in relation to the movements of their body³. The high prevalence of RSI/WMSD is explained by the work changes in companies, whose organizations are characterized by setting goals and productivity, considering its needs,

particularly regarding the quality of products and services, besides enhancing the market competitiveness, without considering the workers and their psychosocial and physical limits. Pain is the main symptom of RSI/WMSD and hard to deal by its complexity. Beside organic factors, such as tissue injury, pain can also be related to cognitive, cultural and emotional aspects, not depending exclusively on the physical lesion⁴.

Work Capacity (WC) is a condition resulting from the combination of human resources in relation to physical, mental and social demands of work, management, organizational culture, community and workplace. It is expressed as how a worker is, or will be, at present or in the near future, and how capable he or she can perform their work according to the requirements of their health condition and mental and physical abilities⁵. Quality of life has been defined by the World Health Organization (WHO) as "individuals' perception of their position in life, in the cultural context and value system in which they live and in relation to their goals, expectations, standards and preoccupations"⁶.

In the work performed by seamstresses, incorrect postures outstand, causing diffuse body pain due to decreased circulation, weariness in the muscles, upper and lower limbs, lumbar and cervical spine, as they require ability, dexterity, good vision, attention and a lot of concentration. It is a monotonous, repetitive and exhausting work. These occurrences interfere in the

workers' quality of life, since important changes were observed in the seamstresses who reported pain⁷.

In this perspective, this study aimed to evaluate the musculoskeletal symptoms and quality of life in seamstresses of textile companies of the city of Indaial (SC), Brazil.

METHODOLOGY

This is a cross-sectional study of quantitative nature, held in the city of Indaial, in the state of Santa Catarina, Brazil.

All textile companies (n=63) that were on the list provided by the Textile Workers Union of Indaial were invited to participate in the study, but for reasons of closing (n=5), change of business (n=6) and refusal (n=4), 15 have not participated, totaling 48 participating companies.

Participated in the study employees of textile companies that performed the function of sewing at the time of the study. A sample of 118 seamstresses was selected, stratified proportionally by company, assuming a random probability of answers in the questionnaire ($p=q=0.5$) with a 5% maximum error of estimate and 95% confidence level.

Data collection instruments were: sociodemographic and health survey, which evaluated in a self-reported way information on age, education level, existing illnesses and medicines used; the Musculoskeletal Symptoms Nordic Questionnaire (MSNQ), that evaluated musculoskeletal symptoms, which consists of binary or multiple choices as to the occurrence of symptoms in various body areas (neck, shoulders, elbows, forearms, the dorsal region fist/hands/fingers, lumbar region, hips/thighs, knees and ankles/feet)⁸; and the quality of life SF-36 questionnaire, a self-administered instrument containing 36 items, of which 35 are grouped into eight dimensions: functional capacity, physical appearance, pain, general health, vitality, social, emotional and mental health aspects. Regarding those areas, functional capacity refers to difficulties in the execution of daily activities; physical aspect relates to physical activities; pain relates to pain perception; general health condition concerns the general health conditions of the individual; vitality refers to vigor; social aspect relates to social activities; emotional aspects relates to emotional problems; and the mental health domain refers to depression and nervousness⁹. For each dimension, the items were coded, aggregated and transformed into a scale from zero (worst health condition) to 100 (best

health condition)⁹. Questionnaires were filled in the work break in a reserved room.

This study was approved by the Research Ethics Committee, protocol no. 1.185.797.

Descriptive analysis was presented in frequency and percentage form. Inferential analysis was carried out through Variance analysis, followed by a *posteriori* Turkey Test. The relationship between working time in years and the quality of life scores was tested by the Pearson linear correlation index. In all cases, it was adopted the significance level of 5%.

RESULTS

The sample consisted of 118 seamstresses aged between 18 and 55 years, with an average of 35.4 years. Table 1 shows the predominance of age range from 31 to 40 years (36.4%), education up to eight years of study (56.8%), circulatory system diseases (33.8%) and consumption of contraceptive drugs (43.9%) and drugs that act on the cardiovascular and renal system (21.5%).

Table 1. Sociodemographic and health characterization of seamstresses. Indaial (SC), Brazil, 2015-2016

| Variable | N | % |
|--|----|------|
| Age group (years) | | |
| 18 - 20 | 4 | 3.4 |
| 21-30. | 35 | 29.7 |
| 31 - 40 | 43 | 36.4 |
| 41 - 49 | 24 | 20.3 |
| 50 + | 12 | 10.2 |
| Education level | | |
| 0 to 8 years | 67 | 56.8 |
| 9 to 11 years | 48 | 40.7 |
| 12 years or more | 3 | 2.5 |
| Diseases | | |
| Circulatory system | 22 | 33.8 |
| Mental and behavioral disorders | 11 | 16.9 |
| Endocrine, nutritional and metabolic | 8 | 12.3 |
| Musculoskeletal system and connective tissue | 6 | 9.2 |
| Respiratory system | 3 | 4.6 |
| Genitourinary system | 3 | 4.6 |
| Digestive system | 3 | 4.6 |
| Others | 8 | 12.3 |
| Medication | | |
| Contraceptives | 47 | 43.9 |
| Act on the cardiovascular and renal system | 23 | 21.5 |
| Act on the central and peripheral nervous system | 17 | 15.9 |
| Vitamin and mineral supplement | 6 | 5.6 |
| Act on the endocrine and reproductive system | 4 | 3.7 |
| Act on the digestive system | 3 | 2.8 |
| Others | 7 | 6.5 |

As for the musculoskeletal aspects, 71.1% of the seamstresses have presented symptoms for the past seven days preceding the interview and 88.1% in the last 12 months. When observed the amount of anatomical regions that affected the seamstress, 71.1% of the

seamstresses felt pain in more than one body region. The body region most reported in the last 12 months and seven days was the shoulders (18.6% and 17%, respectively). The main reasons for work leave were dorsal and lumbar pain (19.1% and 19.1%, respectively).

Table 2. Prevalence of musculoskeletal symptoms by anatomical region in the last 12 months, seven days and cause of work leave. Indaial (SC), Brazil, 2015-2016

| Body region | 12 months (N) | (%) | Seven days (N) | (%) | Work leave (N) | (%) |
|----------------------|---------------|------|----------------|------|----------------|------|
| Neck | 56 | 14.3 | 24 | 9.6 | 7 | 7.9 |
| Shoulders | 73 | 18.6 | 43 | 17.1 | 10 | 11.2 |
| Elbows/forearms | 9 | 2.3 | 11 | 4.4 | 2 | 2.3 |
| Forearms | 19 | 4.8 | 19 | 7.6 | 5 | 5.6 |
| Wrists/hands/fingers | 46 | 11.7 | 24 | 9.6 | 7 | 7.9 |
| Dorsal | 53 | 13.5 | 35 | 13.9 | 17 | 19.1 |
| Lumbar | 59 | 15.0 | 38 | 15.1 | 17 | 19.1 |
| Hips/thighs | 26 | 6.6 | 20 | 8.0 | 10 | 11.2 |
| Knees | 22 | 5.6 | 22 | 8.8 | 4 | 4.5 |
| Ankles/feet | 30 | 7.6 | 15 | 6.0 | 10 | 11.2 |

The most affected quality of life domain was the general health condition (57.03 ± 16.08) and the best rated was the functional capacity (77.16 ± 19.19), as shown in Table 3.

Table 3. Scores of quality of life domains of seamstresses. Indaial (SC), Brazil, 2015-2016

| Variable | Minimum | Maximum | Average | SD |
|--------------------------|---------|---------|---------|-------|
| Functional capacity | 20 | 100 | 77.16 | 19.19 |
| Social aspects | 0 | 100 | 75.63 | 23.10 |
| Physical aspects | 0 | 100 | 73.94 | 32.91 |
| Emotional aspects | 0 | 100 | 67.72 | 38.29 |
| Mental Health | 16 | 100 | 66.81 | 19.19 |
| Pain | 20 | 100 | 60.56 | 22.28 |
| Vitality | 15 | 95 | 58.89 | 17.65 |
| General health condition | 15 | 92 | 57.03 | 16.08 |

SD: standard deviation

The results of this research show inversely meaningful correlations between the quality of life domains and the number of places of body pain, that is, the higher the quality of life score, the lower the number of pain regions.

Average working time of seamstresses was 12.4 ± 8.6 years. Table 4 demonstrates the predominance of working time between six and 10 years (28%).

Table 4. Working time in years of seamstresses. Indaial (SC), Brazil, 2015-2016

| Working time (years) | N | % |
|----------------------|----|------|
| Less than a year | 5 | 4.2 |
| 1 - 5 | 25 | 21.2 |
| 6 - 10 | 33 | 28.0 |

(continues)

Table 4. Continuation

| Working time (years) | N | % |
|----------------------|-----|--------|
| 11 - 15 | 12 | 10.2 |
| 16 - 20 | 24 | 20.3 |
| 21 - 25 | 8 | 6.8 |
| 26 - 30 | 8 | 6.8 |
| 30 years or more | 3 | 2.5 |
| Total | 118 | 100.00 |

The comparisons between the quality of life scores according to the age group and educational level did not show significant differences as well as the relationship between working time in years and the quality of life scores.

DISCUSSION

Our study showed a sample of young adults with low level of education. In relation to the age group, results are similar to the ones found in the study of Coury et al.¹⁰, evaluating women from Paraná, Brazil, also workers of textile industries. According to Vitta et al.¹¹, the low level of education forms a specific group of employees, which starts working early, reflecting in less specialized professions (seamstresses, mechanic, bus driver etc.), exposed to many ergonomic risk factors such as: repetition, strength, vibration, bad posture, among others.

Regarding the self-reported diseases, the circulatory system was the most prevalent (33.8%), followed by mental and behavioral disorders (16.9%). In a study

with seamstresses from Minas Gerais, Brazil, it was observed that 53.6% presented indicative symptoms of common mental disorders that could probably be turned into depression¹².

As for the medicines used by seamstresses, the main were contraceptives, drugs that act on the cardiovascular system and kidneys and drugs that act on the central and peripheral nervous system. According to Cordovil and Pimenta¹³, seamstresses do whatever it takes to keep their jobs, forgetting body pain, physical exhaustion and making continuous use of pain medications.

Studies show that these workers are often submitted to high levels of stress due to overload and pressure for productivity and meeting deadlines, causing mental disorders such as depression, which is one of the biggest reasons of work leave of these women^{12,14}.

Most workers showed musculoskeletal symptoms in the last 12 months and seven days before the interview. The body region most reported was shoulders (18.6%) and the causes of work leave were dorsal and lumbar pain (19.1% and 19.1%, respectively). Other studies have reported the cervical spine and superior members¹⁵, cervical column¹⁶ and lumbar and dorsal column¹⁷. The lumbar region was also the predominant location of musculoskeletal pain in seamstresses of an intimate fashion factory in the countryside of Minas Gerais, Brazil, probably by the fact that the employees remain sitting for a long period of time¹⁸. The function that involves sitting static posture associated with repeatability using the same muscles and the fast pace of work can generate some injury or pain (in the dorsal region, hands and forearms)^{19,20}, causing absenteeism and interfering with productivity and interpersonal relationship between workers (since the person gets angry and nervous because of the pain). When not treated properly, these pains can become chronic. Such factors together affect the level of quality of life and health of this group^{21,22}.

About the quality of life of seamstresses, we observed that the most affected domain was the general health condition and the best rated was the functional capacity. Studies on the quality of life of seamstresses in the North of Brazil showed low scores for all domains, especially the emotional aspects, followed by functional limitation and general health appearance²³. In the state of Paraná, the social domain was the most affected²⁴. In the state of Minas Gerais, it was proven that pain affects directly the quality of life¹⁶. According to Aquino et al.²⁵,

the assessment on quality of life at work contributes significantly to improve the relationship between the company and the employee.

The average working time of dressmakers was 12.4 years, with predominance of the period between six and 10 years. Similar results have been found in the studies of Ferreira and Silva²⁶, in a sample of 239 workers of a Portuguese textile company with an average of 12 years, in the studies by Santo et al.²⁷, in which 54.32% presented average of 10 years, and in the studies by Barbosa et al.²⁸, in which the working time was more than five years in 41.5%. Organizational changes in the work environment, such as the implementation of job rotation²⁹ and the increase in the number of working hours³⁰, are important aspects evaluated by Organizational Ergonomics.

CONCLUSION

Our study shows that more than 70% of the seamstresses feel pain in any part of the body, causing physical and psychological discomforts. When not treated, these pains can become chronic, interfering negatively on the workers' quality of life. Our results show that the higher the quality of life score, the lower the number of anatomical regions with pain.

The combination of preventive measures at work with periods of micropauses, correct postures and workplace exercises can influence in reducing pain, preventing diseases and improving the quality of life. These data may subsidize public health policies to implement new strategies for improvement in these professionals' work, which can generate a positive impact on health and therefore on the quality of life of this population group.

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