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Original article

Perceptions of hospital workers regarding ergonomics: a cross-sectional study

Percepção dos trabalhadores de ambientes hospitalares sobre ergonomia: um estudo transversal

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Abstract

Objective: to analyze the perception of pain and discomfort among healthcare professionals working in hospital settings, particularly regarding the postures adopted during their work. **Materials and Methods:** this is a descriptive study, with a quantitative and cross-sectional approach with quantitative analysis. The sample consisted of 46 professionals who responded to a questionnaire using an electronic form composed of 35 questions, created by the researchers with the aim of evaluating the main complaints of workers, eating habits, sleep, stress, physical exercise, posture used, working hours, working time in hospitals, pain in a broad aspect: intensity, location, characteristic, and period of occurrence to associate with factors of musculoskeletal pain and pain locations. All workers who had an active relationship with a hospital were included, from the care, administrative, cleaning, maintenance, security sectors, among others, and who agreed to participate in the research voluntarily. **Results:** most if them worked 8 to 12-hour shifts. The most prevalent posture was sitting, generating greater complaints of pain, especially in the lower back. The pain intensity was moderate, with most of those evaluated reported regular sleep quality and they did not practice physical activities. **Conclusion:** it was evidenced a high prevalence of low back pain and physical discomfort, indicating unfavorable conditions in the environment.
Keywords: Perception. Health. Environments. Pain. Hospital units.

Resumo

Objetivo: analisar a percepção de dor e de desconforto entre profissionais de saúde que atuam em ambiente hospitalar, particularmente em relação às posturas adotadas durante o trabalho. **Materiais e Métodos:** trata-se de um estudo descritivo, com abordagem quantitativa e transversal. A amostra foi composta por 46 profissionais que responderam a um questionário através de um formulario eletrônico composto por 35 questões, criado pelos pesquisadores com o propósito de avaliar as principais queixas dos trabalhadores, hábitos alimentares, sono, estresse, prática de exercício físico, postura adotada, jornada de trabalho, tempo de trabalho em hospitais, dor em aspecto amplo: intensidade, local, característica, e período de ocorrência para associar aos fatores de algia musculoesqueléticos e locais de dor. Foram incluídos todos aqueles trabalhadores que possuíam vínculo ativo com algum hospital, desde setores assistenciais, administrativos, limpeza, manutenção, segurança entre outros e que aceitaram participar da pesquisa de modo voluntário. **Resultados:** a maioria fazia jornadas de 8 a 12 horas. A postura de maior prevalência foi sentada, gerando maiores queixas de dor especialmente na região lombar. A intensidade da dor foi moderada, com a maior parte dos avaliados relatando qualidade de sono regular e não praticantes de atividades físicas. **Conclusão:** foi evidenciada alta prevalência de dor lombar e de desconforto físico, indicando condições desfavoráveis no ambiente de trabalho.
Palavras-chave: Percepção. Saúde. Ambientes. Dor. Unidades hospitalares.

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Introduction

Professionals involved in hospital services, including doctors, nurses, physiotherapists, cleaning technicians, maintenance and administrative sector among others, are classified as health workers. These professionals face significant challenges due to the nature of their activities, often characterized by long working hours, excessive physical exertion, patient transport, lifting loads, intense work rhythms, repetitive movements and inadequate postures. These conditions can result in musculoskeletal disorders, chronic fatigue and other work-related health problems[1].

The health problems faced by workers manifest themselves in both physical and mental symptoms. Among the most common symptoms are irritability, anxiety, fatigue, mental distress, occupational stress, feelings of impotence and frustration. In addition, professionals often have low back pain, musculoskeletal diseases, sleep disorders, depression, eating disorders, low job satisfaction, decreased self-esteem and Burnout syndrome[2].

The hospital environment is configured as a context of multiple simultaneous overloads, which results in a progressive and cumulative process of physical and mental wear. These workloads are influenced by biological, chemical, mechanical, physiological and psychological factors that, when not properly managed, can result in intense fatigue, musculoskeletal pain and a number of pathologies related to overexertion. In this scenario, inadequate working conditions aggravate the occurrence of dysfunctions in the musculoskeletal system, such as muscle pain and the risk of chronic injury[1].

Musculoskeletal pain in the occupational context arises mainly due to excessive and inadequate use of the musculoskeletal system, often in work environments that do not provide enough time for recovery. The symptomatology associated with these conditions includes pain, fatigue, numbness, paresthesia and movement limits[3].

Ergonomic risks at work can compromise the functionality and health of workers, affecting their performance[3]. Ergonomics, by promoting physical and organizational adaptations, contributes to well-being, considering physical, cognitive and environmental aspects in the work environment.

In this context, the lack of an adequate ergonomic approach can lead to the emergence of Work-Related Musculoskeletal Disorders, causing not only harm to the health of the worker, but also to the employer, that it is impacted by the increase in absenteeism and medical leave for treatment[4].

Therefore, the performance of the occupational physiotherapist has a fundamental role in the prevention and treatment of WRMDs, promoting the identification and correction of harmful factors in the work environment, which benefits both the worker and the organization by reducing costs of absences and increasing work efficiency[5]. The physiotherapist's intervention improves the physical

conditions of workers by relieving pain and fatigue, increasing resistance and muscle control, and promoting health and quality of life through kinesiotherapy. In addition, the physiotherapist must demonstrate how good working conditions benefit the quality of work and organization[6]. The physiotherapist's work in the workplace covers all phases of worker health, including prevention, promotion, protection, screening, education, intervention, recovery and rehabilitation[7].

The relevance of the study on perception of discomfort among professionals working in hospitals is verified, considering the demanding work environment and the physical demands faced by these workers. Understanding how these professionals perceive their pain and discomfort is crucial to identify the underlying causes and consequences of inadequate posture during work.

As the relationship between posture and health is widely recognized, an in-depth analysis can contribute to the elaboration of strategies for prevention and promotion of well-being. With this in mind, the present study highlighted the relevance of analyzing the perception of pain and discomfort among health professionals working in a hospital environment, particularly in relation to the postures adopted during work.

Materials and Methods

This is a descriptive study, with quantitative approach and cross-sectional.

The sample was composed of 46 employees, of both sexes, aged 18 years or older, employed in hospitals located in the city of Montes Claros, Minas Gerais, Brazil. We included all those workers who had an active link with some hospital, from care sectors, administrative, cleaning, maintenance, security, among others, who agreed to participate in the survey voluntarily and agreed with the Free and Informed Consent Form (FICF) and excluded those who responded incompletely to the form.

An electronic form composed of 35 questions was used as an instrument, created by the researchers in order to evaluate the main complaints of workers, eating habits, sleep, stress, exercise practice, adopted posture, working day, working time in hospitals, pain in broad aspect: intensity, location, characteristic, and period of occurrence to associate them with factors and locations of musculoskeletal pain.

In addition, the questionnaire used the Visual Numerical Scale (VNS)[5] for the evaluation of pain intensity, where the number 0 represents no pain and, gradually, the increase in pain intensity is represented by the numerical increase in the (values of 1-3: mild pain; 4-6: moderate pain; and 7-10: severe pain) in order to quantify the levels of discomfort of workers.

The "snowball" method was used, disseminating the form in social networks with the access link, which initially contained the FICF and, after acceptance of this, the participant answered 35

multiple choice questions. All data were collected between the months of September and October 2024.

Thus, a descriptive analysis was made with values of minimum, maximum, average, standard deviation, real and absolute frequency, through the software Statistical Package for the Social Sciences (SPSS) version 26.0 for Windows. The present study was approved by the Ethics and Research Committee of the State University of Montes Claros – Unimontes, under Opinion n.: 4.735.963 and CAAE: 30590820.6.0000.5146.

Results

The study had the participation of 46 employees of public hospitals in the city of Montes Claros-MG. The majority (n=27; 57.7%) of the evaluated were female (n=27; 57.7%), age predominance between 34 and 41 years (n=14; 30.4%), mostly with technical education and post-graduation, master's degree or doctorate completed (n=17; 37%), the majority did not report having genetic diseases or comorbidities or have undergone a surgical procedure (n=45; 97.8%) (Table 1).

Table 1. Characterization of the participants. Montes Claros-MG, Brazil (n=46).

Variables	n (%)
Sex	
Male	19 (41.3)
Female	27 (58.7)
Age	
Between 18 and 25 years old	10 (21.7)
Between 26 and 33 years old	7 (15.2)
Between 34 and 41 years old	14 (30.4)
Between 41 and 48 years old	12 (26.1)
Over 48 years old	3 (6.5)
Education	
Completed High School	3 (6.5)
Completed Technical Education	14 (30.4)
Completed Higher Education	10 (21.7)
Incomplete Higher Education	2 (4.3)
Other (postgraduate, master's and/or doctorate)	17 (37)
Carrier of an autoimmune disease or genetic comorbidity	
Yes	1 (2.2)
No	45 (97.8)
Have had surgeries	
Yes	10 (21.7)
No	36 (78.3)

That a higher percentage of respondents work in the care sector in the hospital environment (n=31; 67.4%), and most work eight to 12 hours in the bonded institution (n=32; 69.6%). Regarding posture, half of those evaluated (n=23; 50%) report that they have a variation in posture

maintenance that oscillates between sitting and standing, and the average time for maintaining posture without breaks was less than 01 hours (n=18; 39.1%), different from the average time of maintenance of standing posture, in which most reported keeping standing posture for a time between 02 and 03 hours without breaks (n=15; 32.6%) (Table 2).

Table 2. Identification of the variables studied in actual and absolute frequency. Montes Claros-MG, Brazil (n=46).

Variables	n (%)
Area of activity	
Healthcare	31 (67.4)
Administrative	13 (28.3)
Other	2 (4.3)
Work Schedule	
Less than 6 hours	0 (0)
From 06 to 08 hours	14 (30.4)
From 08 to 12 hours	32 (69.6)
Posture adopted most of the time	
Seated	8 (17.4)
Standing	15 (32.6)
Both	23 (50)
Average time spent standing without breaks	
Less than 1 hour	13 (28.3)
Between 1 and 2 hours	12 (26.1)
Between 2 and 3 hours	15 (32.6)
More than 4 hours	6 (13)
Average time spent sitting without breaks	
Less than 1 hour	18 (39.1)
Between 1 and 2 hours	16 (34.8)
Between 2 and 3 hours	6 (13)
More than 4 hours	6 (13)

The self-reported characteristics of sleep quality showed the highest average for regular sleep (n=29; 63%), in contrast, the domain with lowest averages was no level of stress at work (n=3; 6.5%) and exercise more than 04 times per week (n=3; 6.8%), and in this respect, most of the participants present a level of stress at work, even if little, and do not practice any physical exercise (Table 3).

Tabela 3. Participants self-perception regarding sleep, physical activity, and stress. Montes Claros-MG, Brazil (n=46).

Variável	n (%)
How often do you feel fatigued and unwell at work?	
Always	0 (0)
Almost always	5 (10.9)
Sometimes	16 (34.8)
Rarely	18 (39.1)
Never	7 (15.2)

Self-perceived stress level at work	
Very	4 (8.7)
Moderate	16 (34.8)
Little	23 (50)
None	3 (6.5)
Self-perceived sleep quality	
Good	6 (13)
Average	29 (63)
Terrible	11 (23.9)
How often do you exercise?	
1 to 2 times per week	7 (15.2)
2 to 3 times per week	11 (23.9)
3 to 4 times per week	8 (17.4)
More than 4 times per week	3 (6.5)
Does not practice	17 (37)

It was possible to verify that the posture in which workers reported the greatest sensation of pain was sitting (n=18; 39.1%), in the lumbar region (n=16; 34.8%). Regarding the characterization and intensity of pain, it is relevant to point out that more than half of those evaluated feel the pain in the form of burning (n=24; 52.2%) and in moderate intensity (n=27; 58.7%) (Table 4).

Tabela 4. Participants self-perception of pain sensation in the workplace. Montes Claros-MG, Brazil (n=46).

Variável	n (%)
How often do you experience pain while performing your work?	
Always	2 (4.3)
Almost always	9 (19.6)
Sometimes	20 (43.5)
Rarely	11 (23.9)
Never	4 (8.7)
Posture that causes the most pain	
Seated	18 (39.1)
Standing	17 (37)
Both	7 (15.2)
Neither	4 (8.7)
Region of greatest pain sensation	
Cervical	5 (10.9)
Thoracic	10 (21.7)
Lumbar	16 (34.8)
Upper Limbs	1 (2.2)
Lower Limbs	11 (23.9)
Not applicable	6 (6.5)
Characteristic of pain	
Numbness	7 (15.2)
Stabbing pain	8 (17.4)
Burning sensation	24 (52.2)
Shock	0 (0)
Throbbing	4 (8.7)
Other	0 (0)
Not applicable	3 (6.5)

Pain intensity	
Mild	9 (19.6)
Moderate	27 (58.7)
Severe	7 (15.2)
Disabling	0 (0)
Other	0 (0)
Not applicable	3 (6,5)

Discussion

The majority of participants were female, similar to the results presented in a survey[8] that sought to characterize health workers, loads and work wear in a university hospital in southern Brazil, in which there is a female predominance among the professionals who were part of the team (n = 110; 85.9%).

Regarding the age variable, the majority of the sample was between 34 and 48 years old, indicating that most of the professionals analyzed are in the middle-aged range. The observed trend aligns with other studies[9], which sought to analyze the influence of age and gender on the job satisfaction of health professionals in a university hospital, where the majority of participating professionals were between 31 and 50 years old (n=796; 66.7%), with lower representation of younger or more advanced age groups, also found in the present study.

The findings of this study showed a predominance of professionals with technical training and a significant part with higher and advanced education. This distribution is consistent with studies that show a growing appreciation of education in health promotion and advanced level of professionalization among hospital staff. In a study[10], carried out in a hospital unit in the city of Arame, Maranhão, in order to evaluate the level of knowledge of health professionals, it was evidenced the level of education of employees in higher education and graduate school.

Results of the present study indicate that most professionals working in the hospital environment are involved in care activities and that they work 8 to 12 hours. This type of journey can lead to physical and emotional wear, impacting health and the quality of care provided[11].

Still on the previous study, in the analysis of the factors that contribute to the Burnout syndrome among health professionals working at the Basic Health Unit (BHU) in Paraíba do Sul - RJ, the high workday is highlighted as the main factor leading to physical and mental exhaustion. That is, the excess of hours dedicated to work is seen as a central cause of wear and tear, intensifying the physical and psychological exhaustion of professionals, as identified in this research, since the majority of those evaluated reported a longer workday and some level of stress at work.

The posture adopted by workers is also relevant. The findings of this research indicated a high proportion of professionals who work most of the time standing, in an average time of 02 to 03

uninterrupted hours. In a study[12], which sought to analyze the exposure to ergonomic risks and the occurrence of musculoskeletal disorders in hospital cleaning service workers, a high percentage (n = 277; 94%) of reports regarding the maintenance of standing posture was found, with high exposure to the risks of developing musculoskeletal disorders, strain on the spine and muscle fatigue.

This study found that the area of the spine with the greatest pain complaint is the lumbar region, which is in accordance with current epidemiological data. The National Health Survey showed that 21.6% of the Brazilian population suffer with chronic pain in the spine, and 2.5% have a diagnosis of Work-Related Musculoskeletal Disorders. More than half of these cases report intense and persistent pain for more than six months, showing the significant impact of these problems related to the work environment and continuous physical exertion[12].

Still on the region of greater pain complaint, this research showed a prevalence of high back pain. Dlungwane *et al*.[13] intended an analysis in order to determine the prevalence and factors associated with low back pain among nurses at a regional hospital in KwaZulu-Natal. They also found a high percentage of complaints for low back pain among their sample (n=84; 59%) related to patient handling and the demanding physical load associated with care.

Regarding the quality of sleep, most respondents reported having a regular sleep. In this sense, inadequate sleep has wide repercussions, influencing mood, cognitive capacity and physical health. The evidence indicates that more than half of health professionals report dissatisfaction with the quality of sleep or insufficient recovery between works[14].

The data here indicate that a considerable number of hospital professionals report experiencing pain frequently during work. This high prevalence of pain is consistent with studies on occupational pain in hospital professionals. The prevalence of musculoskeletal symptoms among nursing workers of a public university hospital in the interior of Rio Grande do Sul was evaluated and it was noticed that, among participants, 96.3% (n=456) reported feeling pain in some region of the body, 73.1% (n=358) in the last seven days and 65.8% (n=323) in daily activities[15].

Although the majority of participants in this study classified the pain as moderate, its constant presence can impact the performance of the function in the long term. Pain of moderate intensity, when frequent, may reduce efficiency and increase the risk of being absent from work, requiring preventive intervention[16].

The present study presents a limitation inherent to research with cross-sectional design by the impossibility of establishing a causal link.

Conclusion

It was evident the perception of pain and discomfort among health professionals working in a hospital environment, particularly in relation to postures adopted during work. There was a high prevalence of musculoskeletal pain, especially in the lumbar region, physical discomfort and poor sleep quality, suggesting that unfavorable working conditions contribute to the wear of these professionals. Factors such as long working hours, static postures, poor sleep quality, moderate stress and lack of regular physical activity aggravate the negative impacts on workers' health and performance.

The research also showed that many professionals alternate between standing and sitting postures throughout the day. This highlights the urgency of implementing prevention strategies and ergonomic interventions to improve the quality of life and efficiency of professionals. It is recommended that hospital institutions promote ergonomics practices and better working conditions, aiming not only to prevent injuries, but also to support the integral well-being of workers.

Future research could evaluate the prolonged impact of interventions performed in the hospital environment, with a view to promoting holistic care that enhances physical and mental well-being, reflecting positive results for the quality of life of these professionals.

Author contributions

Conception and design of the research: Alicia Alves Matos, Hellen Cristiny de Souza Machado. **Data collection:** Alicia Alves Matos, Hellen Cristiny de Souza Machado, Leonardo Augusto Couto Finelli. **Analysis and interpretation of the data; writing of the manuscript**: Leonardo Augusto Couto Finelli. **Critical revision of the manuscript in terms of intellectual content and final presentation:** Welington Danilo Soares. The authors approved the final version of the manuscript and declared themselves responsible for all aspects of the work, including guaranteeing its accuracy and integrity.

Conflict of interest

The authors declare no conflicts of interest.

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