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INVESTIGATION OF THE DEVELOPMENT OF WRMDs IN PROFESSIONALS FROM DIFFERENT AREAS IN A PUBLIC HOSPITAL IN JUIZ DE FORA – MG

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Summary

Introduction: Stressful environments and work overload make healthcare professionals vulnerable to occupational pathologies, such as Work-Related Musculoskeletal Disorders (WRMDs), caused by repetitive movements, muscle strain, and lack of recovery. **Objective**: To identify the manifestations of WRMDs and the profile of professionals undergoing treatment in the Occupational Health sector of a public hospital. **Methods**: A cross-sectional, observational, and retrospective study analyzing the medical records of employees with musculoskeletal complaints treated at the Physiotherapy clinic of a hospital in Juiz de Fora, between June 2021 and June 2023. **Results**: The sample consisted of 83 participants, 79.5% (n=66) women and 20.5% (n=17) men, with a prevalence of complaints in the lumbar region (27%). The individuals belonged to different work sectors, with the administrative sector (37%) standing out in the demand for care, predominantly in the cervical region (25.7%). Furthermore, it was observed that the total number of complaints (n=104) exceeded the number of participants (n=83), demonstrating that 22% of the participants presented multiple complaints. **Conclusion**: Based on the results presented, the need for the implementation of preventive measures and support for the health of professionals is evident, aiming to reduce the consequences of WRMDs on quality of life.

Keywords: Occupational Diseases, Healthcare Professionals, Musculoskeletal Disorders.

1. INTRODUCTION

Work-related musculoskeletal disorders (WRMDs), formerly known as Repetitive Strain Injuries (RSIs), are characterized by injuries resulting from the overuse of the musculoskeletal system. These injuries are associated with the continuous repetition of movements, prolonged use of specific muscles or muscle groups, and the lack of adequate recovery time (Oliveira et

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al., 2013)[1]. Among the various professional categories, healthcare workers stand out as one of the most affected groups, due to factors such as performing repetitive activities, maintaining inadequate postures, high workload, lifting patients, and exposure to biological, physical, and psychosocial risks[1].

These dysfunctions constitute one of the main health problems affecting the economically active population in Brazil. Affected professionals frequently face absenteeism and decreased work performance, which has significant impacts on both the individual and social spheres (Girma et al., 2021) [2,3].

According to Santos et al. (2016)[4], WRMDs encompass a variety of clinical conditions, including tendon inflammation, nerve compression, and osteoarthritis, as well as less standardized conditions such as myalgia, lower back pain, and other regional pain syndromes. The most commonly affected body regions are: lumbar spine, neck, shoulders, forearms, wrists, hands, and lower limbs. Biomechanical factors such as trunk flexion and twisting, load handling, and performing forced movements have been identified as essential determinants for the development of these dysfunctions (Clari et al., 2021) [5.]

Epidemiological evidence reveals a higher prevalence of WRMDs among women, individuals aged 30 to 59 years, people with higher levels of education, and, comparatively, among whites compared to mixed-race individuals. Women, specifically, more frequently reported both chronic spinal problems and intense or very intense limitations in their daily activities. A possible explanation for this finding lies in the work overload resulting from balancing domestic tasks and professional activities, which increases exposure to repetitive movements, inadequate postures, and an accelerated work pace (Oliveira et al., 2013)[1].

According to Dosea et al. (2016)[6], musculoskeletal disorders significantly compromise the quality of life of workers. The reduction in functional capacity frequently results in the emergence of psychosocial symptoms, such as isolation, sadness, anguish, depression, and a feeling of helplessness in the face of physical limitations. The consequences of WRMDs range from the inability to perform the work activity responsible for the onset of the disorder to difficulty in performing basic daily life tasks, such as domestic activities and self-care. In addition to individual losses, WRMDs impose high socioeconomic costs on the public health system and the economy of organizations. They are currently the main cause of granting sick leave and benefits related to occupational diseases by Social Security (Santos et al., 2016)[4].

In this context, as public hospital workers need to take temporary or permanent leave from their duties, they face not only challenges related to their health and well-being, but also generate significant impacts on the organizational dynamics and the healthcare system as a whole. The multifactorial and complex nature of WRMDs (Work-Related Musculoskeletal Disorders) requires intervention strategies that go beyond conventional treatments, especially in chronic cases. Although several studies address the prevalence of WRMDs in healthcare professionals, there is still a knowledge gap regarding the occurrence of these dysfunctions in workers from different hospital sectors—including administrative, general services, reception, and maintenance—who are also exposed to ergonomic risk factors. This limitation compromises a comprehensive understanding of the hospital reality, which involves not only care teams but all employees who support the institution's operation.

2. METHODS

2.1. Sampling Selection

This is a cross-sectional, observational, and retrospective study conducted at a teaching hospital located in the city of Juiz de Fora, Minas Gerais. The reference population consisted of 83 employees of the aforementioned institution who sought, on their own initiative, care at the hospital's physiotherapy teaching clinic, presenting complaints related to the musculoskeletal system.

For data analysis, the following inclusion criteria were adopted: duly completed medical records of hospital employees, of both sexes, that presented records compatible with the musculoskeletal complaints under investigation. Exclusion criteria included records completed outside the period established by the research, incomplete records, and duplicate records—that is, those referring to the same employee with the same complaint reported more than once.

After screening the documents, 13 records were excluded for not meeting the established methodological criteria, resulting in a final sample of 70 valid records for data analysis and comparison.

2.2. Procedures and Data Collection

A survey of data from medical records completed by hospital professionals between June 2021 and June 2023 was conducted. The recorded information was collected through clinical evaluation (anamnesis and physical examination) in the Occupational Physiotherapy service, using semi-structured assessment and monitoring forms.

The analysis involved variables such as sex (male and female), work sector/occupation (administrative assistance, general services, reception, nursing assistance, nursing, maintenance/construction, and others), main complaint (divided according to prevalence in body regions such as feet, lower limbs, lumbar, cervical, spine, shoulder, wrist/hand, and other regions), time in the activity, and frequency of visits.

The data were tabulated in Excel *for Windows spreadsheets* and statistically analyzed using SPSS version 26.0, measuring mean, standard deviation, and nominal variables. The research was submitted to and subsequently approved by the Ethics and Research Committee (CEP), with approval number 6.046.269. The researchers signed a Commitment Agreement for the use of the data. (TCUD).

3. RESULTS

Of the 83 employees evaluated, 66 were female and 17 were male, and the average length of employment was 3 years and 6 months. The workers belonged to different job functions such as administrative assistant (37%), nursing technician (23%), general services (17%), receptionists (7%), nurses (7%), other professionals (5%) and maintenance/construction (4%).

Regarding musculoskeletal complaints, the highest incidence was in the lumbar region (27%), and the lowest in wrists/hands (2%), as shown in Figure I. Furthermore, we observed that the total number of complaints (n=104) exceeded the number of participants (n=83), revealing that some professionals reported complaints in more than one body location. It is worth noting that in some cases no correlations were found between the reported pain locations, indicating divergent complaints in unexpected regions.

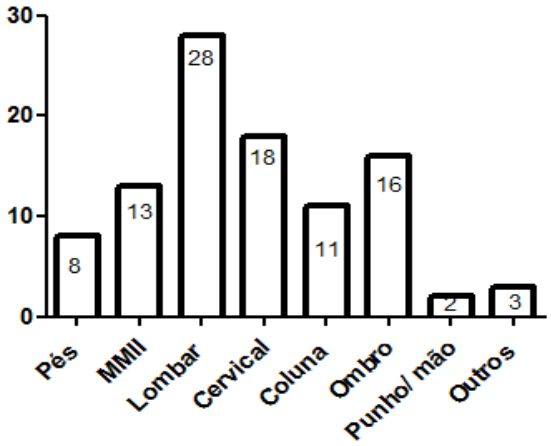

Figure I – General complaints by region.

According to Table I, we can see the proportion of the most frequent complaints according to the profession involved. Among administrative professionals – the sector with the highest demand for care – complaints were found in all regions, with the highest incidence in the cervical region (25.6%), as well as among receptionists, where most complaints were in the cervical region (50%). Complaints in the lumbar region were prominent in four of the seven professional groups evaluated: nursing (66.6%), maintenance/construction team (50%), nursing technicians (38.1%), and general services employees (27.7%). Among employees in the "other" category, there was no predominant complaint.

Percentage of row total	Pés	MMII	Lombar	Cervical	Coluna	Ombro	Punho/mão	Outras
Assistente Administrativo	5.13%	15.38%	17.95%	25.64%	10.26%	20.51%	2.56%	2.56%
Enfermagem	0.00%	0.00%	66.67%	16.67%	16.67%	0.00%	0.00%	0.00%
Manutenção/ Obra	0.00%	25.00%	50.00%	0.00%	0.00%	25.00%	0.00%	0.00%
Serviços Gerais	9.09%	22.73%	27.27%	4.55%	13.64%	22.73%	0.00%	0.00%
Recepcionista	0.00%	0.00%	12.50%	50.00%	12.50%	25.00%	0.00%	0.00%
Tec. Enfermagem	23.81%	0.00%	38.10%	4.76%	9.52%	9.52%	4.76%	9.52%
Outros	25.00%	25.00%	0.00%	0.00%	25.00%	25.00%	0.00%	0.00%

Table I – General complaints by work sector

Spearman's correlation analysis indicated a positive, but weak, association between work time and complaint ($\rho = 0.116$; 95% CI -0.108 to 0.329; $p = 0.296$). This result was not statistically significant, suggesting the absence of a consistent relationship between the variables evaluated.

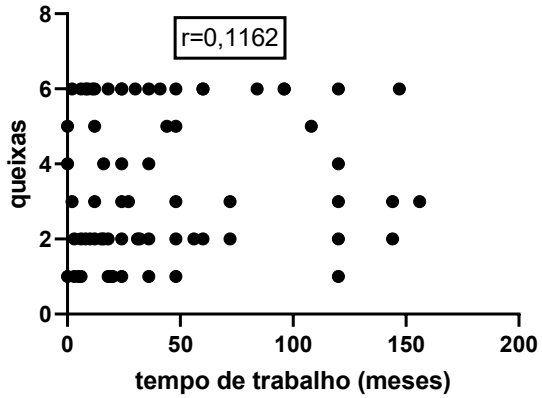

Figure II – General Complaints X Working Time

Legend: 1- cervical/2- lumbar/3- upper limbs/4- lower limbs/5- feet/ 6- multiple complaints

4. DISCUSSION

In the present study, it was found that Work-Related Musculoskeletal Disorders (WRMDs) constitute a relevant concern for the health and well-being of professionals from different sectors of the institution, converging with findings from several studies [7-15] . Paula et al. (2016) [12] highlight the negative effects of these disorders on workers' lives, evidencing physical, emotional, and social impacts that compromise quality of life. Physically, WRMDs can generate chronic pain, limited movement, and functional disability, directly interfering with the performance of work tasks and daily activities. This reality justifies the high demand for the occupational health sector of the teaching hospital, evidenced in the studied sample.

The sample showed a predominance of females, coinciding with several studies [8-13] , although some research [9,14] indicates a higher number of men in the total number of employees. In particular, Almeida et al. (2017) [13] analyzed the correlation between sex and the occurrence of WRMDs, identifying a positive association between female sex and musculoskeletal disorders, regardless of the sample composition. The theory of differential exposure suggests that differences in working conditions could explain the gender discrepancy [14] ; however, other studies [6,11] demonstrate persistently higher musculoskeletal morbidity among women, even after adjusting for occupational factors.

These findings indicate that factors unrelated to work also influence women's vulnerability to WRMDs [6,11,14]. Biomechanical differences, such as reduced muscle strength, lower hypertrophy capacity, and distinct patterns of muscle activity, can increase the overload in women during tasks equivalent to those of men, raising the risk of developing disorders. In addition, differentiated pain control mechanisms between the sexes may contribute to the higher prevalence of physical symptoms in women, reflecting less robust adaptive responses [14] .

Regarding the location of musculoskeletal complaints, the lumbar region was predominant, except among administrative assistants and receptionists, in whom the cervical region predominated. These results corroborate previous studies [7-11] that associate low back pain with seeking healthcare professionals and limiting work activities. However, some research [6,7] indicates a higher prevalence in the upper limbs (shoulders and wrists) or a combined analysis

of the neck, shoulder, and upper back, highlighting the variability in the patterns of involvement.

The study by Guimarães et al. (2011)[9], involving predominantly sedentary systems analysts, shows that inadequate postures and poorly adjusted furniture contribute to WRMDs in the lumbar (71%) and cervical (64%) regions. This analysis allows us to draw a parallel with administrative assistants and receptionists at the hospital, who spend a large part of their workday in front of a computer, possibly explaining the high prevalence of cervical pain in this population.

It was also observed that the total number of complaints (n=104) exceeded the number of participants (n=83), suggesting multiple involvement in different body regions. A study in Guarulhos11 found a similar situation, with 33.8% of workers presenting low back pain concomitantly with disorders in other regions. Data from other studies10,13,16 reinforce the occurrence of multiple complaints in health professionals, highlighting the combination of RSI/WRMD such as tendinitis, low back pain, neck pain and Carpal Tunnel Syndrome.

These findings highlight the need for preventive strategies to reduce occupational risks, such as ergonomic improvements, regular breaks, exercise programs, and postural education [9,10,12]. The sample in this study reflects the reality of hospital workers affected by WRMDs, highlighting the demand for occupational physiotherapy services and reinforcing the importance of interventions aimed at mitigating risk factors [11]. Furthermore, the vulnerability of women reinforces the need for public policies that promote healthy and equitable work environments for both sexes[14].

In contrast to the findings of Assunção & Abreu, which showed a positive relationship between the presence of musculoskeletal pain and length of service, our results showed that this association is weak [17]. This discrepancy may be attributed to differences in the profiles of the studied population, in the occupational context, or in the methods of pain assessment, suggesting that individual and organizational factors may modulate the intensity of the relationship between length of service and musculoskeletal complaints.

In summary, this study makes an original contribution by characterizing the profile of work-related musculoskeletal disorders (WRMSDs) among hospital professionals, relating gender, function, and location of complaints, and by critically engaging with existing literature. Its findings highlight the importance of preventive measures and targeted interventions, offering relevant support for the promotion of occupational health and the development of public policies aimed at preventing work-related musculoskeletal disorders.

5. CONCLUSION

The findings of this study reveal a worrying picture of the prevalence of work-related musculoskeletal disorders (WRMDs) among workers in different sectors of a public hospital in Juiz de Fora – MG, with particular emphasis on the lumbar and cervical regions and a higher incidence in women. These results reinforce the need for comprehensive preventive measures, aimed not only at healthcare categories, but also at administrative, support and general services sectors, highlighting the relevance of integrated institutional occupational health policies.

In this context, the implementation of preventive strategies in the workplace becomes essential, with emphasis on ergonomic measures, postural education programs, guidance on performing repetitive movements, and the promotion of regular work breaks. Within the scope of Occupational Physiotherapy, the institutionalization of outpatient care as a permanent

practice is recommended, given its effectiveness in the early detection of signs and symptoms related to WRMDs (Work-Related Musculoskeletal Disorders) and in the adoption of timely therapeutic interventions.

One limitation is the use of retrospective medical record data, which restricts the analysis to previously recorded information and may have led to underreporting of cases. Furthermore, the study focused on a single institution, limiting the generalizability of the results to other hospital settings.

Future investigations should include multicenter samples, with prospective designs and the inclusion of variables related to ergonomic, psychosocial, and organizational working conditions. These efforts could broaden the understanding of factors associated with the development of WRMDs (Work-Related Musculoskeletal Disorders) and support the formulation of more effective preventive strategies, adapted to the specificities of each hospital sector.

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