Work-Related Musculoskeletal Disorders and Psychosocial Risk Factors in Healthcare Workers in the Context of COVID-19 Pandemic

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Abstract

Healthcare workers and, more specifically, nurses perform a physical and an emotionally draining work activity, which makes them susceptible to exposure to psychosocial risks. The aim of this study was to evaluate psychosocial risk factors and explore predictors of musculoskeletal disorders. Participants in this study included 284 nurses and the results identified the work intensity, working times, high levels of emotional demands and employment relationships as important factors of psychosocial risks. Predictors of musculoskeletal disorders were identified, more specifically: Depend on the direct requests of patients and lack of resources to perform the job well done as well as lack of human resources from peers and colleagues. Social isolation and the fear of being infected associated with a lack of support from the services and the health institution itself showed strong relationships with the pathology. It is important to develop effective organizational practices to reduce these health problems that affects a high number of nurses.

Keywords: *COVID-19; Musculoskeletal Disorders; Psychosocial Risks; Healthcare Workers; Nurses*

Theoretical Framework

Currently, the world is facing a major challenge in the context of public health, due to the emergence of the pandemic associated with COVID-19, which intensified the physical and emotional exhaustion of healthcare workers [1-3]. Healthcare workers and, more specifically, nurses, due to the specific nature of their work activity and the characteristics of work environment and work organization [4], aggravated in pandemic conditions, are more likely to be at risk [5-7]. In fact, nursing professionals are one of the most vulnerable professional groups, manifesting physical and psychological disturbances, increased by exhausting shifts and social isolation [8,9]. In this context, several studies were developed that sought to assess the impact of different risk factors on the health and well-being of nurses namely, the impact of psychosocial risk factors [10-12]. The intense pace of work, contact with suffering and death, the emotional overload of work, associated with time pressure and shift work are psychosocial risk factors associated with the development of musculoskeletal injuries [13-15].

Objectives and Methodology

The objectives of the study consisted of identifying the psychosocial risks to which nurses are exposed and analyzing their relationship with the manifestation of musculoskeletal injuries. A quantitative methodology was used and data collection was performed using the Snowball technique. Data collected from 284 nurses took place between May and June 2021. Each healthcare worker received an envelope with the instruments used in the study protocol, which were later returned in a closed envelope after its completion. All ethical

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procedures of an anonymous, confidential, and voluntary questionnaire submission were followed. The study protocol was approved by the Ethics Committee of Fernando Pessoa University (Ref. PI-112/20).

Participants

A total of 284 nurses who work in public and private hospitals in the north of the country participated in the study. The sample is mostly female, 82.0% and 18.0% male, aged between 21 and 64 years old (M = 38.85; SD = 10.03). Of the 284 nurses, 55.7% are married or in a de facto union and 45.1% do not have children. Years of professional experience range from just one year to those working for 42 years (M = 13.49; SD = 9.63). 90.1% of the participants work on a permanent or permanent contract, 93.3% work full-time, 64% work rotating shifts and 51.1% work at the weekend.

Instruments

The INSAT Survey is a self-administered questionnaire that assesses working conditions, health and well-being, and their relationship. Bearing in mind the objective of this study, the subscale of psychosocial factors at work (35 items) was used: pace and intensity of work; lack of autonomy; work relationships; emotional demands; ethical and value conflicts; and the perception of health problems (14 items), namely musculoskeletal injuries. The INSAT was validated for the Portuguese population using the Rasch Model and Partial Credit (PCM) and a value considered very good (> 0.8) was obtained [16].

Statistical analysis

Data were analyzed using the SPSS for Windows statistical program, version 28.0. The significance level adopted was p ≤ 0.05. Frequency and percentage analyzes were performed on the demographic characteristics of the participants (nominal variables of the INSAT questionnaire - psychosocial factors). To analyze the associations between risk factors and musculoskeletal injuries, all variables were transformed into nominal variables (no: 0; yes: 1) and integrated into a logistic regression analysis (Backward method). In the study carried out, compliance with the assumptions of the method was verified, and the results obtained were considered reliable.

Results

Descriptive analysis

The descriptive analysis of the INSAT, presented in table 1, shows the frequency distribution of "yes" answers to psychosocial factors at work that have a significant impact on nurses' professional practice.

Pace and intensity of work	% Yes
Work at an intense pace	94.4
Depend on direct orders from customers	76.1
Having to depend on the work of colleagues	82.9
Frequent interruptions	82.4
Hyper-solicitation	81.0
Working times	**% Yes**
Exceeding normal working hours	86.3
"Skipping" or shortening a meal or not taking a break because of work	82.7
Maintain permanent availability	58.1

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Work relationships	% Yes
Needing help from colleagues and not having	46.1
My opinion for the operation of the service will be disregarded	44.4
Being under-recognized by superiors	47.5
Having no one I can trust	30.0
Being exposed to bullying	39.4
Employment relations with the company	**% Yes**
Lack of means to get the job done	50.7
Overall, I feel exploited	50.0
Fear of being injured at work	71.1
There is no concern on the part of the company regarding my well-being	63.0
Emotional demands	**% Yes**
Confrontation with tense situations in public relations	94.7
Fear of verbal aggression	86.3
Being exposed to the difficulties and/or suffering of other people	94.7
Simulate good mood and/or empathy	75.4
Hide emotions	75.0
Ethical and value conflicts	**% Yes**
Doing things I disapprove	64.8
My professional conscience is shaken	52.8
Lack of necessary means to do a job well done	57.7

Table 1: *Characterization of psychosocial risk factors at work.*

Associations and predictors of musculoskeletal injuries as a function of psychosocial risk factors

Psychosocial risk factors were associated with the manifestation of musculoskeletal injuries (LMERT), and significant relationships were identified (Table 2).

Psychosocial risk factors	Muscle aches and joints (DMA)		Back Pain (CD)	
	Sig.	OR (95% CI)	Sig.	OR (95% CI)
Depend on direct orders from customers	<.001	4,060 (1,893-8,710)	<.001	8,825 (3,841-20,276)
Fear of being injured at work	.013	2,744 (1,234-6,104)		
There is no concern on the part of the company regarding my well-being	.002	4,116 (1,709-9,915)	<.001	6,482 (2,493-16,852)
Lack of necessary means to do a job well done	.006	3,195 (1,402-7,279)		
My opinion for the service will be disregarded			<.001	4,880 (1,917-12,423)
Needing help from colleagues and not having	<.001	4,090 (1,945-8,603)		

Table 2: *Results of logistic regression applied to psychosocial risk factors in musculoskeletal injuries.*

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From the statistical analysis there are two key factors that significantly increased the perception of musculoskeletal injuries. Labor relations and employment relations. In labor relations, it is worth mentioning "Needing help from colleagues and not having it" increased by 4,090 (1,945 - 8,603) for DMA and "My opinion being disregarded for the operation of the service" increased by 4,880 (1,917 - 12,423) for DMAs. A.D. In employment relations, "Depending on direct requests from customers" stands out, which increased by 4,060 (1,893 - 8,710) for DMA and 8,825 (3,841 - 20,276) for DC and "There is no concern on the part of the company regarding my well-being" 4,116 (1,709 - 9,915) for DMA and 6,482 (2,493 - 16,852) for DC. Another relevant factor in the increase in musculoskeletal injuries: "Lack of necessary means to do a job well done" increased 3,195 (1,402 - 7,279) for DMA.

Discussion

Nursing is the professional activity, among all other professions, with the greatest potential to develop LMERT [17], which in the context of a pandemic have worsened, impacting the health of these health professionals. Studies have revealed that nurses' experiences with musculoskeletal pain are not only related to the physical factors associated with the exercise of their activity, but are mainly related to psychosocial factors [5,13,15]. In this sense, the risks related to working conditions, such as the lack of means and resources to perform quality work, aggravated by the concern of being infected by the virus, potentiate the appearance of this type of complaints. In addition to these factors, the emotional demands related to the tension with patients, having to deal with serious situations and the lack of organizational support, leveraged by the COVID-19 pandemic, exacerbated the aggravation of these pathologies [6,7,14]. It is, therefore, a set of psychosocial risk factors that have consequences in terms of physical and mental exhaustion in nurses and, more specifically, in the development of musculoskeletal injuries associated with work.

Conclusion

In this study, relationships between exposure to psychosocial risk factors and the development of musculoskeletal pathology were evidenced. We are talking, more specifically, about factors related to work and employment relationships, the emotional and social demands that proved to be predictive variables in the development of musculoskeletal injuries. However, there are still few studies that have sought to assess the impact of psychosocial risks on the development of this type of pathologies, which are still exclusively associated with physical risk factors of work activity. In this sense, a multidimensional intervention, which includes psychosocial risks, proves to be fundamental for the prevention of musculoskeletal injuries in nursing professionals.

Bibliography

1. Labegalini Célia., *et al*. "The process of coping with the COVID-19 pandemic from the perspective of nursing professionals". *Research, Society and Development* 10.1 (2021).

2. Pereira Mara., *et al*. "Emotional suffering of nurses in the hospital context in the face of the COVID-19 pandemic". *Research, Society and Development* 9.8 (2020): e67985121.

3. Teixeira Carmen., *et al*. "The health of health professionals in the face of the Covid-19 pandemic". *Science and Health Collective* 25.9 (2020): 3465-3474.

4. Seabra Paulo., *et al*. "A national survey of the nurses' mental health - The case of Portugal". *Nursing Forum* 54.3 (2019): 425-433.

5. Miranda Fernanda., *et al*. "Working conditions and the impact on the health of the nursing professionals in the context of covid-19". *Enfermagem* 25 (2020).

6. Shaukat Natasha., *et al*. "Physical and mental health impacts of COVID-19 on healthcare workers: a scoping review". *International Journal of Emergency Medicine* 13 (2020): 40.

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7. Vizheh Maryam., *et al*. "The mental health of healthcare workers in the COVID-19 pandemic: A systematic review". *Journal of Diabetes and Metabolic Disorders* 19 (2020): 1967-1978.

8. Da Silva., *et al*. "The look of nursing in front of a pandemic". *Brazilian Journal of Health Review* 4.2 (2021): 4798-4807.

9. Duarte Maria de Lurdes., *et al*. "Nursing and mental health: a reflection in the midst of the coronavirus pandemic". *Gaúcha Journal of Nursing* 42 (2020).

10. Baylina Pilar., *et al*. "Healthcare Workers: Occupational Health Promotion and Patient Safety". *Journal of Medical Systems* 42.9 (2018): 159.

11. Barros Carla., *et al*. "Can psychosocial work factors influence psychologists' positive mental health?" *Occupational Medicine* 69.3 (2019): 204-210.

12. Barros Carla. "Psychosocial risk factors in today's work (pp 141-159)". In MM Roxo (Coord.). Work without borders? The role of regulation. Coimbra: Almedina. ISBN 978-972-40-7051-3 (2017): 302.

13. Correia Josefina., *et al*. "The influence of psychosocial risk factors on the development of musculoskeletal disorders". *Psychology, Health and Illness* 22.1 (2021): 530-336.

14. Krishnan Saraswathi., *et al*. "Prevalence of Work-Related Musculoskeletal Disorders: Psychological and Physical Risk Factors". *International Journal of Environmental Research and Public Health* 18.17 (2021): 9361.

15. Yang Shuai., *et al*. "Risk factors for work-related musculoskeletal disorders among intensive care unit nurses in China: A structural equation model approach". *Asian Nursing Research* 14.4 (2020): 241-248.

16. Barros Carla., *et al*. "Development and Validation of a Health and Work Survey Based on the Rasch Model among Portuguese Workers". *Journal of Medical Systems* 41.5 (2017): 79.

17. Mailutha Joseph. "Prevalence of Musculoskeletal Disorders among Nurses in Kenya: Part 1, Anthropometric Data and MSDS". *International Journal of Emerging Technology and Advanced Engineering* 10 (2020): 158-163.

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