Resilience is associated with coping with musculoskeletal pain in nursing professionals

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Abstract

Musculoskeletal pain is a frequent problem in nursing professionals, and several treatments have been researched to reduce it; however, few studies address the influence of increased resilience of these professionals in controlling their pain. Thus, this study aimed to identify an association between resilience and musculoskeletal pain reported by nursing professionals in different anatomical regions. This is a cross-sectional observational study with 321 nursing professionals. A sociodemographic and work questionnaire, a Nordic musculoskeletal symptoms questionnaire, an analog pain scale, and a resilience scale were used. Descriptive and analytical statistics were used for analysis, using the Mann-Whitney U and Kruskal Wallis tests. The relationships between pain and sociodemographic, work, and resilience characteristics were analyzed. 261 (81.3%) reported having had musculoskeletal pain in the last year, and the most affected regions were the upper and lower backs and shoulders. An association was identified between pain intensity and musculoskeletal pain in all investigated body regions ($p < 0.05$), age ($p = 0.015$), professional category ($p = 0.032$), length of experience in nursing ($p = 0.003$), and work shift ($p = 0.012$). A correlation was also observed between resilience and musculoskeletal pain in the neck ($p = 0.010$) and hip and thighs ($p = 0.009$). Thus, high resilience is associated with better control of musculoskeletal pain among nurses, especially in the neck region.

Keywords: Occupational Health. Pain. Occupational Hazards. Hospital Assistance. Nursing.

INTRODUCTION

In hospital care, a nurse's daily routine is permeated with an intense rhythm, high physical, emotional, and cognitive demands, working in shifts, psychosocial factors, and physical and psychological violence, which affect the health of these professionals[1]. Musculoskeletal disorders such as pain, neuropathies, myalgia, and stress fractures are among the leading causes of absence from work and absenteeism in nursing, affecting workers in different age groups and culminating in limitations and functional disability[2].

An investigation with 301 nursing professionals from a general hospital in Florianópolis stated that 85% of workers reported having at least one musculoskeletal symptom in the last 12 months, and 18.1% stated some limitation in activities of daily living as a result of mus-

culoskeletal symptoms in the region lumbar in the same period[3].

Nursing is among the occupations with a high risk of developing musculoskeletal injuries due to exposure to physical overload. The prevention, administration, and management of musculoskeletal pain in nursing require a multifactorial and multifaceted approach[4].

Continuous care, shifts, and living with the pain and suffering of others are inherent characteristics of nursing work in a hospital, which are difficult to change and contribute to the professional's illness. In this sense, it is necessary to implement strategies that enable the prevention, management, and coping with musculoskeletal pain perceived by this professional category.

Among these strategies, there is resilience. Conceptualized as the individual's ability to adapt psychosocially to the adversities of life, resilience connotes the idea of learning and adapting the professional in the face of everyday difficulties[5]. Family and social support, spirituality, and leisure activities make it possible to expand the capacity for resilience, which constitutes a protective factor for the professional's health[6]. Resilience does not preserve workers from suffering, but makes them capable of learning, facing, and overcoming difficulties[7].

A study with 375 nursing workers at a university hospital in São Paulo stated that 84.8% of the participants had medium to high levels of resilience and explained that older age and longer working time in the institution and in the profession were among the associated factors. It also highlighted that the promotion and maintenance of an adequate, safe, and healthy work environment requires the commitment of workers and managers to maintain a high level of resilience and attention to early diagnosis and proper treatment of musculoskeletal pain in view of the emotional component associated with its genesis[7].

Despite resilience being an important tool to minimize work-related disorders, few studies evaluate it in the work environment, especially in Rio Grande do Sul. In addition, it is important to know the level of musculoskeletal pain these professionals have, and to seek ways to combat or reduce, aiming at a better quality of life at work. Thus, studies are needed to demonstrate the association between resilience and pain. Given the above, the present study aimed to identify the association between resilience and musculoskeletal pain in different anatomical regions reported by nursing professionals.

METHODS

This is an observational, exploratory, cross-sectional study guided by the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) tool. Data were collected in a general hospital in the northwest of the state of Rio Grande do Sul, with 225 beds, which serves as a regional healthcare reference center. Data collection took place from December 2019 to March 2020, and the target population comprised 527 nursing professionals, of which 90 were nurses and 437 are nurse technicians.

The following inclusion criteria were established: being a nursing professional, working in the institution, and agreeing to sign the Informed Consent Form (ICF). Five nurses and 59 nursing technicians who were on vacation or leave due to illness or maternity leave were excluded, and two nurses and ten technicians declined to participate in the study. In addition, there was a sample loss of 130 nurse technicians who did not respond to the instrument after the third sending of the Google Forms® link via What-

sApp® contact provided by the interviewer. Thus, the final sample consisted of 321 nursing professionals; of these, 83 were nurses, and 238 were nurse technicians.

The dependent variables evaluated in this study were pain perception and resilience. The independent variables, in turn, were sociodemographic and labor characteristics: gender, age, marital status, category, position held, shift, daily and weekly workload, department, presence of another job, time since graduation and experience in nursing, and specialization courses.

For data collection, an instrument consisting of four blocks was used: sociodemographic and work questionnaire, Nordic musculoskeletal symptoms questionnaire (NMSQ), visual analogue pain assessment scale (VAS), and resilience scale (RS).

The sociodemographic and labor questionnaire prepared by the researchers included the following information: sex, age, marital status, category, position, shift, daily workload and weekly workload, time since training and working in nursing, postgraduate courses, department, and any other employment.

The NMSQ, developed in Finland[8] and validated[9] and adapted for the Brazilian culture[10], includes 36 multiple and binary questions regarding the occurrence of musculoskeletal disorders in the last year and in the last seven days prior to data collection, as well as questions related to the inability to carrying out daily activities and consulting a healthcare professional in the last year due to disturbances in at least one of five anatomical regions: neck, shoulders, upper and lower back, elbows, wrists/hands, hips/thighs, knees, ankles/feet[10]. Furthermore, the VAS, assessing pain intensity, is numbered from 0 to 10, in which 0 represents "no pain" and 10, "maximum pain". For the classification of pain levels, the following scores were used: 0 for no pain; 1 to 4, mild pain; 5 to 6, for moderate pain; and 7 to 10, severe pain[11].

The RE, in turn, developed in 1993[12] and translated and validated into Portuguese[13], assesses the individual's level of positive psychosocial adaptation in the face of adversity. It includes 25 questions, with response options on a Likert scale, ranging from 1 (completely disagree) to 7 (completely agree). The sum of the value assigned to each item, at the end, varies between 25 points, consistent with lower resilience, and 175 points, consistent with high resilience[13]. In this investigation, the following scores were adopted: low resilience when less than 121 points; moderate resilience when from 121 to 146 points; and high resilience when above 147 points[14].

For the operationalization of data collection, nursing professionals from all shifts and departments of the institution were contacted personally, invited to participate, and informed about the objectives and stages of the study. Initially, data were collected in person by the main author of the study and by three scholarship holders previously directed and duly trained for this, using printed or online forms, according to the participant's option. Subsequently, due to the Covid-19 pandemic, the respective instruments were applied exclusively online to the participants via Google Forms®, by communication through WhatsApp® provided by the interviewer.

Then, the data were typed into the Excel® program by two independent typists, and later compared for greater accuracy in the records. Returns obtained online were checked and incomplete data were excluded. For statistical analysis, data were transferred to the Statistical Package for Social Sciences (SPSS) software, version 22.0, and analyzed using descriptive and inferential statistics. Categorical variables were described using absolute (N) and relative (%) frequencies and quantitative variables using measures of central tendency and dispersion. The internal

consistency of the data was analyzed using Cronbach's Alpha coefficient (α = 0.905). To verify the asymmetry of the distribution of the variables, the Kolmogorov-Smirnov test was used, through which a non-parametric distribution was observed. For the association between variables and to compare two or more groups, the Mann-Whitney U and Kruskal Wallis tests were used ,with p values < 0.05 being considered significant.

As for the ethical aspects of this research, all ethical precepts were observed according to the guidelines and regulatory norms for research involving human beings, in accordance with Resolutions No. 466/2012[15] and 510/2016[16], of the National Health Council (NHC), and its complementary bodies. After authorization from the local hospital for data collection, the study was submitted to the Research Ethics Committee of the University under CAAE No. 18791319.7.0000.5350 and approved under Opinion No. 3.657.852.

RESULTS

Three hundred and twenty-one (321) nursing professionals participated in the survey; of these, 83 (25.9%) were nurses and 238 (74.1%) were nurse technicians. The sample was predominantly female, with a higher percentage aged between 31 and 40 years old and married.

There was an association between pain intensity and age (p = 0.015), professional category (p = 0.032), length of experience in nursing (p = 0.003), and work shift (p = 0.012). Other data are shown in Table 1.

Sequentially, Table 2 shows the results regarding the occurrence of musculoskeletal pain. Regarding the intensity of pain self-reported by nursing professionals, 34.6% rated their pain as moderate, 23.9% as severe, 23.7% as mild, and only 17.8% reported not having felt pain in the last seven days preceding the interview.

Furthermore, Table 3 describes the results regarding musculoskeletal pain, by anatomical region, reported by the participants. It appears that, regarding the occurrence of pain in the last year, the most affected regions were the upper and lower parts of the back and the shoulders. Regarding the question of their health conditions, 37 (11.5%) rated their health status as excellent, 187 (58.3%) as good, 87 (27.1%) as regular, and 10 (3.1%) as bad. Also, 79.1% of the participants stated that they had not been absent from work in the last year due to health problems.

There was a statistically significant association between pain intensity and the occurrence of musculoskeletal pain in all nine body regions investigated (p < 0.05), as shown in Table 4. As for resilience, 175 (54.5%) nursing professionals showed moderate resilience, 117 (36.4%) had high resilience, and 29 (9.0%) had low resilience. Table 5 shows the results of the assessment of resilience reported by the participants related to musculoskeletal pain in the last seven days. A correlation was found between resilience and the occurrence of musculoskeletal pain in the neck and hips/thighs. Higher averages of resilience are found among those who declared not having musculoskeletal pain, except for those who reported pain in the hips and thighs.

Table 1 – Sociodemographic and work characteristics related to pain intensity of nursing professionals (n = 321) who work in a general hospital, Ijuí, RS, Brazil - 2019/2020.

Variables		n	%	UL	LL	Mean	Standard Deviation	Median	p-value
				Assessment of pain intensity					
Sex	Female	289	90.0	0	10	4.47	2.76	5	0.192*
	Male	32	10.0	0	8	3.94	2.41	4.5	
Age	18 to 30 years	106	33.0	0	8	3.94	2.50	5	0.015#
	31 to 40 years	137	42.7	0	10	4.45	2.74	5	
	> 40 years	78	24.3	0	10	4.99	2.89	5.5	
Marital status	Married	191	59.5	0	10	4.46	2.90	5	0.338*
	Single	130	40.5	0	10	4.35	2.44	5	
Category	Nurse	83	25.9	0	8	3.87	2.54	5	0.032*
	Nurse technician	238	74.1	0	10	4.61	2.76	5	
Occupies leadership position	Yes	34	10.6	0	8	4.00	2.28	4.5	0.224*
	No	287	89.4	0	10	4.46	2.76	5	
Daily Workload	12 hours	69	21.5	0	10	4.99	2.83	6	0.111#
	6 hours	215	67.0	0	10	4.20	2.71	5	
	8 hours	24	7.5	0	8	4.83	2.30	5	
	Other	13	4.0	0	8	4.23	2.68	6	
Time working in nursing	< 3 years	87	27.1	0	8	3.69	2.42	4	0.003#
	3 to 10 years	126	39.3	0	10	4.63	2.72	5	
	> 10 years	108	33.6	0	10	4.74	2.86	5	
Work Shift	Daytime	222	69.2	0	10	4.37	2.64	5	0.012#
	Night	69	21.5	0	10	5.00	2.80	6	
	Mixed/swap shift	30	9.3	0	10	3.40	2.82	4	
Weekly Workload	30/36 hours	271	84.4	0	10	4.39	2.72	5	0.875#
	40/44 hours	43	13.4	0	10	4.63	2.55	5	
	Other	7	2.2	0	10	4.14	3.72	5	
Time since Graduation	< 5 years	119	37.1	0	8	3.91	2.48	4	0.096#
	6 to 10 years	97	30.2	0	10	4.43	2.79	5	
	> 10 years	105	32.7	0	10	4.97	2.81	5	
Department‡	Critical	162	50.5	0	10	4.21	2.69	5	0.329#
	Assistance	116	36.1	0	10	4.76	2.77	5	
	Administrative	43	13.4	0	8	4.26	2.66	5	
Graduate school	Yes	82	25.5	0	10	4.20	2.67	5	0.473*
	No	239	74.5	0	10	4.49	2.73	5	
Has another job	Yes	60	18.7	0	8	4.62	2.61	5	0.385*
	No	261	81.3	0	10	4.38	2.74	5	

*Mann-Whitney U test, significant for p < 0.05; #Kruskal Wallis test, significant for p < 0.05; ‡Department: critical (Intensive Care Units, Emergency, Surgical Center, Maternity, Obstetric Center, Hemodialysis, and Oncology Center), Assistance (Inpatient Units and Instituto do Coração), and administrative (outpatient clinics and specialties, support services to the diagnosis and administrative area). Legend: Nur.: nursing; LL: lower limit; UL: upper limit. Source: survey data.
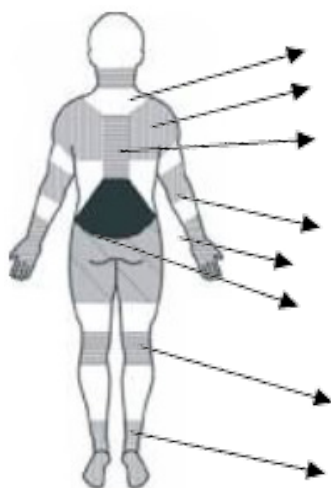
Table 2 - Occurrence of musculoskeletal pain reported by nursing professionals (n = 321), Ijuí, RS, Brazil - 2019/2020.

Event	N	%
In the last 12 months, had pain, tingling/numbness	261	81.3
In the last 12 months, had been prevented from carrying out normal activities	82	25.5
In the last 12 months, had seen a health professional	108	33.6
In the last 7 days, had pain, tingling/numbness	174	54.2

Source: survey data.

Table 3 - Frequency of musculoskeletal pain, by anatomical region, reported by nursing professionals (n = 321) who work in a general hospital, Ijuí, RS, Brazil - 2019/2020.

Musculoskeletal pain	PPT	UPD	CHP	PT	PR
Body part	N(%)	N(%)	N(%)	N(%)	N(%)
Neck	107(33.3)	20(6.2)	36(11.2)	51(15.9)	
Shoulders	114(35.5)	28(8.7)	34(10.6)	56(17.4)	
Upper back	126(39.3)	26(8.1)	43(13.4)	76(23.7)	
Elbows	27(8.4)	4(1.2)	5(1.6)	12(3.7)	
Fists or hand	86(26.8)	25(7.8)	25(7.8)	33(10.3)	
Lower back	116(36.1)	28(8.7)	37(11.5)	63(19.6)	
Hip/thighs	58(18.1)	21(6.5)	23(7.2)	24(7.5)	
Knees	49(15.5)	12(3.7)	17(5.3)	25(7.8)	
Ankles/feet	103(32.1)	25(7.8)	23(7.2)	46(14.3)	

Caption: PPT: had problems such as pain or tingling/numbness in the last 12 months; UPD: was unable to perform daily activities in the last 12 months; CHP: consulted a health professional in the last 12 months; PT: had problems such as pain or tingling/numbness in the past seven days. Source: Survey data.

Table 4 - Self-reported pain intensity by nursing professionals (n = 321) according to the occurrence of musculoskeletal pain, by anatomical region, in the last seven days, Ijuí, RS, Brazil - 2019/2020.

Musculoskeletal pain		n	LL	UL	Mean	Standard Deviation	Median	p-value[*]
Neck	Yes	51	2	10	6.17	1.96	6	0.000
	No	270	0	10	4.12	2.72	5	
Shoulders	Yes	56	3	10	6.50	1.73	6.5	0.000
	No	265	0	10	3.97	2.69	5	
Upper Back	Yes	76	3	10	6.28	1.80	6	0.000
	No	245	0	10	3.84	2.70	5	
Elbows	Yes	12	4	10	7.08	1.78	7.5	0.000
	No	309	0	10	4.31	2.70	5	
Fists Or Hands	Yes	33	2	10	6.00	2.19	6	0.001
	No	288	0	10	4.23	2.72	5	
Lower Back	Yes	63	2	10	6.30	1.97	6	0.000
	No	258	0	10	3.95	2.68	5	
Hip/Thighs	Yes	24	4	10	7.08	1.77	7.5	0.000
	No	297	0	10	4.20	2.67	5	
Knees	Yes	25	3	10	6.28	1.65	6	0.000
	No	296	0	10	4.26	2.73	5	
Ankles/Feet	Yes	46	2	10	6.17	1.96	6	0.000
	No	275	0	10	4.12	2.72	5	

[*]Mann-Whitney U test, significant for $p < 0.05$; Caption: LL: lower limit; UL: upper limit. Source: survey data.

Table 5 - Resilience according to musculoskeletal pain, in the last seven days, as self-reported by nursing professionals (n = 321), Ijuí, RS, Brazil - 2019/2020.

Musculoskeletal pain		N	LL	UL	Mean	Standard Deviation	Median	p-value[*]
Neck	Yes	51	44	162	133.78	23.43	137	0.010
	No	270	41	169	141.24	17.06	143	
Shoulders	Yes	56	44	163	138.04	23.63	141.5	0.983
	No	265	41	169	140.48	17.09	143	
Upper Back	Yes	76	44	163	138.53	22.57	142	0.958
	No	245	41	169	140.53	16.90	142	

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Musculoskeletal pain		Pain intensity						
		N	LL	UL	Mean	Standard Deviation	Median	p-value*
Elbows	Yes	12	41	153	129.67	29.91	136	0.080
	No	309	44	169	140.46	17.74	143	
Fists Or Hands	Yes	33	44	162	135.94	26.19	140	0.499
	No	288	41	169	140.53	17.27	142.5	
Lower Back	Yes	63	41	165	136.40	27.01	145	0.999
	No	258	44	169	140.95	15.51	142	
Hip/Thighs	Yes	24	72	167	145.17	21.29	152	0.009
	No	297	41	169	139.64	18.10	142	
Knees	Yes	25	41	167	132.80	32.53	140	0.514
	No	296	44	169	140.67	16.60	143	
Ankles/Feet	Yes	46	41	163	139.09	24.73	144.5	0.477
	No	275	44	169	140.22	17.15	142	

*Mann-Whitney U test, significant at p<0.05. Caption: LL: lower limit; UL: upper limit. Source: survey data.

DISCUSSION

Determining and conditioning factors of workers' health, related to work in the hospital environment, negatively influence health and contribute to the physical illness of nursing professionals. This statement emerges from reflections based on the results of the present investigation, which demonstrate that nursing professionals working in a general hospital experience musculoskeletal pain of moderate to high intensity, which is related to personal, professional, and labor characteristics.

Particularities of hospital work, such as the uninterrupted assistance, the duration of the workday, the critical and intense pace, the high productivity demands, the physical environment, and the repetitive handling of materials and equipment, contribute to the occurrence of physical exhaustion and other health problems of nursing professionals[3]. An investigation with 2,140 Portuguese nurses detailed the types of nurses, the work, and the activities of direct patient care, among organizational and professional variables that influence the perception of musculoskeletal disorders by nurses[17].

The analysis of the results referring to the intensity of self-reported pain by the participants of this study, related to sociodemographic and work characteristics, shows an association between pain intensity and age, professional category, length of experience in nursing, and work shift. It was found that older professionals, with longer training and experience in nursing, with more than one job, who work longer hours, and who work at night and in direct patient care units, evaluated their pain as more intense.

These results can be justified by the fact that, with advancing age, after being subjected to high physical and psychological demands, the human body requires more time to rest and recover[2]. Also, practicing nursing for a longer period of time and carrying out a greater workload increases the professio-

nal's exposure to health risk factors inherent in the work environment.

Furthermore, concerning the relationship between pain intensity and work characteristics, nursing activities require constant attention to the patient's clinical condition, strict control of deadlines, execution of tasks that demand high physical effort, and staying in the same position for long periods. Moreover, there is the planning, organization, execution, and evaluation of the care provided to the user, which is also extended to their family and caregivers. Night shifts, which are contrary to the physiological functioning of the organism, combined with the overload of activities and the long working hours resulting from, for example, double employment, result in fatigue and physical exhaustion and are risk factors for the health of the professional and healthcare safety[18].

Work shift and doubled working hours make intermittent rest and social interaction difficult, aggravate tiredness and fatigue, and interfere with family life1. Having two jobs interferes with the worker's physical and psychological condition, with negative effects on social life and quality of life[19]. Similar results were demonstrated in a study with 105 nursing professionals from the north of Portugal, which points to an association between musculoskeletal pain and individual and professional characteristics, such as gender, working hours, education, practice of physical activity, time spent in employment and workload[20].

The association between the intensity and the occurrence of musculoskeletal pain in all body regions investigated in this study and the fact that practically 60% of the participants reported pain of moderate to high intensity, also prompts us to reflect on how much the pain process can interfere with nursing care and patient safety. Pain has a negative impact on health and, consequently, on the quality of life of individuals and their families[21]. Moreover, when chronic, it has repercussions on food, leisure activities, sleep and rest, cognition, mood, relationships, and personal and professional performance[21]. Musculoskeletal pain is also related to loss of concentration during work[22].

Another relevant and alarming result, which suggests a change in the type of pain, from acute to chronic, is the frequency of musculoskeletal pain. 81.3% of the participants in this study claimed to have felt pain, tingling or musculoskeletal numbness in the last year and more than half of them reported having had these symptoms in the seven days prior to the interview, with the most affected body regions being the upper and lower parts of the back and shoulders.

Similarly, it is noteworthy that a significant percentage of participants claimed to have experienced some limitation in activities of daily living, that is, gradually, musculoskeletal pain can make professional practice unfeasible. Similar results were demonstrated in a study with Portuguese nursing professionals, who stated that they had difficulties in activities of daily living as a result of musculoskeletal pain, especially in the lower back, neck, shoulders, and dorsal region[20].

A Brazilian study with 211 nursing professionals revealed that musculoskeletal pain can cause presenteeism and affect work performance[22]. Another investigation, with 17,686 nurses, in Thailand, pointed out that 47.8% of the participants stated that they had presented musculoskeletal disorders in the last year and that the prevalence of these disorders increased significantly according to age, body mass index, and working time[23]. Therefore, musculoskeletal disorders are one of the main causes of absence from work and reduced productivity and quality of patient care[23].

However, work can influence the health-disease process not only as a promoter of illness, but also as a promoter of health[7]. In this sense, although this study revealed the occurrence of musculoskeletal pain of moderate to high intensity, and that this pain

is related to work-related characteristics, it is noteworthy that nursing professionals remain at work and in the exercise of their profession even with pain. This result can be explained by the resilience of the participants, considering that only 9% of them showed low resilience. There was also an association between resilience and musculoskeletal pain in the neck and hip/thighs, as well as higher averages in the resilience scores of professionals who said they did not feel pain.

Resilience enables workers to adapt and overcome the difficulties they are exposed to[24]. Considered as a competence that can be developed and improved, it involves a continuous reconstruction of personal aspects in the individual's interaction with their environment, which enables and strengthens them to face difficulties positively[25]. As a protective factor, resilience is positively associated with the physical and psychological domains for quality of life[19].

Witnessing the death, pain, and suffering of others makes the professional realize, sometimes, how small their own problems and difficulties are. Historically and culturally, empathy is a characteristic of nursing, and, as a socio-emotional skill, it enables workers to perceive, learn, and understand emotions and feelings of their peers, which contributes to the perception of social support they receive from their work group.

A Chinese survey that analyzed the relationships between social support, empathy, resilience, and work involvement points to resilience as a contributor to professional work engagement[26]. The worker's instrumentalization for self-care permeates the social representation of nurses, implies the analysis and understanding of reality, and requires the attitudes and behaviors, in addition to awareness, that favor the prevention of physical and psychological illnesses[27].

The analysis of the results of this study refers to resilience as an individual's ability to resist adversity, guided not only by physical resistance, but also by the positive view of facing difficulties, despite a negative environment of pain and stress, which are social and work conditions that negatively influence their health. This requires strength, competence, optimism, flexibility, and ability to effectively face everyday difficulties, including musculoskeletal pain. Thus, it is necessary for nursing professionals and managers to implement knowledge, attitudes, and behaviors aimed at preventing occupational diseases, promoting health, and maintaining a safe and adequate work environment with a view to excellence in care.

Given this, the results of this study are important as they provide opportunities and support reflections on nursing activities, musculoskeletal pain, and resilience. Data can be useful for nursing professionals and managers in the planning and implementation and management of actions aimed at promoting occupational health. Likewise, they can alert, encourage, and subsidize regulatory and representative entities of nursing to promote the development of local, state, and national actions, such as guidelines that ensure adequate working conditions that are favorable for safe professional practice.

Among the limitations of this investigation, is the fact that it was carried out in only one hospital, which makes it impossible to generalize the results to different scenarios; however, as it is a study that involved a population, they may be indicative of necessary changes. In addition, the study was carried out only with nursing professionals, and the final period of data collection coincides with the beginning of the COVID-19 pandemic in Brazil, which may have caused changes in the work environment. Finally, it is highlighted that 130 participants did not respond to the instrument, and are considered in the sample loss; however, the sample calculation shows that those who responded correspond to an adequate sample size for the study.

CONCLUSION

The analysis of the frequency and intensity of musculoskeletal pain by anatomical region, reported by nursing professionals who work in a general hospital, shows that they feel pain of moderate to high intensity and that the most affected regions are the upper and lower parts of the back and shoulders. Musculoskeletal pain in this population is related to resilience, age, professional category, length of experience as nurses, and work shift.

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