



## ORIGINALES

### **Musculoskeletal disorders/pain in undergraduate nursing students in a community university in southern Brazil**

Distúrbios/dor musculoesquelética em estudantes de enfermagem de uma universidade comunitária do sul do Brasil

Trastornos/dolor musculoesquelético en estudiantes de enfermería de una universidad comunitaria del sur del Brasil

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#### **ABSTRACT:**

**Goal:** To describe the academic profile and assess the prevalence of musculoskeletal disorders/pain in undergraduate nursing students in a Community University in Southern Brazil.

**Method:** It has been a descriptive quantitative study with a survey approach, and has been conducted with 149 nursing students, through the employment of an instrument with questions regarding sociodemographic variables, life, and health habits, as for Standardized Nordic Questionnaire.

**Results:** Most participants were female, age ranging from 18 to 25, unmarried, living with the family, with no children, not receiving government support or family aid, and working for hospitals. The prevalence of musculoskeletal was in the dorsal and lumbar region and shoulders.

**Conclusions:** The prevalence of such symptoms amongst the students leads to the need of implementing preventive and health promotion actions, in order to contribute for the improvement of life quality in both the academic scope and in the future as professionals.

**Descriptors:** Nursing; Cumulative Trauma Disorder, Musculoskeletal Pain; Nursing Students; Worker's Health.

## RESUMO:

**Objetivo:** Descrever o perfil acadêmico e avaliar prevalência de distúrbios/dor musculoesquelética em estudantes do curso de graduação em Enfermagem de uma universidade comunitária do Sul do Brasil.

**Método:** Estudo descritivo de natureza quantitativa do tipo *survey*, realizado com 149 estudantes de enfermagem, por meio da aplicação do instrumento composto por questões referentes às variáveis sociodemográficas, hábitos de vida e saúde, como pela versão brasileira *Standardized Nordic Questionnaire*.

**Resultados:** A maioria dos participantes é do sexo feminino, com idade de 18 e 25 anos, sem companheiro, residem com a família, não possuem filhos, não recebem bolsa ou ajuda familiar e trabalham em hospitais. A prevalência de sintomas musculoesqueléticos foi na região dorsal e lombar e ombros.

**Conclusões:** A prevalência desses sintomas entre os estudantes aponta necessidade de implementar ações preventivas e de promoção da saúde, a fim de contribuir para melhor qualidade de vida e saúde tanto no âmbito acadêmico quanto futuramente como profissionais.

**Descritores:** Enfermagem; Transtorno Traumático Cumulativo; Dor musculoesquelética; Estudantes de enfermagem; Saúde do trabalhador.

## RESUMEN:

**Objetivo:** Describir el perfil académico y evaluar la prevalencia de trastornos/dolor musculoesquelético en estudiantes de graduación en Enfermería de una universidad comunitaria del sur brasileño.

**Método:** Estudio descriptivo, cuantitativo, del tipo encuesta, con 149 estudiantes de enfermería a través del instrumento compuesto por preguntas referentes a las variables sociodemográficas, hábitos de vida y salud, así como por la versión brasileña *Standardized Nordic Questionnaire*.

**Resultados:** La mayoría era del sexo femenino, con 18 y 25 años de edad, soltera, vive con la familia, no tiene hijos, no recibe beca o ayuda de la familia y trabaja en hospitales. Prevalencia de síntomas musculoesqueléticos en la región dorsal y baja de la espalda y hombros.

**Conclusiones:** La prevalencia de estos síntomas entre los estudiantes señala la necesidad de implementar acciones preventivas y de promoción de la salud para contribuir a una mejor calidad de vida y salud, en el ámbito académico y en el futuro como profesionales.

**Palabras clave:** Enfermería; Trastornos de Traumas Acumulados; Dolor Musculoesquelético; Estudiantes de Enfermería; Salud Laboral.

## INTRODUCTION

Nursing is considered one of the oldest professions in society <sup>(1)</sup>, and is defined as "the profession of care" <sup>(2)</sup>, considering the fact that its work object is the care of human beings, whether sick or not sick, under the organic, psychological, social, and spiritual perspectives, constituting the essence of this science <sup>(3)</sup>. However, the activities of nurses, whether in health care, education or in management, require both physical and psychic demands.

Amongst the physical requirements are the biomechanical and ergonomic demands, such as cargo handling and overexertion; lifting and transporting patients from the bed-stretcher chair to the local X-ray, CT scans or tests; adopting unsuitable postures in performing nursing procedures with the lack or inadequate materials, furniture and/or equipment; presence of pain or discomfort in body segments during work activities <sup>(4-6)</sup>.

Psychosocial and organizational requirements include the increase in working hours and the fast pace of work: work overload due to overcrowding and staff deficit; as the manifestations of physical and mental fatigue, high occupational stress, and symptoms of anxiety and depression <sup>(6-8)</sup>. It is considered that both factors lead to tensions to nursing workers, possibly making them ill or causing absenteeism <sup>(6)</sup>.

Musculoskeletal disorders are multifactorial, possibly showing up slowly and insidiously, being developed due to the continuous and prolonged exposure of workers to harmful and adverse effects on the work environment. The symptoms may show alone or concomitantly, highlighting mainly pain and discomfort in the neck, shoulders, lower back, and legs <sup>(8-10)</sup>.

In this context, it is noteworthy that the nursing students, during academic formation, begin to experience situations similar to professional nurse practices, which may predispose to physical and mental illness <sup>(11)</sup>. Thus, the student is exposed to stressors similar to those experienced by nurses, considering that the working environment, the activities, and procedures performed are the same, but the student does not have the same theoretical and practical knowledge as the professional nurse. Upon performing the procedures, students sometimes adopt inadequate postures and handle heavy weights, similarly to what happens with the nurse. This situation needs attention, since such events are detrimental to the quality of life and health in the present and in the future of the students, considering exposure to musculoskeletal disorders <sup>(11)</sup>.

Given the abovementioned, there were some questions, and among them stands out the following research question: What is the prevalence of musculoskeletal disorder/pain and what is its relationship with the social aspects? In this perspective, the study aims to describe academic profile and assess prevalence of musculoskeletal disorders/pain in undergraduate Nursing students from a community college in Southern Brazil.

## METHOD

This is a quantitative survey study, performed at a community college in Southern Brazil. This research is part of a project called: "Stress, Minor Psychic Disorder, and musculoskeletal pain in nursing students from *Universidade Regional Integrada do Alto Uruguai e das Missões – URI Campus de Santiago*".

The eligible population for the study consisted of 163 students of the undergraduate program in Nursing from this institution. Inclusion criteria were: students enrolled in the program. As for the exclusion criteria: students under 18 years old and/or who have been out during the collection period, as well as the students who were part of this project. Thus, a total of 149 students were part of this research.

Data collection was carried out between the months of September and October 2015, during lectures, through a self-administered instrument, consisting of questions regarding sociodemographic variables, labor issues and academic profile, life and health habits as well as the Standardized Nordic Questionnaire (NQS), which was translated into Portuguese by Barros e Alexandre <sup>(12)</sup> from the original language <sup>(13)</sup> and validated as a morbidity measure in Brazil by Pinheiro, Tróccoli and Carvalho <sup>(14)</sup>. SNQ is an instrument that identifies the prevalence of musculoskeletal morbidity in the different anatomical structures which are more common, considering the 12 months and seven days prior to the interview, as well as deviations from routine activities for such symptomatology in the preceding period of one year <sup>(14-15)</sup>.

The instrument is represented by a figure of a human body, divided into nine anatomical regions: neck, shoulders, dorsal and lumbar regions in the back, elbows, wrists/hands, hips/thighs, knees, ankles/feet, not being used for assessment the forearm region; being constituted by multiple and binary alternatives, which must be

answered for the presence or absence of musculoskeletal symptoms in the different body structures already mentioned <sup>(14)</sup>.

For data entry, it was used the Epi-Info® software, version 6.4, with independent double typing. After checking for errors and inconsistencies, data analysis was performed on PASW Statistics® program (Predictive Analytics Software from SPSS Inc., Chicago - USA) 18.0 for Windows.

As for the ethical aspects, it is noted that the study is in accordance with the guidelines and standards established by Resolution Number 466 of December 12, 2012 of the Brazilian National Council of Health, which regulates research involving human subjects <sup>(16)</sup>. This project has been submitted to the *Plataforma Brasil* and evaluated by the Ethics Committee of the proposing institution and was approved under the CAAE approval number 46851315.2.0000.5353, on July 9, 2015.

## RESULTS

Considering the 163 nursing students, four were excluded from the study according to established criteria: under 18 years old (1), the student-researchers (3), maternity leave (2), a medical report (1), time-off from college (1), and students who were not present or that could not be found (4) during periods of data collection, and refusal to participate in the study (2). Thus, 149 students participated in the study of the nursing undergraduate program (91.4%).

Most participants were female (87.2%), aged 18-25 years old (58.8%), with average age of 25.58 years old (SD ± 6.2), and Caucasian (88.6%).

Regarding place of residence, the majority of students (N= 79; 53.5%) live in different towns. Most of them claimed to be single (73.2%), living with family (81.8%), and do not have children (74.5%). Regarding the ones who reported having children (N=38), 47.4% had children under 6 years old.

Table 1 shows the analysis of the variables regarding the health habits and life of Nursing students - URI Campus of Santiago, Rio Grande do Sul, Brazil.

**Table 1** - Distribution of nursing students according to their habits and health. Santiago/RS 2015. (N=149)

Variable	N	%
<b>Tobacco use</b> (N=148)		
I have never smoked	122	<b>82.4</b>
I smoked, but quit	18	12.2
Yes, I smoke	8	5.4
<b>Use of alcohol</b> (N = 149)		
No	27	18.1
Sometimes	99	<b>66.5</b>
Yes	23	15.4
<b>Physical activity</b> (N = 149)		
Never	37	24.8
Sometimes	80	<b>53.7</b>

Yes	32	21.5
<b>Leisure time (N = 149)</b>		
Never	6	4.0
Sometimes	81	<b>54.4</b>
Yes	62	41.6
<b>Hours of sleep per day **</b> (N=149)		
4 to 6 hours	53	35.6
7 to 8 hours	70	<b>47.0</b>
9 to 12 hours	26	17.4
<b>Hours on the computer every day **</b> (N=148)		
0 to 3 hours	86	<b>58.1</b>
4 to 9 hours	55	37.2
10 to 15 hours	7	4.7
<b>Means of transportation (N=149)</b>		
Car	52	34.9
Motorcycle	13	8.7
Bus	73	<b>49.0</b>
Others	11	7.4
<b>Medication Use (N = 149)</b>		
No	117	<b>78.5</b>
Yes	32	21.5
<b>Form of indication (N=32)</b>		
With prescription	30	<b>93.7</b>
On their own	2	6.3
<b>Medical care in the last year (N = 149)</b>		
No	44	29.5
Yes	105	<b>70.5</b>
<b>Diagnosed pathology (N = 149)</b>		
No	131	<b>87.9</b>
Yes	18	12.1
<b>Psychological support in the last year (N=149)</b>		
No	124	<b>83.2</b>
Yes	25	16.8

\* Mean 7.3 (SD  $\pm$  1.6); Minimum = 4; Max = 12

\*\* Median 3.4 (SD  $\pm$  2.7); Minimum = 0; Max = 15

Regarding health habits (Table 1), nursing students mentioned to consume alcohol sometimes (66.5%), have never made tobacco use (82.4%). As for regular physical activity, 53.7% said they sometimes perform some kind of physical exercise. When asked about leisure time, sleeping hours, and computer use, 54.4% answered sometimes do some leisure activity, 47.0% reported sleeping between 7-8 hours a

day, and 58.1% used the computer every day from 0-3 hours. Regarding the means of transportation, 49.0% said to use the bus to commute to the university.

Regarding having any diagnosed pathology, 87.9% reported not having any diagnosed disease. Considering the use of continuous medication, 78.5% said they did not use drugs. However, out of those who use, 93.7% is medication used with a prescription. It is also highlighted that 70.5% of students reported on the need for medical care in the last year, and 83.2% said they had sought psychological care.

Table 2 describes the analysis of academic and occupational profile of the students surveyed.

**Table 2** - Distribution of nursing students according to academic and professional profile. Santiago/RS 2015 (N=149)

<b>Variable</b>	<b>N</b>	<b>%</b>
<b>Current Semester (N=149)</b>		
II semester	22	14.8
IV semester	39	<b>26.2</b>
VI semester	38	25.5
VIII semester	23	15.4
X semester	27	18.1
<b>Current number of courses (N=149)</b>		
2 to 3	42	28.2
4 to 6	87	<b>58.4</b>
8 to 9	20	13.4
<b>Satisfaction with the program (N=149)</b>		
No	15	10.1
Yes	134	<b>89.9</b>
<b>Participation in the Study and Research Group (N=149)</b>		
No	97	<b>65.1</b>
Yes	52	34.9
<b>Having a scholarship or some family support (N=149)</b>		
No	96	<b>64.4</b>
Yes	53	35.6
<b>Type of scholarship or family support (N = 53)</b>		
PROUNI 50%	2	3.8
PROUNI 100%	23	<b>43.4</b>
Extension Scholarships	3	5.7
University Scholarships	4	7.5
Family support	16	30.2
Others	5	9.4

<b>FIES (N=149)</b>		
No	50	33.6
Yes	99	<b>66.4</b>
<b>Is in practical classes or internships (N=149)</b>		
No	45	30.2
Yes	104	<b>69.8</b>
<b>works (N=149)</b>		
No	62	41.6
Yes	87	<b>58.4</b>
<b>Place of work (N = 87)</b>		
Hospital	31	35.6
City Hall Employee	24	27.6
Others	32	<b>36.8</b>
<b>weekly working hours (N=87)</b>		
20 hours	11	12.6
30 hours	19	21.8
36 hours	22	25.3
40 hours	25	<b>28.7</b>
> 40 hours	10	11.5
<b>Working situation (N=87)</b>		
<i>CLT</i>	44	<b>50.6</b>
Statutory (had a public test)	13	14.9
Informal	9	10.3
CIEE (paid internship)	21	24.1

According to the analysis of the characteristics concerning the academic and professional profile (Table 2), it is emphasized that students mostly were enrolled in the 4<sup>th</sup> and 6<sup>th</sup> semesters, respectively 26.2% and 25.5%, attending four to six courses (58.4%) in the semester. Students also reported to be attending practical classes or internships in the period (69.8%). 89.9% said they were satisfied with the program, and 65.1% said they did not participate in the Study and Research Group (GEPSE – Grupo de Estudo e Pesquisa em Saúde e Enfermagem).

Considering the fact of having some kind of scholarship or family support, 64.4% said they have no support. Of those who had, 43.4% had PROUNI 100% (*Programa Universidade para Todos*), followed by family support (30.2%). It is worth noting that 66.4% had FIES (Student Financing Fund).

It is important to emphasize the fact that 58.4% of students work. Of these, 35.6% worked in hospitals, and 36.8% reported working in other services. As for the weekly working hours, 40 hours per week were predominant (28.7%). Referring to the working situation, most were part of CLT (Consolidation of Labor Laws in Brazil) (50.6%).

The following Table 3 shows the data concerning the presence of musculoskeletal symptoms in different anatomical structures analyzed by the Standardized Nordic Questionnaire (SNQ)

**Table 3** - Distribution of nursing students according to Standardized Nordic Questionnaire <sup>(13)</sup>. Santiago/RS 2015 (N=149)

	<b>Over the past 12 months, did you have symptoms such as pain, tingling, numbness in?</b>			
	<b>No</b>		<b>Yes</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Neck	86	<b>57,7</b>	63	42,3
shoulders	71	47,7	78	<b>52,3</b>
Dorsal back region	39	26,2	110	<b>73,8</b>
elbows	143	<b>96,0</b>	6	4,0
lower back	49	32,9	100	<b>67,1</b>
Wrists/hands	102	<b>68,5</b>	47	31,5
Hips/thighs	114	<b>76,5</b>	35	23,5
knees	101	<b>67,8</b>	48	32,2
Ankles/feet	87	<b>58,4</b>	62	41,6

	<b>Over the past 12 months, it has prevented you (a) to perform normal activities (eg, work, home or leisure activity) because of these symptoms?</b>			
	<b>No</b>		<b>Yes</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Neck	140	<b>94,0</b>	9	6,0
shoulders	134	<b>89,9</b>	15	10,1
Dorsal back region	123	<b>82,6</b>	26	17,4
elbows	147	<b>98,7</b>	2	1,3
lower back	121	<b>81,2</b>	28	18,8
Wrists/hands	133	<b>89,3</b>	16	10,7
Hips/thighs	140	<b>94,0</b>	9	6,0
knees	128	<b>85,9</b>	21	14,1
Ankles/feet	133	<b>89,3</b>	16	10,7



	<b>In the last seven days, have you had any symptom?</b>			
	<b>No</b>		<b>Yes</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Neck	94	<b>63,1</b>	55	36,9
shoulders	94	<b>63,1</b>	55	36,9
Dorsal back region	79	<b>53,0</b>	70	47,0
elbows	147	<b>98,7</b>	2	1,3
lower back	73	49,0	76	<b>51,0</b>
Wrists/hands	120	<b>80,5</b>	29	19,5
Hips/thighs	131	<b>87,9</b>	18	12,1
knees	113	<b>75,8</b>	36	24,2
Ankles/feet	110	<b>73,8</b>	39	26,2

As shown in Table 3, with respect to musculoskeletal symptoms over the last year, the highest percentages of pain or discomfort were in the dorsal region (73.8%), lumbar region (67.1%), and shoulders (52.3%). When asked if this pain or discomfort prevented in some way to carry out professional, domestic, and leisure activities, most students said not have been prevented. Regarding the presence or absence of these symptoms in the last seven days, most students reported pain or discomfort in the lower back (51.0%).

## DISCUSSION

Most participants were female (87.2%), corroborating other studies that found percentages of 91.6%, 94.7%, 92.9%, and 84.5%<sup>(17, 18, 19, 20)</sup>.

In relation to age, a greater percentage of students were between 18 and 25 (58.8%), average age 25.58 years old (SD ± 6.2), which is similar to other studies. Among such studies, one aims to describe the sociodemographic characteristics of nursing students from four Brazilian education institutions, showing most of the students aged between 20 and 24 years old (50.0%), average age 24.21 years old<sup>(20)</sup>. The second research presents nursing students from the Universidade Federal da Bahia, predominantly between 20 and 24 years old (52.6%), with an average age of 22.4 years old (SD ± 4.5)<sup>(21)</sup>.

It is observed that most students affirmed to be single (73.2%), living with family/parents (81.8%), and not having children (74.5%), results that are reinforced by other studies<sup>(17, 19, 20, 22)</sup>. The predominance of young students in nursing programs may be related not only to the support of the Brazilian government to enter university education, as well as the pursuit of independence and financial stability<sup>(20)</sup>.

Concerning hometown, most live in towns in the region of the university. One factor that would justify this higher percentage would be the community character of the

university. Regarding the consumption of alcohol and tobacco, 66.5% of students said to sometimes use of alcohol, and 82.4% reported never having made use of tobacco. In a study of nursing students of a private university in Bogota, Colombia, it was found that 82.0% of students were using alcohol and 54.6% of them said to drink alcohol once a month or less; as well as 76.0% stated not to be smokers <sup>(17)</sup>. In another study, conducted with students from the *Universidade do Extremo Sul Catarinense* (UNESC), in the city of Criciúma/SC, it was found that 70.9% said they occasionally drink alcohol, and 88.5% reported not being smokers <sup>(23)</sup>.

Among nursing students, it is emphasized that the consumption of alcohol in the university environment, within the social and cultural patterns regarded as acceptable, is usually recreational, commonly used as a relaxation mechanism against stress and burnout experienced due to the university activities <sup>(21)</sup>.

With regard to regular physical activity, 53.7% of students said they sometimes perform some kind of physical exercise, which corroborates a study at a public university in the state of Sao Paulo, which found that most nursing students did not practice any regular physical activity <sup>(11)</sup>. Leisure time brought the result that 54.4% of the students have it, which corroborates a study that says 60.5% of students have some leisure time activity <sup>(20)</sup>.

Regarding the time for computer use, it was evidenced that the students of this study used an average of 204 minutes a day, with the range from 0 to 15 hours/day. Thus, it is evident the higher percentage when compared to the study that averaged 114 minutes a day, ranging from 15 to 240 minutes <sup>(11)</sup>.

It is noteworthy that both the computer usage time and the adoption of repetitive movements and awkward postures for prolonged periods contribute to the development of musculoskeletal disorders, predominantly on the regions of the neck and shoulders, followed by the upper and lower back <sup>(24)</sup>.

Sleeping hours provided information that 47.0% of students said they sleep 7-8 hours a day, with an average sleep of 7.3 hours (SD  $\pm$  1.6). It is observed that this percentage was higher than in the study of undergraduate nursing students of a private college in the interior of Sao Paulo, which showed the average time of 6 hours and 43 minutes for men and 6 hours and 16 minutes for women <sup>(25)</sup>.

It was found that 49.0% of students used the bus as a means of transportation to go to college, which confirms other studies that have identified the predominance of bus in 69% of students surveyed <sup>(11)</sup>.

With regard to continuous medication, this study showed that 78.5% of students said they did not use drugs. However, considering the ones who used, 93.7% were receiving drug treatment with a prescription. In a study conducted at the *Universidade Federal de Goiás*, it was found that 38.8% of college nursing students self-medicated in painful situations, and dipyrone (59.8%) was the most widely used analgesic <sup>(26)</sup>.

It was found that 65.1% of students did not participate in the study and research group. This percentage is lower than the one found in a study of nursing students from four Brazilian higher education institutions, which showed that 71.7% did not participate in these groups <sup>(20)</sup>.

Regarding satisfaction with the program in Nursing, 89.9% of students said they were satisfied. This percentage is corroborated by other studies that found the percentage of 91.1% <sup>(19)</sup> and 89.8% <sup>(20)</sup> of satisfaction from the students.

In this context, it is emphasized that not being satisfied with the program may stem from many factors - lack of knowledge or lack of interest in the program/profession chosen; depreciation, little recognition, and lack of autonomy of professionals working in the area; among others - that could cause wear, feelings of dissatisfaction and frustration, and stress situations to students that can lead to school dropout <sup>(19)</sup>. Being satisfied with the program, in addition to contributing to the well-being, quality of life, and health of students, tend to favor their performance in the teaching-learning process.

Most students said they did not receive any scholarship or family support (64.4%). The ones who responded positively, 43.4% said integrating PROUNI 100% (*Programa Universidade para Todos*), and 30.2%, receive family support. Out of them, 66.4% of students reported having FIES (A Student Financing Fund).

With regard to labor variables, it is possible to observe that 58.4% of nursing students said they work; 35.6% worked in hospitals and 36.8% in other services. As for the weekly workload, predominated 40 hours a week (28.7%); and, for the work situation, 50.6% reported having their work regulated by the CLT (Consolidation of Labor Laws). In a study of five private higher education institutions in the city of Belo Horizonte/ MG, it was shown that 57.5% of nursing students had some kind of paid activity, among them, 42% worked as a technician or nursing assistant <sup>(27)</sup>.

Sometimes, in an attempt to reconcile work activities and daily academic routine, given the need to have financial revenue, students have excessive physical and emotional fatigue, so that such a situation may undermine the process of teaching and learning and student involvement in academic activities <sup>(27, 28)</sup>.

A study shows that, given the need to search for personal and professional growth, as scientific knowledge, many nursing technicians choose to attend an undergraduate program <sup>(27)</sup>. Currently, it is noteworthy that the increase in the number of vacancies for higher education through the *Programa Universidade Para Todos* (PROUNI) contributes to the professional development of the students, providing scholarships, allowing them to get into college <sup>(27)</sup>.

It is mentioned that, although not characterized as scholarship, funding through FIES provides students to enter and keep in the university, which, in turn, enables the professional development.

Regarding the prevalence of musculoskeletal symptoms in the past 12 months, the highest incidences of pain or discomfort referred to the nursing students were in the dorsal region of the back (73.8%), lower back (67.1%), and shoulders (52.3%). On the other hand, questioned whether such symptoms over the same period, somehow caused failure in carrying out some kind of work, domestic, and/or leisure activity, the answer was negative. As regards the presence of musculoskeletal symptoms in the last seven days, 51.0% of students mentioned any pain or discomfort in the lower back.

Accordingly, a study of undergraduate nursing students found the prevalence of musculoskeletal symptoms over the last 12 months, in the regions of the neck (74.5%), lower back (68.62%), and shoulders (64, 7%); and the last seven days, prevalence of symptoms in the lower back (35.29%), neck (33.33%), and shoulders (29.41%)<sup>(11)</sup>. And, likewise, despite the occurrence of these symptoms, few students said they had been unable to perform daily activities due to such problems<sup>(11)</sup>.

A study conducted in a college in Caruaru/PE showed results similar to the ones mentioned above, which showed the presence of low back, cervical, and thoracic pain among university students<sup>(22)</sup>.

A study conducted with nursing workers of a university hospital in the state of Rio Grande do Sul found that, last year, the anatomical structures most affected by pain or discomfort were the lower back (71.5%), neck (68%), shoulder (62.2%), and legs (54.6%). Among the body regions that had higher percentage as to prevent the development of daily activities, there was emphasis on the lower back (60.4%), wrists/hands (58%), cervical region of the back (54.7%), and elbows (54.1%). In the last seven days, the prevalence was in the lower back (56.4%), legs (49.6%), and neck (47.9%)<sup>(9)</sup>.

A study conducted with 11 hospitals nursing professionals in Londrina/PR found the presence of musculoskeletal symptoms in the last 12 months in the lower back (38.9%) and shoulders (37.9%). Yet, it was highlighted that the lower back (11.4%) had the highest percentage preventing regular daily activities. In the last seven days, the most affected structure was the lower back (20.4%)<sup>(29)</sup>.

It should be noted that the prevalence of musculoskeletal symptoms in the dorsal and lumbar regions and shoulders highlighted in this study may be associated with physical, biomechanical, and ergonomic factors, as the mobilization and transport of patients, which are intrinsically linked to patient care practices<sup>(11)</sup> and also the use of the computer for extended periods.

It is noted that the occurrence of musculoskeletal symptoms among nursing students, as well as being associated with the curricular practices, in which they begin to experience the process of work and to live in the nurses' working environment, it can also be related to other variables, such as those related to gender, age, having children or not, performing some physical activity regularly or having leisure activities, sleeping quality issues, computer usage, among others. However, these associations have not been evaluated in this study.

## CONCLUSIONS

Most nursing students are female, age ranging from 18 to 25, living in other towns in the region of the university. It is noteworthy that most of the students work in hospitals in different cities, with 40 weekly working hours, having CLT as labor regime. As for musculoskeletal symptoms occurred in the last 12 months, the prevalence of pain or discomfort was in the dorsal and lumbar regions of the back and shoulders. Having in the last seven days the prevalence of these symptoms in the lower back.

It is important to emphasize the need for further studies related to musculoskeletal symptoms among nursing students, so that they can contribute not only to build knowledge on the risk factors and occurrence as well as create health promotion and

prevention actions in the university environment. Thus, it is also necessary to investigate the musculoskeletal pain in nursing students from other perspectives.

It is essential to discuss issues related to Occupational Health with undergraduate students, so that critical awareness is promoted in order to enable them, as professionals, to be aware of the health aspects of workers and their working conditions, promoting a better quality of life and health of their teams.

Thus, such results may also provide the implementation of health promotion activities through the university, coordination, and university faculty of the Nursing Program, as well as the student support service, promoting not only the quality of life and health of their students on academic environment, but also contributing to their health improvement.

As a limitation of the study, it is highlighted that it is a descriptive study, which does not allow associations between the occurrence of musculoskeletal symptoms and sociodemographic, life, health habits, and academic and professional profile variables.

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