REVISTA DE ENFERMAGEM REFERÊNCIA
homepage: https://rr.esenfc.pt/rr/
ISSNe: 2182.2883

RESEARCH ARTICLE (ORIGINAL)

Lifestyle, sociodemographic and occupational characteristics and pain in nursing professionals with low back pain

Estilo de vida, características sociodemográficas, ocupacionais e dor em profissionais de enfermagem com lombalgia

Estilo de vida, características sociodemográficas y ocupacionales y dolor en profesionales de enfermería con lombalgia

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Received: 08.03.21
Accepted: 15.10.21

Abstract

Background: Low back pain is common among nurses and nursing technicians, although they perform different professional activities.

Objective: To compare the lifestyle, the sociodemographic and occupational characteristics, and the pain perception of nurses and nursing technicians with low back pain.

Methodology: Cross-sectional, quantitative, descriptive, and analytical study. Fifty-three professionals working in hospital settings met the criteria. These professionals answered an adapted questionnaire and the STarT Back Screening Tool (SBST-Brazil). Pain was measured by the Visual Analog Scale.

Results: The sample consisted of 53 female professionals, of whom 81% were nursing technicians and 19% were nurses. Concerning the sociodemographic characteristics, a significant difference was found only for socioeconomic class (p = 0.039). The analysis of the work characteristics by professional category also revealed a statistical difference for the work shift (p = 0.001).

Conclusion: Although nurses and nursing technicians have different professional activities, a significant difference was only found for socioeconomic class and work shift. The other variables were not associated with the professional category. These findings are essential to developing new strategies for preventing low back pain.

Keywords: working conditions; low back pain; life style; nurse practitioners

Resumo

Enquadramento: A lombalgia é frequente em enfermeiros e técnicos de enfermagem, profissionais que exercem atividades ocupacionais distintas.

Objetivo: Comparar estilo de vida, características sociodemográficas e ocupacionais e perceção de dor de enfermeiros e técnicos de enfermagem com dor lombar.

Metodologia: Estudo transversal, quantitativo, descritivo e analítico. Atenderam aos critérios 53 profissionais atuantes no ambiente hospitalar. Estes responderam um questionário adaptado e o STarT Back Screening Tool (SBST-Brasil). A dor mensurou-se pela Escala Visual Analógica da Dor.

Resultados: A amostra foi composta por profissionais do sexo feminino, sendo 81% técnicas de enfermagem e 19% enfermeiras. Quanto a caracterização sociodemográfica, observou-se diferença significativa para classe socioeconómica (p = 0,039). Também há diferença estatística para o turno de trabalho (p = 0,001) ao analisar a caracterização do trabalho a partir da categoria profissional.

Conclusão: Apesar de exercerem funções laborais distintas, há diferença significativa somente para classe socioeconómica e turno de trabalho; as demais variáveis não se relacionaram com a categoria profissional. Essas informações são importantes para o desenvolvimento de novas estratégias para a prevenção da dor lombar.

Palavras-chave: condições de trabalho; dor lombar; estilo de vida; profissionais de enfermagem

Resumen

Marco contextual: La lumbalgia es frecuente en enfermeros y técnicos de enfermería, profesionales que realizan diferentes actividades laborales.

Objetivo: Comparar el estilo de vida, las características sociodemográficas y laborales, y la percepción del dolor de enfermeros y técnicos de enfermería con dolor lumbar.

Metodología: Estudio transversal, cuantitativo, descriptivo y analítico. Cumplían los criterios 53 profesionales que trabajan en el ámbito hospitalario. Estos respondieron a un cuestionario adaptado y al STarT Back Screening Tool (SBST-Brasil). El dolor se midió con la Escala Visual Analógica del Dolor.

Resultados: La muestra estuvo compuesta por profesionales del sexo femenino, de entre las cuales el 81% fueron técnicas de enfermería y el 19% enfermeras. En cuanto a la caracterización sociodemográfica, se observó una diferencia significativa en la clase socioeconómica (p = 0,039). También hay una diferencia estadística en el turno de trabajo (p = 0,001) al analizar la caracterización del trabajo de la categoría profesional.

Conclusión: Aunque tienen diferentes funciones laborales, hay una diferencia significativa solo para la clase socioeconómica y el turno de trabajo; las demás variables no se relacionaron con la categoría profesional. Esta información es importante para el desarrollo de nuevas estrategias de prevención del dolor lumbar.

Palabras clave: condiciones de trabajo; dolor de la región lumbar; estilo de vida; enfermeras practicantes

How to cite this article: Rusch, M. H., Nepomuceno, P., Santos, P. R., & Pohl, H. H. (2022). Lifestyle, sociodemographic and occupational characteristics and pain in nursing professionals with low back pain. *Revista de Enfermagem Referência*, *6*(Supl. 1), e21035. https://doi.org/10.12707/RV21035

Introduction

Low back pain, or lumbago, is a common symptom affecting 60% to 80% of adults worldwide at some point in their life (Nepomuceno et al., 2019). In addition, low back pain is one of the most common work-related musculoskeletal disorders causing absenteeism in the workplace and high medical costs related to treatment, thus being considered a major public health issue (Cargnin, Schneider, Vargas, & Schneider, 2019; Maciel Júnior et al., 2019).

Low back pain is a multifactorial disorder, that is, several factors such as biomechanical, psychosocial, biological, and occupational factors can contribute to its development (Massuda et al., 2017). Moreover, low back pain is also closely related to the professional profile.

Low back pain is a common symptom among healthcare professionals, particularly nursing professionals. Nurses and nursing technicians are at high risk of developing low back pain, mainly due to work overload (Cargnin, Schneider, Vargas, & Schneider, 2019). However, despite working in the same area, nurses and nursing technicians perform different activities in their professional routines. These professionals have different workloads, being exposed to different occupational risks (Freire & Costa, 2016).

Thus, the specificities of workloads and organizational factors to which nurses and nursing technicians are exposed can impact their physical and/or mental health (Souza et al., 2017; Cargnin, Schneider, Vargas, & Machado, 2019; Pires et al., 2020). Besides the occupational factors, the socioeconomic conditions can also be related to the presence of pain, interfering in the quality of life of these professionals (Ribeiro et al., 2019).

Thus, this study aimed to compare the lifestyle, the sociodemographic and occupational characteristics, and the pain perception of nurses and nursing technicians with low back pain.

Background

Low back pain, or lumbago, is defined as pain located below the margin of the 12th rib and above the inferior gluteal fold (Cargnin, Schneider, Vargas, & Schneider, 2019). Two major risk factors for its development are individual factors, such as gender, age, body mass index (BMI), muscle quality and function, socioeconomic conditions, and other diseases, and occupational factors, including inappropriate movements and postures, work organization and execution, and inappropriate work environment (Ribeiro et al., 2019).

Therefore, physically demanding professions involving poor posture and repetitive movements can cause pain, especially in the lumbar region, which is a highly prevalent clinical condition in both men and women (Lima et al., 2020). Thus, nursing has been the focus of research, especially in hospital settings, due to the adverse conditions of its activities and the exposure to several workloads that may be interrelated (Cargnin, Schneider, Vargas, & Machado, 2019).

According to Ribeiro et al. (2019), the working conditions of nursing teams are not satisfactory in several countries worldwide and may be a risk factor for the development of diseases and pain symptoms. These conditions can be influenced by a heavy workload, inadequate pay, the work shift, and the professional category.

It is worth noting that, according to Stolarski et al. (2009), the nursing team can be divided into three categories: nurses, nursing technicians, and nursing assistants.

Nurses are primarily responsible for patient care but also for performing administrative, organizational, and developmental activities that are less physically demanding, while nursing technicians work directly in patient care activities that are more physically demanding (Stolarski et al., 2009; Freire & Costa, 2016).

Freire and Costa (2016) also report that there are fewer nurses than nursing technicians in clinical practice, thus these professionals may be exposed to different occupational demands. Therefore, each professional must be aware of his or her specific functions.

Research question

Are there any differences in the lifestyle, sociodemographic characteristics, and pain perception of nurses and nursing technicians with low back pain?

Methodology

This cross-sectional, quantitative, descriptive, and analytical study was conducted at a university hospital in Rio Grande do Sul, Brazil, in 2019. It was approved by the Research Ethics Committee of the University of Santa Cruz do Sul, under CAAE no. 99490918.4.0000.5343.

Sample size was calculated using an online calculator considering 295 nursing professionals working on the day shift, with a sampling error of 10% and a confidence level of 95%. A total of 52 participants were required.

This study involved 143 nursing professionals who were first submitted to a questionnaire with inclusion and exclusion criteria. The inclusion criteria were as follows: nurses and nursing technicians who reported symptoms of low back pain, male or female, aged 18 to 50 years, working morning and afternoon shifts, in open units (adult and pediatric ward, maternity and outpatient) and closed units (adult and neonatal/pediatric intensive care units, surgical and obstetric centers). The professionals who agreed to participate in the study signed an informed consent form. The following nursing professionals were excluded: those who had undergone previous spinal surgery; were pregnant; had a diagnosis of fibromyalgia; had any clinical disorder that prevented them from participating in the study; had undergone amputation of any limb; or had a BMI ≥ 30 kg/m².

Of the 143 nursing professionals, 68 met the inclusion criteria. Of these, 15 professionals did not complete the assessment for the following reasons: withdrawal; stopped working for the hospital; went on vacation or were dismissed during the data collection period. Thus, a total of 53 nursing professionals completed the assessment.

To check the nutritional status, the measurements of

weight (kilogram) and height (centimeters converted to meters) were used to calculate the BMI, in which weight was divided by height squared. The following categories were used: underweight, <18.5 kg/m^2; healthy weight, 18.5-24.9 kg/m^2; overweight, 25-29.9 kg/m^2; and obesity, ≥30 kg/m^2 (World Health Organization, 2000).

The lifestyle and the socioeconomic characteristics were assessed using the adapted Worker Health and Lifestyle Questionnaire (*Questionário Saúde do Trabalhador e Estilo de Vida*) consisting of 21 questions about personal data, economic indicators, daily organization, physical activity, and sport and health indicators. This questionnaire was validated for the population under analysis (Pohl et al., 2010). The socioeconomic classification followed the Brazilian Economic Classification Criteria of the Brazilian Association of Research Companies. This instrument has a questionnaire scored 0 to 100, and the higher the score, the better the socioeconomic level. Then, socioeconomic classes were categorized as follows: Classed A and B (29 to 100 points; average income equal to or higher than 5 minimum wages) and Classes C and D (0 to 28 points; average income of less than 5 minimum wages). The research subjects also answered the STarT Back Screening Tool (SBST- Brazil) questionnaire, which refers to the risk of poor prognosis in the treatment in primary care of low back pain (Pilz et al., 2014). The questionnaire consists of nine questions. The first eight questions have the following answer options: *agree* and *disagree*, which are scored 1 and 0 points, respectively. Item 9 is scored as follows: *not at all*, *slightly*, *moderately*, *very much*, and *extremely*, where the first three options are scored 0 points and the latter are scored 1 point each. After summing the points, total scores of less than 3 correspond to a low risk. For total scores greater than 3, the points of the psychosocial subscale (questions 5 to 9) are considered, where a score of 3 or less corresponds to a medium risk and a score of 4 or more to a high risk (Pilz et al., 2014).

The intensity of pain among nursing professionals was analyzed using the Visual Analog Scale (VAS), where 0 indicates the absence of pain and 10 corresponds to the worst possible pain (Martinez et al., 2011). Thus, nursing professionals self-reported their perception of low back pain at the time of assessment on the VAS.

Data were analyzed using IBM SPSS Statistics for Windows (version 23.0). Categorical variables were described as frequency and percentage and continuous variables as mean and standard deviation or median and interquartile range. The sample was divided into two groups based on their professional category: nurses and nursing technicians. Pearson's Chi-Square Test or Fisher's Exact Test were used (categorical variables) for group comparison and the Shapiro-Wilk test to check data normality. Numerical variables were compared using the Mann-Whitney *U* test or the Student's *t*-test for independent samples, considering $p < 0.05$.

Results

The sample consisted of 53 female nursing professionals, of whom 81% were nursing technicians and 19% were nurses. The mean age was 32.2 years among nursing technicians and 32.6 years among nurses. The analysis of the sociodemographic characteristics by professional category found no statistical difference for age ($p = 0.690$), marital status ($p = 1.000$), and existence of children ($p = 0.318$). However, the comparison by socioeconomic class revealed that 58% of nursing technicians belonged to classes C and D, while 80% of nurses belonged to classes A and B, showing a statistical difference ($p = 0.039$; Table 1).

Table 1

Sociodemographic characterization by professional category

Variables	Nursing Technicians *n* = 43 *n* (%)	Nurses *n* = 10 *n* (%)	*p*
Gender			
Female	43 (81)	10 (19)	-
Age†	32 (16)	33 (14)	0.690[b]
Socioeconomic class			
A and B	18 (42)	8 (80)	0.039[a]
C and D	25 (58)	2 (20)	
Marital status			
Single	30 (70)	7 (70)	1.000[a]
Married	13 (30)	3 (30)	
Children			
Yes	21 (49)	3 (30)	0.318[a]
No	22 (51)	7 (70)	

Note. *n* = Absolute frequency; % = Relative frequency; † = Median and interquartile range. [a]Fisher's Exact Test; [b]Mann-Whitney *U* test; *p* = level of statistical significance.

Concerning the lifestyle characteristics by professional category, although no variable showed a statistical difference ($p < 0.05$), key variables should be highlighted, such as the high percentage of nursing technicians (74%) and nurses (60%) who did not engage in physical activity and the high percentage of nursing technicians (74%) and nurses (60%) who used medication. The use of contraceptives (60.5%) was predominant, followed by antidepressants (18.5%), antihypertensives (7.9), vitamin supplements (7.9), thyroid drugs (2.6%), and analgesics (2.6%). In addition, the majority of nursing technicians (81%) and nurses (80%) did not report sleep disorders. In relation to the number of housework hours, the group comparison revealed that most nursing technicians (56%) spent more than two hours per day in housework, while most nurses (70%) spent less than 2 hours (Table 2).

Table 2

Lifestyle characterization by professional category

Variables	Nursing Technicians *n* = 43 *n* (%)	Nurses *n* = 10 *n* (%)	*p*
Physical activity			
Yes	11 (26)	4 (40)	0.442[a]
No	32 (74)	6 (60)	
Hours of sleep			
<7 hours	21 (49)	6 (60)	0.728[a]
≥7 hours	22 (51)	4 (40)	
Sleep disorder			
Yes	8 (19)	2 (20)	1.000[a]
No	35 (81)	8 (80)	
Housework			
<2 hours	19 (44)	7 (70)	0.175[a]
≥2 hours	24 (56)	3 (30)	
Smoking			
Yes	3 (7)	1 (10)	1.000[a]
No	40 (93)	9 (90)	
Alcohol consumption			
Often	10 (23)	3 (30)	
Rarely	17 (40)	7 (70)	0.063[b]
Never	16 (37)	-	
Medication			
Yes	32 (74)	6 (60)	0.442[a]
No	11 (26)	4 (40)	

Note. *n* = absolute frequency; % = relative frequency. [a]Fisher's Exact Test; [b]: Pearson's Chi-Square Test; *p* = level of statistical significance.

The analysis of the work characteristics by professional category only revealed a statistical difference ($p < 0.05$) for the work shift variable, in which 47% of the nursing technicians worked in the morning shift, 51% in the afternoon shift, and 2% in both shifts, while 30% of the nurses worked in the morning shift, 30% in the afternoon shift, and 40% in both shifts. Although the other variables showed no statistical difference, the analysis of the predominant posture at work showed that 60% of nursing technicians worked in a standing position and 40% alternated between a sitting and a standing position. In comparison, 40% of nurses worked in a standing positon and 60% alternated between sitting and standing (Table 3).

Table 3

Occupational characterization by professional category

Variables	Nursing Technicians *n* = 43 *n* (%)	Nurses *n* = 10 *n* (%)	*p*
Work shift			
Morning	20 (47)	3 (30)	
Afternoon	22 (51)	3 (30)	0.001[a]
Morning and afternoon	1 (2)	4 (40)	
Work unit			
Open	25 (58)	6 (60)	1.000[b]
Closed	19 (42)	4 (40)	
Length of activity (months) †	48 (60)	104 (171,5)	0.250[c]
Other paid activity‡			
Yes	10 (24)	1 (10)	0.668[b]
No	32 (76)	9 (90)	
Predominant posture at work			
Standing	26 (60)	4 (40)	0.300[b]
Sitting and standing	17 (40)	6 (60)	
How do you feel after a day of work			
Very good/Good	9 (21)	2 (20)	
A bit tired	20 (46)	4 (40)	0.900[a]
Very tired/exhausted	14 (33)	4 (40)	

Note. *n* = absolute frequency; % = relative frequency. † Median and interquartile range; [a]Pearson's Chi-Square Test; [b]Fisher's Exact Test; [c]Mann-Whitney *U* test; ‡ 1 missing; *p* = level of statistical significance.

The analysis of the difference between groups regarding the SBST-Brazil, BMI, and pain perception revealed no statistical differences in any variable. It showed that 60% of nursing technicians had a low risk in the SBST-Brazil, 33% a medium risk, and 3% a high risk, while 90% of nurses had a low risk and 10% a medium risk. Concerning the BMI, 60% of nursing technicians are overweight, while 70% of nurses have a healthy weight. Most nursing technicians (56%) and nurses (70%) reported a VAS score <5 (Table 4).

Table 4

Comparison between groups regarding the SBST-Brazil, BMI and pain perception

Variables	Nursing Technicians *n* = 43 *n* (%)	Nurses *n* = 10 *n* (%)	*p*
SBST Score‡	3 (3)	2 (2)	0.339[b]
SBST Classification			
Low risk	26 (60)	9 (90)	
Medium risk	14 (33)	1 (10)	0.199[a]
High risk	3 (7)	-	
BMI in kg/m²†	25.0 (2.8)	23.9 (2.5)	0.262[c]
BMI Classification			
Healthy weight	17 (40)	7 (70)	0.156[d]
Overweight	26 (60)	3 (30)	
VAS‡	4 (4)	4 (4)	1.000[b]
VAS Score			
< 5	24 (56)	7 (70)	0.494[d]
> 5	19 (44)	3 (30)	

Note. *n* = absolute frequency; % = relative frequency. † mean and standard deviation; ‡ median and interquartile range; [a]Pearson's Chi-Square Test; [b]Mann-Whitney *U* test; [c]Student's *t*-test for independent samples; [d]Fisher's Exact Test; *p* = level of statistical significance; SBST = STarT Back Screening Tool; BMI = Body Mass Index; VAS = Visual Analog Scale.

Discussion

In this study, all nursing professionals were women, and there was a predominance of nursing technicians. Pires et al. (2020) found a similar reality in a study with nursing professionals where they found a prevalence of the female gender and a predominance of nursing technicians over nurses. Concerning the prevalence of the female gender, Santos et al. (2017) explain that, despite the changes occurring in this scenario, feminization is still a strong characteristic among healthcare professionals, given that more than 90% of job vacancies are filled by women.

The analysis of the socioeconomic profile found in this study shows that nursing technicians have a lower economic class than nurses, which is in line with Lombardi and Campos (2018) who found that nursing technicians are paid about half of what nurses earn.

Concerning the work shift, this study found that more nurses are working two shifts than nursing technicians, which is corroborated by Freire et al. (2015) in a study conducted with intensive care professionals. Unlike our study, Freire et al. (2015) also found that nurses worked more hours than nursing technicians and that working more hours can be associated with physical inactivity.

In this study, although most professionals do not have a second job, the majority of nurses and nursing technicians do not engage in any physical activity. In a study conducted with nurses, nursing technicians, and nursing assistants, Pimenta and Assunção (2016) also found a prevalence of professionals who did engage in any physical activity. Physical activity can bring many benefits, such as reducing stress, anxiety, and depression, improving cognitive activities and interpersonal relationships, and boosting mood and energy to perform daily and work activities (Freire et al., 2015). Massuda et al. (2017) found that the level of physical activity is inversely correlated with the occurrence and intensity of low back pain in nursing professionals, that is, subjects who engage in physical activity report less low back pain than those who do not. This finding is in line with this study since most nursing professionals who reported low back pain did not engage in physical activity.

Moreover, Maciel Júnior et al. (2019) found that nurses had a higher mean BMI than nursing technicians, which suggests more nurses are overweight or obese. However, our study found that more nursing technicians were overweight than nurses. It should also be noted that individuals who are classified as overweight and obese showed a higher frequency of low back pain (Nepomuceno et al., 2019).

As for the intensity of low back pain, the percentage of nurses who scored > 5 on VAS is lower than that of nursing technicians, a professional category in which a significant number of individuals were classified as overweight. Thus, BMI may be a key risk factor considering that pain intensity tends to increase as weight increases (Massuda et al., 2017). It should be noted that pain intensity can cause stress, psychological distress, and dissatisfaction, which influences the work capacity (Cargnin, Schneider, Vargas, & Schneider, 2019).

In this study, a high percentage of nursing technicians (81%) and nurses (80%) did not report sleep disorders,

which may be associated with the work shift and workday. According to Viana et al. (2019), day shift nurses who worked 6 hours a day had a better quality of sleep than night shift workers who worked for 12 hours and rested for 36 hours.

A limitation of this study is its cross-sectional design, which prevents assessing a cause-and-effect relationship. Another limitation is the lack of variables covering the working conditions, such as the presence and use of assistive devices, the difficulties in using them, and the professionals' knowledge about the interventions used in situations of physical overload, making it impossible to relate these data to the other variables under analysis. Moreover, considering that the sample consisted only of women, it is not possible to generalize these findings to the population of nursing professionals. This aspect resulted from the fact that the population under analysis was composed of women because men were excluded based on the exclusion criteria. Given that few studies are comparing these two professional categories, a positive aspect is that this study can inform future studies and contribute to planning health interventions based on the specificities of each category. The low use of analgesics and muscle relaxers in this sample should also be highlighted because it reduces biases that could interfere with the results.

Conclusion

This study analyzed the differences between nursing technicians and nurses with low back pain, given that these professionals work in the same area but have different professional activities. The analysis of the sociodemographic characteristics, lifestyle, occupational characteristics, BMI, SBST-Brazil, and pain perception revealed a statistical difference only found for socioeconomic class and work shift. It should be highlighted that most professionals of both categories do not engage in any physical activity. Thus, this study concluded that there is no difference between nurses and nursing technicians regarding lifestyle, socioeconomic and occupational characteristics, nutritional status, and perception.

Although no differences were found between the professional categories, it can be concluded that low back pain is a prevalent problem in both nurses and nursing technicians, regardless of sociodemographic, economic, and occupational characteristics. Thus, given that low back pain was found in both professional categories, new strategies should be developed to prevent low back pain in these professionals' working environments and teach them about proper ergonomics and healthy habits.

Author contributions

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