Rev Rene. 2025;26:e95129.
DOI: 10.36517/2175-6783.20252695129
www.periodicos.ufc.br/rene

Original Article

Prevalence and factors associated with depressive symptoms among nursing professionals

Prevalência e fatores associados aos sintomas depressivos entre os profissionais de enfermagem

How to cite this article:
Aldrighi LB, Duarte GC, Jardim VMR. Prevalence and factors associated with depressive symptoms among nursing professionals. Rev Rene. 2025;26:e95129. DOI: https://doi.org/10.36517/2175-6783.20252695129

Laíne Bertinetti Aldrighi[1]
Giani Cunha Duarte[1]
Vanda Maria da Rosa Jardim[1]

*Extracted from the thesis entitled "Risco de suicídio e depressão entre profissionais de enfermagem de hospitais universitários do Sul do Brasil: estudo transversal", Universidade Federal de Pelotas, 2023.

[1]Universidade Federal de Pelotas.
Pelotas, RS, Brazil.

Corresponding author:
Laíne Bertinetti Aldrighi
Rua Gomes Carneiro, 1, Centro
Pelotas, RS, Brazil. CEP: 96010-610.
E-mail: laine.aldrighi@ufpel.edu.br

Conflict of interest: the authors have declared that there is no conflict of interest.

ABSTRACT
Objective: to identify the prevalence of depressive symptoms and associated factors among nursing professionals. **Methods:** a cross-sectional and analytical study was conducted *online* with 592 nursing professionals from two federal university hospitals. Participants answered questions on sociodemographic, health, and behavioral characteristics, the work process, and the Patient Health Questionnaire-9. Descriptive statistics, chi-square tests, and the Poisson model with robust variance were used for data analysis. **Results:** the prevalence of depressive symptoms was 23.8%. Factors associated with a higher prevalence of the outcome: female gender, former smoking, poor/destitute sleep quality, use of psychotropic drugs, history of child abuse/aggression, repetitive work, violence at work, and desire to change profession. Factors associated with a lower prevalence of the outcome: age between 41 and 68 years, good self-perceived health, and reasonable assessment of supervision at work. **Conclusion:** the associations suggest that, in addition to individual aspects, depressive symptoms may be related to the nursing work process. **Contributions to practice:** identifying the associated factors will help managers and nursing teams implement individual and collective change actions, emphasizing self-care, interpersonal relationships, ethics, satisfaction, and appreciation of the profession.
Descriptors: Nursing, Team; Hospitals; Depression; Occupational Health; Cross-Sectional Studies.

RESUMO
Objetivo: identificar a prevalência de sintomas depressivos e os fatores associados entre profissionais de enfermagem. **Métodos:** estudo transversal e analítico, realizado *on-line* com 592 profissionais de enfermagem de dois hospitais universitários federais. Os participantes responderam a questões sociodemográficas, de saúde, comportamentais, sobre o processo de trabalho e ao instrumento *Patient Health Questionnaire-9.* Para a análise de dados, foram utilizados testes de estatística descritiva, Qui-quadrado e o modelo de Poisson com variância robusta. **Resultados:** a prevalência de sintomas depressivos foi de 23,8%. Fatores associados à maior prevalência do desfecho: sexo feminino, ex-tabagismo, qualidade do sono ruim/muito ruim, uso de psicofármacos, histórico de abuso/agressão infantil, trabalho repetitivo, violência no trabalho e desejo de trocar de profissão. Fatores associados à menor prevalência do desfecho: idade entre 41 e 68 anos, boa autopercepção de saúde e boa avaliação da supervisão no trabalho. **Conclusão:** as associações sugerem que, além dos aspectos individuais, os sintomas depressivos podem estar relacionados ao processo de trabalho na enfermagem. **Contribuições para a prática:** a identificação dos fatores associados ajudará gestores e equipes de enfermagem a implementar ações de mudanças, tanto individuais quanto coletivas, com ênfase na autoatenção, relações interpessoais, ética, satisfação e valorização da categoria.
Descritores: Equipe de Enfermagem; Hospitais; Depressão; Saúde Ocupacional; Estudos Transversais.

Received: Mar. 2nd 2025; Accepted: Apr. 28th 2025.

Introduction

Nursing professionals represent the largest healthcare workforce in the world and are responsible for ensuring the promotion of health, care, and rehabilitation of individuals, families, and communities. However, nursing practice is permeated by stressful events, limited resources, long working hours, lack of support, and conflictual work relationships, factors that can hinder professional performance and affect the quality of care provided[1-3].

Stressors are experienced daily and have intensified recently with the emergence of the new coronavirus in 2019. During the pandemic, healthcare professionals have been more exposed to overload, difficult working conditions, and intense psychological distress, which has impacted their well-being and triggered symptoms of depression, anxiety, post-traumatic stress, and suicidal ideation[2,4-6].

Depression, a common mental disorder often associated with suicide risk, is characterized by symptoms such as loss of interest, low energy, and changes in sleep and appetite. The World Health Organization has set a goal of reducing its prevalence by 2030 by promoting better access to treatment and mental health globally[7].

Thus, a high occurrence of depressive symptoms has been identified among nursing professionals[2,8-9], being more prevalent among nurses[9-10] when compared to other health professionals in general[6,10-11]. This prevalence is associated with sociodemographic, behavioral, and health aspects and elements related to work processes and the work environment[12-14]. Constant exposure to a range of occupational stressors can lead to demotivation, a worsening perception of health, and increased vulnerability to physical and mental illness, including depressive symptoms[3], posing a potential threat to the quality and safety of patient care.

In this context, identifying psychosocial risk factors that increase vulnerability in the workplace is essential for monitoring the health problems of nursing professionals and for adequate support and care planning[9,15]. This study aimed to identify the prevalence of depressive symptoms and associated factors among nursing professionals.

Methods

A cross-sectional and analytical study was conducted between September 3, 2021, and January 10, 2022. Conducted in two federal university hospitals in municipalities in Brazil's extreme south. Both institutions are public, serve exclusively patients from the Unified Health System, and are linked to the Brazilian Hospital Services Company. The manuscript followed the recommendations of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) strategy for observational studies.

For convenience, the sampling was non-probabilistic. According to lists provided by the hospitals in September 2021, the population consisted of 1,375 nursing professionals (nurses, technicians, and assistants). All were invited to participate, and 592 voluntarily responded to the *online* questionnaire with the outcome of interest.

Professionals working for at least one month were eligible regardless of employment status. At the same time, those on leave during the data collection period were ineligible. Due to the unavailability of this information, it was impossible to monitor new hires, terminations, or subsequent leaves.

A pilot study was conducted before data collection with professionals not linked to the sample, aiming to verify the clarity of the questionnaire and train the team responsible. Data were collected using a self-administered questionnaire organized in the Research Electronic Data Capture (REDCap) software. The invitation to participate in the survey was sent weekly during the collection period by institutional email to nursing professionals. The survey was publicized on social media, through the research group's official Instagram page, and with the support of the general managers of the institutions' departments, who shared the invitation via smartphone apps and

working groups. In addition, the invitation was displayed on digital information panels at the hospitals' entrance.

Nursing professionals were authorized to use the informed consent form virtually before they answered the questionnaire. The digital questionnaire was organized into eight blocks, totaling 217 questions, including validated scales and others developed by the researchers. For this study, we used the predictive variables from block six, related to depressive symptoms, which constituted the outcome of interest, in addition to sociodemographic variables (block one), work process variables (block two), and health and behavior variables (block three).

The REDCap software enabled the creation of adaptable questions, with the option to skip some steps, automatic saving after each response, and the possibility of review before completing the questionnaire. Incomplete questionnaires on the platform, identified during the data collection process, were forwarded individually by institutional email with the corresponding link, with the aim of encouraging completion of participation and filling in the blank questions.

After data collection, quality control was performed on 10% of the sample through a telephone call. At this stage, a short questionnaire containing timeless questions was applied to verify the consistency and quality of the information collected.

The predictive variables in this study were organized into three blocks. The first block included the following sociodemographic variables: gender (male; female), age in whole years (22 to 40; 41 to 68), sexual orientation(heterosexual;lesbian/gay/bisexual/transsexual/queer/intersexual/asexual/pansexual/other/preference not classified), self-declared skin color (black/brown; white), marital status (with partner; without partner), education (high school/technical; higher education/postgraduate), religious belief (no; yes), net family income in the last month (R$ 3.000,00 to R$ 5.000,00; R$ 5.001,00 to R$ 13.000,00).

The behavioral and health variables in the second block included: smoking (no; yes; former smoker), alcohol consumption (no; yes), self-reported health problems (no; yes), sleep quality (good/excellent; poor/very poor), self-reported diagnosis of anxiety (no; yes), use of psychotropic drugs (no; yes), frequency of physical activity (none; 1 to 2 times a week; ≥ 3 times a week), history of abuse or aggression in childhood (no; yes), family history of mental disorder (no; yes), lifetime suicide attempt (no; yes), self-perceived quality of life (poor/fair; good), and self-perceived health (poor/fair; good).

The variables related to the third block, work process, included: job title (nursing assistant, nursing technician, nurse), weekly working hours (30; ≥ 36), years of experience in nursing (≤ 10; 11 to 20; > 20), daily working hours (6/8, 12), satisfaction with the work sector (no; yes), work overload (no; yes), assessment of supervision at work (poor/fair; good), quality of care provided (poor/fair; good), evaluation of teamwork (poor/fair; good), adequacy of physical structure (no; yes), stress at work (low/moderate; high), repetitive work (no; yes), how much they believe in and have plans for their work (slight/moderate; a lot), violence in the workplace (no; yes), work accident in the last year (no; yes), and desire to change workplace or profession (no; yes).

To investigate depressive symptoms, the dependent variable in this study was the Patient Health Questionnaire-9 (PHQ-9). It assesses depressed mood, anhedonia, sleep problems, fatigue or lack of energy, change in appetite or weight, guilt or worthlessness, difficulty concentrating, feelings of slowness or restlessness, and suicidal thoughts[16]. The Brazilian validated version of the instrument was used, consisting of nine items assessed on a four-point Likert scale, which measures the frequency of signs and symptoms of depression in the past two weeks. Scores range from 0 to 27, and symptoms are classified as absent (0 to 9 points), mild (10 to 14 points), moderate (15 to 19 points), and severe (20 to 27 points)[17]. For analysis purposes, a cutoff point of ≥9 was adopted to define depressive symptoms, the same as that

used in previous studies in the Brazilian population, which was classified as having greater sensitivity and specificity[18].

The collected data was imported from the REDCap® software to Microsoft Excel® and subsequently cleaned, with checks and corrections of possible inconsistencies. For the analysis, we used the *Stata* software, version 17. Initially, a descriptive analysis of absolute and relative frequencies was performed, in addition to verifying the associations of the outcome with the predictor variables using Pearson's chi-square test. The effect estimate was obtained by the crude prevalence ratio, considering 95% confidence intervals (95% CI) and a significance level of 5%.

Finally, a Poisson regression test with robust variance adjustment was conducted to evaluate the magnitude of the associations. Predictor variables with $p<0.20$ in the bivariate analysis were included in the model, and this same cutoff point was used to maintain the variables to control for confounding factors. The multivariate analysis followed a hierarchical model in three levels, with the removal of variables using the backward method. Demographic variables were included in the first level; behavioral and health variables in the second; and variables related to the work process in the third.

The Human Research Ethics Committee of the Federal University of Pelotas approved the research protocol under opinion no. 4,805,388/2021, Certificate of Ethical Review no. 48022221.3.0000.5316, complying with all the terms of Resolution 466/2012 of the National Health Council.

Results

The study sample consisted of 61 nursing assistants (10.3%), 296 nursing technicians (50%), and 235 nurses (39.7%). The average age of nursing professionals was 41.1 years (standard deviation ± 8.2), ranging from 22 to 68 years. Most participants were female (84.8%), self-identified as white (76.3%), and had a partner (56.7%). Regarding the level of education, 70.3% had higher education or post-graduate degrees, and in terms of family income, 58.1% were in the 5,000 to 13,000 reais range.

About the outcome investigated, depressive symptoms, 592 nursing professionals responded to the instrument, a response rate of 43%. Among those who were invited to participate, 759 professionals received the invitation by email but did not respond to the study (55.3%), in addition to 2 refusals (0.1%) and 22 missing data (1.6%).

Depressive symptoms were identified in 23.8% of the nursing professionals participating in the study, with 14.7% among nursing assistants, 24% among nursing technicians, and 26% among nurses. Tables 1, 2, and 3 below present the crude and adjusted outcome analysis, considering the predictive variables and levels established by the analysis model.

The robust variance *Poisson* regression analysis identified the predictive variables associated with the prevalence of depressive symptoms among nursing professionals. Among the sociodemographic variables, females had a prevalence ratio 1.72 times higher than males. On the other hand, for the 41-68 age group, the prevalence ratio was 0.72, suggesting a significantly lower prevalence of depressive symptoms than the 22-40 age group (Table 1).

Among health and behavioral variables, the analysis revealed that the prevalence ratio was 1.72 times higher among former smokers than among non-smokers. Regarding sleep quality, the prevalence ratio was 2.16 times higher among professionals who rated their sleep as poor or very poor, compared to those who reported good or excellent sleep quality. Nursing professionals who use psychotropic drugs had a prevalence ratio 1.45 times higher than those who do not use them. A prevalence ratio 1.40 times higher was observed among professionals who reported a history of abuse or aggression in childhood. Another factor associated with the outcome was self-perceived health; nursing professionals who rated their health as good had a 0.65 times lower prevalence ratio of depressive symptoms than those who rated it as poor or fair (Table 2).

Table 1 – Prevalence of depressive symptoms and Poisson regression analysis of sociodemographic variables among nursing professionals (n=592). Pelotas, RS, Brazil, 2022

Variable	Depressive symptoms				
	n (%)	Crude PR (95% CI)	p-value	Adjusted PR (95% CI)	p-value
Gender					
Male	90 (14.4)	1*	0.050†	1*	0.050‡
Female	502 (25.5)	1.76 (1.01-3.12)	–	1.72 (1.01-2.97)	–
Age(years)					
22 to 40	300 (30.0)	1*	0.002†	1*	0.030‡
41 to 68	292 (17.5)	0.58 (0.41-0.82)	–	0.72 (0.54-0.97)	–
Sexual orientation					
Heterosexual	549 (22.8)	1*	0.064	–	–
LGBTQIA+§	43 (37.2)	1.63 (0.97-0.75)	–	–	–
Self-declared skin color					
Black/Brown	140 (20.0)	1*	0.235	–	–
White	452 (25.0)	1.11 (0.93-1.34)	–	–	–
Marital status					
With a partner	336 (23.5)	1*	0.839	–	–
Without a partner‖	226 (24.3)	1.03 (0.74-1.45)	–	–	–
Education					
High school/technical	176 (22.7)	1*	0.724	–	–
University/Postgraduate	416 (24.3)	1.07 (0.74-1.54)	–	–	–
Religious belief					
No	107 (20.0)	1*	0.302	–	–
Yes	457 (25.0)	1.25(0.82-1.90)	–	–	–
Family income (minimum wage)					
3 to 5	248 (24.6)	1*	0.742	–	–
>5 to 13	344 (23.3)	0.94(0.68-1.32)	–	–	–

*1: Reference category; †Chi-square test; ‡Poisson regression; §LGBTQIA+: Lesbian, gay, bisexual, transsexual, queer, intersexual, asexual, pansexual+; ‖Without partner (single, separated, divorced, widowed); PR: Prevalence ratio; CI: Confidence interval

Table 2 – Prevalence of depressive symptoms and Poisson regression analysis of health and behavioral variables among nursing professionals (n=592). Pelotas, RS, Brazil, 2022

Variable	Depressive symptoms				
	n (%)	Crude PR (95% CI)	p-value	Adjusted PR (95% CI)	p-value
Smoking					
No	406 (21.3)	1*	–	1*	–
Yes	60 (38.3)	1.80 (1.14-2.83)	0.010†	1.12 (0.79-1.61)	0.505
Former smoking	29 (38.0)	1.78 (0.96-3.32)	0.068	1.72 (1.10-2.69)	0.017‡
Alcohol consumption					
No	333 (22.2)	1*	0.368	–	–
Yes	259 (25.9)	1.16 (0.83-1.62)	–	–	–
Health problem					
No	296 (20.3)	1*	0.078	–	–
Yes	296 (27.4)	1.35 (0.97-1.88)	–	–	–
Sleep quality					
Good/very good	348 (12.9)	1*	<0.001†	1*	<0.001‡
Poor/very poor	244 (39.3)	3.04 (2.13-4.33)	–	2.16 (1.59-2.95)	–
Self-reported anxiety					
No	446 (18.6)	1*	<0.001†	1*	0.152§
Yes	146 (39.7)	2.13 (1.52-2.99)	–	1.23 (0.92-1.65)	–
Use of psychotropic drugs					
No	514 (19.6)	1*	<0.001†	1*	0.006‡
Yes	78 (51.3)	2.60 (1.81-3.76)	–	1.45 (1.11-1.90)	–
Frequency of physical activity (times/week)					
Not practiced	269 (28.3)	1*	–	–	–
1-2	143 (21.7)	0.76 (0.50-1.16)	0.214	–	–
≥ 3	180 (18.9)	0.66 (0.44-1.00)	0.051	–	–
History of childhood abuse/aggression					
No	470 (20.4)	1*	0.001†	1*	0.015‡
Yes	122 (36.9)	1.81(1.26-2.57)	–	1.40 (1.07-1.84)	–
Family history of mental disorder					
No	369 (20.6)	1*	0.040†	–	–
Yes	223 (29.2)	1.41(1.01-1.97)	–	–	–
Suicide attempts throughout life‖					
No	565 (22.3)	1*	0.002†	1*	0.170§
Yes	26 (53.5)	2.41(1.39-4.19)	–	1.07 (0.97-1.18)	–
Self-perception of quality of life					
Poor/Regular	217 (39.2)	1*	<0.001†	–	–
Good	375 (14.9)	0.38 (0.27-0.53)	–	–	–
Self-perception of health					
Poor/Regular	185 (45.4)	1*	<0.001†	1*	0.009‡
Good	407 (14)	0.31(0.22-0.43)	–	0.65 (0.47-0.90)	–

*1: Reference category; †Chi-square test; ‡Poisson regression; §remained in the model as an adjustment variable; ‖Missing data; PR: Prevalence ratio; CI: Confidence interval

Among the variables related to the work process, the analysis revealed that the prevalence ratio was 1.69 times higher among nursing professionals who reported doing repetitive work than those who did not. As for workplace violence, the prevalence ratio was 1.33 times higher among professionals who reported being victims, compared to those who did not. The desire to change profession was also associated with depressive symptoms, with a prevalence ratio 1.77 times higher among those who reported this desire compared to those who did not. Finally, a good evaluation of supervision at work was associated with a lower prevalence of depressive symptoms, with a prevalence ratio 0.86 times lower when compared to assessments classified as poor or fair (Table 3).

Table 3 – Prevalence of depressive symptoms and Poisson regression analysis of work process variables among nursing professionals (n=592). Pelotas, RS, Brazil, 2022

Variables	Depressive symptoms				
	n (%)	Crude PR (95% CI)	p-valor	Adjusted PR (95% CI)	p-value
Position held					
Nursing Assistant	61 (14.7)	1*	–	–	–
Nursing Technician	296 (24.0)	1.63 (0.81-3.25)	0.170	–	–
Nurse	235 (26.0)	1.76 (0.87-3.54)	0.114	–	–
Weekly workload (hours)†					
30	108 (13)	1*	0.012‡	–	–
≥ 36	470 (26.4)	2.03 (1.17-3.54)	–	–	–
Time working in nursing (years)					
≤ 10	201 (27.4)	1*	–	–	–
11 a 20	261 (23.7)	0.87 (0.60-1.25)	0.445	–	–
> 20	121 (17.4)	0.63 (0.38-1.05)	0.076	–	–
Daily working hours					
6/8	291 (26.1)	1*	0.260	1*	0.084§
12	301 (22.0)	0.83 (0.59-1.15)	–	0.79 (0.61-1.03)	–
Satisfaction with the work sector					
No	84 (42.9)	1*	<0.001‡	1*	0.058§
Yes	508 (20.7)	0.48 (0.33-0.70)	–	0.74 (0.55-1.01)	–
Work overload					
No	384 (15.9)	1*	<0.001‡	–	–
Yes	208 (38.5)	2.42 (1.73-3.38)	–	–	–
Evaluation of supervision at work					
Bad/Regular	200 (34.0)	1*	<0.001‡	1*	0.049‖
Good	392 (18.6)	0.54 (0.39-0.76)	–	0.86 (0.74-0.99)	–
Quality of care					
Bad/Regular	93 (35.5)	1*	0.013‡	1*	0.170§
Good	499 (21.6)	0.60 (0.41-0.90)	–	1.25 (0.91-1.72)	–
Evaluation of teamwork†					
Bad/Regular	143 (35.7)	1*	0.001‡	–	–
Good	448 (20.1)	0.75 (0.63-0.89)	–	–	–
Suitability of the physical structure at work					
No	317 (27.8)	1*	0.036‡	–	–
Yes	275 (19.3)	0.69 (0.49-0.98)	–	–	–
Stress at work†					
Little/Moderate	319 (14.7)	1*	<0.001‡	1*	0.086§
High	272 (34.6)	2.34 (1.65-3.32)	–	1.32 (0.96-1.81)	–
Repetitive work					
No	171 (13.4)	1*	0.001‡	1*	0.006‖
Yes	421 (28.0)	2.08 (1.33-3.26)	–	1.69 (1.16-2.46)	–
How much it believes in and has projects for work†					
Little/Moderate	296 (28.4)	1*	0.022‡	1*	0.154§
High	293 (19.1)	0.67 (0.48-0.94)	–	0.81 (0.60-1.08)	–
Violence in the workplace					
No	472 (20.3)	1*	0.001‡	1*	0.044‖
Yes	120 (37.5)	1.84 (1.29-2.63)	–	1.33 (1.01-1.76)	–
Accident at work in the last year					
No	542 (21.6)	1*	<0.001‡	1*	0.125§
Yes	50 (48.0)	2.22 (1.43-3.45)	–	1.34 (0.92-1.98)	–
Desire to change the workplace					
No	497 (20.7)	1*	0.001‡	–	–
Yes	95 (40.0)	1.93 (1.33-2.80)	–	–	–
Desire to change profession					
No	327 (15)	1*	<0.001‡	1*	<0.001‖
Yes	265 (34.7)	2.32 (1.64-3.28)	–	1.77 (1.32-2.37)	–

*1: Reference category; †Missing data; ‡Chi-square test; §Remained in the model as an adjustment variable; ‖Poisson regression; PR: Prevalence ratio; CI: Confidence interval

Discussion

This study found a prevalence of 23.8% of depressive symptoms among nursing professionals. Among the categories, the prevalence was higher among nurses, followed by nursing technicians and assistants. In Brazil, a study of 1,054 health professionals during the pandemic found a prevalence of depressive symptoms of 68.7% among nursing technicians and 55.9% among nurses, with a higher prevalence among technicians compared to other professionals[10].

Similarly, in another study of nursing professionals in different health services, a prevalence of 36.6% of depressive symptoms was observed, with 37.9% among professionals in hospital units. This figure is like our study, considering the distribution among the three nursing categories[9].

The high prevalence of depressive symptoms found in investigations with nursing professionals mentioned above can be explained by the context of the beginning of the coronavirus pandemic, characterized by the daily increase in cases of the disease, frequent changes in the work routine, and the fear of facing an unknown virus. During the outbreak, professionals were exposed to excessive workloads, fatigue, helplessness, stress, and fear of contamination, factors that contributed to increased rates of depression and other health problems[19].

In contrast, this study's results were collected almost two years after the start of the pandemic, when healthcare workers already had more knowledge about patient management and had been vaccinated. This difference in time may explain, in part, the variations in prevalence observed between the studies, since, although with less uncertainty, professionals were still facing significant challenges at work.

Prevalences ranging from 6.4 to 56% were found among nursing professionals from different countries who responded to the same depressive symptom screening scale. This discrepancy can be explained by factors such as different scale cut-off points, sample size, population characteristics, cultural issues, and variations in labor relations and work environments[5,6,8,14,19,20].

Poisson regression analysis revealed that female gender is significantly associated with a higher prevalence of depressive symptoms, in line with other results[8-9] and among hospital health professionals during the coronavirus pandemic[21]. The nursing profession is predominantly female worldwide[1], and women often accumulate multiple working hours, both in the profession and in domestic activities, facing daily pressures and financial challenges. These factors make women more vulnerable to illness.

Concerning age group, nursing professionals aged between 41 and 68 had a 28% lower prevalence of depressive symptoms compared to younger professionals aged between 22 and 40, a finding similar to that found in the literature[2]. A higher prevalence of depressive symptoms has also been observed among younger health professionals in hospitals, compared to intermediate and older age groups[4,6,21].

Younger nursing professionals, at the start of their careers, often face insecurity, feelings of inadequacy, and low self-esteem in complex clinical situations, which can increase anxiety, stress, and psychological disorders during the acquisition of experience[12]. In addition, many professionals start their careers in regions far from their families and support networks, and do not find the necessary support in the health services to adapt.

This study found an association between depressive symptoms and a history of former smoking, with divergent results. In some contexts, depressive symptoms were almost four times more likely among nurses who had quit smoking[19], while others found this association among professionals who used tobacco[9]. The decision to quit smoking in the context of the research may be related to the high risk of coronavirus contamination, which in turn may increase the risk of illness due to emotional imbalance.

Nursing professionals with poor or very poor sleep quality were associated with depressive symp-

toms, which was also observed in another study. Shift work, long working hours, and the stress of caring for critically ill patients affect the quality of sleep of health professionals, contributing to an increase in depressive symptoms[20]. Nursing work is organized into different shifts, schedules, and sectors to meet the needs of the institutions. Still, this routine directly impacts the quality of the professionals' sleep. Therefore, institutions must adopt strategies to promote mental health, including care for sleep quality, to mitigate the adverse effects of stress and promote the well-being of professionals.

The use of psychotropic drugs among nursing professionals has also been associated with depressive symptoms, as found in another study[9], as has the use of sleep medication, identified in nurses during the pandemic[5]. Psychotropic medications can be a strategy to control symptoms related to mental and emotional disorders, especially in the face of adverse working conditions, intensified by the pandemic. However, their use must be monitored by health professionals, along with other psychotherapeutic interventions, to ensure a balanced and controlled treatment[8-9].

Covariate of childhood abuse or aggression was associated with depressive symptoms, which is in line with studies carried out in different populations[22-23]. A survey of health professionals in Brazil found similar results, observing the highest prevalence of childhood trauma among nursing technicians and nurses. Pressure and stressful situations in the workplace can act as triggers in a psyche that is already vulnerable due to childhood experiences[10]. This highlights the importance of considering pre-existing conditions in individuals' life trajectories.

Positive evaluation of supervision at work and repetitive work were associated with a lower and higher prevalence of depressive symptoms in this study. Although there is a gap that specifically explores these variables, it is possible to find studies on similar themes involving the working relationships established and the support received. It has been identified that depression can be associated with inadequate or insufficient support in health services[9]. In this context, adequate control over work and the support received can help reduce occupational stress and improve satisfaction in the performance of activities[24].

A good perception of health is associated with a lower prevalence of depressive symptoms. So far, recent studies using self-rated health as a predictor variable in multivariate analysis have not identified this association[9,14]. However, the literature shows that the relationship between overload, stress, and depression compromises quality of life, affecting the general well-being of professionals[19].

Violence at work was associated with depressive symptoms, similarly to what has been observed in other studies[25]. The most prevalent forms of violence in nursing include verbal abuse, threats, and sexual harassment, occurring with both colleagues and patients. These episodes may be related to early career, lower qualifications, poor health, dissatisfaction, burnout, and turnover intentions[26].

An association was found between depressive symptoms and the desire to change professions. The beginning of a career for nursing professionals may be associated with the difficulty of dealing with the pressure of the work environment, where activities require objective and direct action with patients, and work overload. This can lead to discomfort and dissatisfaction when performing their duties[27]. Factors such as stress, violence, lack of physical and human resources, exhausting working hours, devaluation, and professional burnout[2,10] can contribute to illness and influence the desire to change careers.

It must be considered that the result may have been influenced by the pandemic period, marked by insufficient resources and inadequate multidisciplinary support, as well as the overload of demands and intensification of work in health services[28-29]. In addition, the feeling of being undervalued and the desire to give up work are related to the pay gap, fragile autonomy, and lack of investment[29].

It is worth noting that studies carried out in

different countries, even before the pandemic, have already shown a high prevalence of overload and stress at work, as well as a challenging environment for nursing professionals, who constantly need to develop coping skills to deal with the challenges of the profession[19-20,26]. It is undoubtedly a profession of overcoming, in which various factors contribute to the illness of the category. In addition to improving the adequacy of resources, social support, and safety in the workplace, an organizational environment that offers continuous support for emotional management is essential[12,24,26,27].

Although this study did not aim to analyze the impact of the pandemic on the nursing work process, its findings may have been influenced by it. Future studies should confirm and deepen these results and focus on strategies and resources to mitigate the implications for professionals' physical and mental health. The results highlight the importance of promoting mental health, implementing adequate supervision, and strengthening interpersonal relationships in the workplace.

Study limitations

This study has some limitations that should be considered when interpreting the results. Firstly, the cross-sectional design prevents causal relationships from being determined, highlighting the need for longitudinal studies to validate the findings. Also, because the sample was non-probable by convenience, it was impossible to generalize the results. In addition, limitations related to data collection carried out virtually with digital contact with professionals due to the pandemic context and the high demand for investigations in the period may have contributed to low adherence. As a result, the sample was smaller than initially desired, despite the numerous strategies to engage participation.

Other limitations include selection bias, due to the voluntary nature of participation, and response bias, which may underestimate the data due to omitted information. The exclusion of nursing professionals on leave, possibly undergoing treatment due to illness, is also a relevant limitation. In addition, some of the variables analyzed were self-reported, reinforcing the need to use validated scales to confirm the associations found, with special attention to differentiating types of childhood trauma, situations of violence at work, and sleep disorders.

Contributions to practice

This article makes relevant contributions, bringing innovative results and offering support for future research. It also points out aspects that need to be modified in work environments.

The results of this study suggest that health institutions should strengthen their policies on workers' health, emphasizing actions that promote the well-being of nursing professionals, considering their diverse knowledge and functions. Implementing welcoming spaces, creating leisure and self-care programs, and improving interpersonal relationships and team communication are essential. In addition, valuing the profession and respecting their work are fundamental to ensuring satisfaction and well-being in performing their duties. Furthermore, implementing clinical supervision processes that involve normative, formative, and emotional management functions is also crucial.

Conclusion

Nursing professionals were found to have depressive symptoms. Factors associated with a higher prevalence of the outcome included being female, a former smoker, having poor or very poor sleep quality, using psychotropic drugs, reporting abuse or aggression in childhood, doing repetitive work, being a victim of violence at work, and wanting to change profession. Factors related to a lower prevalence of depressive symptoms include being between 41 and 68 years old, having a good assessment of supervision at work, and having a positive self-assessment of health.

Authors' contribution

Conception and design or analysis and interpretation of data; Drafting of the manuscript or relevant critical review of the intellectual content; Final approval of the version to be published; Responsibility for all aspects of the text in ensuring the accuracy and integrity of any part of the manuscript: Aldrighi LB, Duarte GC, Jardim VMR.

References

1. World Health Organization (WHO). State of the world's nursing 2020: investing in education, jobs and leadership [Internet]. 2021 [cited Jan 10, 2025]. Available from: https://www.who.int/publications/i/item/9789240003279
2. Appel AP, Carvalho ARS, Santos RP. Prevalence and factors associated with anxiety, depression and stress in a COVID-19 nursing team. Rev Gaúcha Enferm. 2021;42(spe):e20200403. doi: https://doi.org/10.1590/1983-1447.2021.20200403
3. Kim O, Cha C, Jeong H, Cho M, Kim B. Influence of irritable bowel syndrome on stress and depressive symptoms in nurses: the Korea nurses' health study. Int J Environ Res Public Health. 2021;18(23):12324. doi: http://doi.org/10.3390/ijerph182312324
4. Bryant-Genevier J, Rao CY, Lopes-Cardozo B, Kone A, Rose C, Thomas I, et al. Symptoms of depression, anxiety, post-traumatic stress disorder, and suicidal ideation among state, tribal, local, and territorial public health workers during the COVID-19 pandemic - United States, march-april 2021. MMWR Morb Mortal Wkly Rep. 2021;70(26):947-52. doi: https://doi.org/10.15585/mmwr.mm7026e1
5. Robba HCS, Costa AA, Kozu KT, Silva CA, Farhat SCL, Ferreira JCDOA. Mental health impacts in pediatric nurses: a cross-sectional study in tertiary pediatric hospital during the COVID-19 pandemic. Rev Latino-Am Enfermagem. 2022;30:e3583. doi: https://doi.org/10.1590/1518-8345.5750.3530
6. AlAteeq DA, Aljhani S, Althiyabi I, Majzoub S. Mental health among healthcare providers during coronavirus disease (COVID-19) outbreak in Saudi Arabia. J Infect Public Health. 2020;13(10):1432-7. doi: https://doi.org/10.1016/j.jiph.2020.08.013
7. World Health Organization (WHO). World mental health report: transforming mental health for all [Internet]. 2022 [cited Feb 28, 2025]. Available from: https://www.who.int/publications/i/item/9789240049338
8. Santos KMR, Galvão MHR, Gomes SM, Souza TA, Medeiros AA, Barbosa IR. Depression and anxiety in nursing professionals during the covid-19 pandemic. Esc Anna Nery 2021;25(spe):e20200370. doi:https://dx.doi.org/10.1590/2177-9465-EAN-2020-0370
9. Kantorski LP, Oliveira MM, Treichel CAS, Bakolis I, Alves PF, Coimbra VCC, et al. Mental health of nursing professionals during the COVID-19 pandemic: a cross-sectional study. Rev Saúde Pública. 2022;56:8. doi: https://doi.org/10.11606/s1518-8787.2022056004122
10. Moser CM, Monteiro GC, Narvaez JCM, Ornell F, Calegaro VC, Crestani B, Siqueira AM, et al. Mental health of health care professionals in the coronavirus pandemic (Covid-19). Rev Bras Psicoter. 2021;23(1):107-25. doi: https://dx.doi.org/10.5935/2318-0404.20210009
11. Morawa E, Schug C, Geiser F, Beschoner P, Jerg-Bretzke L, Albus C, et al. Psychosocial burden and working conditions during the COVID-19 pandemic in Germany: The VOICE survey among 3678 health care workers in hospitals. J Psychosom Res. 2021;144:110415. doi: https://doi.org/10.1016/j.jpsychores.2021.110415
12. Han L, Wong FKY, She DLM, Li SY, Yang YF, Jiang MY, et al. Anxiety and depression of nurses in a north west province in China during the period of novel coronavirus pneumonia outbreak. J Nurs Scholarsh. 2020;52(5):564-73. doi: http://dx.doi.org/10.1111/jnu.12590
13. Musse FCC, Castro LS, Mestre TF, Pelloso SM, Poyares D, Musse JLL, et al. Mental violence: anxiety and depression during COVID-19 pandemic in Brazil. Saud Pesq. 2022;15(1):e-9684. doi: https://doi.org/10.17765/21769206.2022v15n1.e9684
14. Hong S, Ai M, Xu X, Wang W, Chen J, Zhang Q, et al. Immediate psychological impact on nurses working at 42 government-designated hospitals during COVID-19 outbreak in China: a cross-sectional study. Nurs Outlook. 2021;69(1):6-12. doi: https://doi.org/10.1016/j.outlook.2020.07.007

15. Wang QQ, Fang YY, Huang HL, Lv WJ, Wang XX, Yang TT, et al. Anxiety, depression and cognitive emotion regulation strategies in Chinese nurses during the COVID-19 outbreak. J Nurs Manag. 2021;29(5):1263-74. doi: https://dx.doi.org/10.1111/jonm.13265

16. Spitzer RL, Kroenke K, Williams JB. Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. Primary care evaluation of mental disorders. Patient Health Questionnaire. JAMA. 1999;282(18):1737-44. doi: https://dx.doi.org/10.1001/jama.282.18.1737

17. Santos IS, Tavares BF, Munhoz TN, Almeida LSP, Silva NTB, Tams BD, et al. Sensibilidade e especificidade do Patient Health Questionnaire-9 (PHQ-9) entre adultos da população geral. Cad Saúde Pública. 2013;29(8):1533-43. doi: https://dx.doi.org/10.1590/0102-311X00144612

18. Munhoz TN, Santos IS, Matijasevich A. Major depressive episode among Brazilian adults: a cross-sectional population-based study. J Affect Disord. 2013;150(2):401-7. doi: https://dx.doi.org/10.1016/j.jad.2013.04.031

19. An Y, Yang Y, Wang A, Li Y, Zhang Q, Cheung T, et al. Prevalence of depression and its impact on quality of life among frontline nurses in emergency departments during the COVID-19 outbreak. J Affect Disord. 2020;276:312-15. doi: https://doi.org/10.1016/j.jad.2020.06.047

20. Tu ZH, He JW, Zhou N. Sleep quality and mood symptoms in conscripted frontline nurse in Wuhan, China during COVID-19 outbreak: a cross-sectional study. Medicine (Baltimore). 2020;99(26):e20769. doi: https://dx.doi.org/10.1097/MD.0000000000020769

21. Lowry D, Hevey D, Wilson C, O'Doherty V, O'Sullivan S, Finnerty C, et al. Wellbeing and mental health outcomes amongst hospital healthcare workers during COVID-19. Ir J Psychol Med. 2023;40(3):402-10. doi: http://doi.org/10.1017/ipm.2023.1

22. Lee J, Kim H, Chang SM, Hong JP, Lee DW, Hahm BJ, et al. The association of childhood maltreatment with adulthood mental disorders and suicidality in Korea: a nationwide community study. J Korean Med Sci. 2021;36(37):e240. doi: https://dx.doi.org/10.3346/jkms.2021.36.e240

23. Wiens K, Gillis J, Nicolau I, Wade TJ. Capturing risk associated with childhood adversity: independent, cumulative, and multiplicative effects of physical abuse, sexual abuse, and family violence on mental disorders and suicidality. Perm J. 2020;24:19.079. doi: https://doi.org/10.7812/TPP/19.079

24. Schultz CC, Colet CF, Benetti ERR, Tavares JP, Stumm EMF, Treviso P. Resilience and the reduction of occupational stress in Nursing. Rev Latino-Am Enfermagem. 2022;30:e3636. doi: https://doi.org/10.1590/1518-8345.5866.3636

25. Ko YY, Liu Y, Wang CJ, Liao HY, Liao YM, Chen HM. Determinants of workplace bullying types and their relationship with depression among female nurses. J Nurs Res. 2020;28(3):e92. doi: https://doi.org/10.1097/JNR.0000000000000367

26. Wang T, Abrantes ACM, Liu Y. Intensive care units nurses' burnout, organizational commitment, turnover intention and hospital workplace violence: a cross-sectional study. Nurs Open. 2023;10(2):1102-15. doi: https://dx.doi.org/10.1002/nop2.1378

27. Costa AFA, Fernandes AFC, Oliveira RM, Coelho MMF, Almeida PC. Nursing practice environment, safety climate and burnout in antineoplastic treatment units. Rev Rene. 2025;26:e94207. doi: http://doi.org/10.15253/2175-6783.20252694207

28. Kantorski LP, Oliveira MM, Alves PF, Treichel CADS, Wünsch CG, Santos LHD, et al. Intention to leave nursing during the COVID-19 pandemic. Rev Latino-Am Enfermagem. 2022;30:e3613. doi: https://doi.org/10.1590/1518-8345.5815.3613

29. Centenaro APFC, Andrade A, Franco GP, Spagnolo LML, Cardoso LS, Costa MC, et al. Working conditions in COVID-19 hospital units: perceptions of nursing workers. Rev Gaúcha Enferm. 2023;44:e20220007. doi: https://dx.doi.org/10.1590/1983-1447.2023.20220007.en