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OCCUPATIONAL STRESS OF INTENSIVE CARE NURSES DURING COVID-19

*Estresse ocupacional de enfermeiros intensivistas durante a covid-19**Estrés laboral de las enfermeras de cuidados intensivos durante la covid-19***Natalia Paiva da Silva¹** **Francisco Railson Bispo de Barros²** **Mauro Leonardo Salvador Caldeira dos Santos³** **Fernando Bernardo de Oliveira⁴** **Eliene Mendes de Oliveira⁵** **Marcella Lima Marinho⁶** 

ABSTRACT:

Objective: to evaluate the levels of occupational stress of intensive care nurses in Boa Vista, Roraima. **Method:** descriptive-correlational study, carried out between November/2022 and January/2023 with 36 intensive care nurses from a public hospital. **Results:** 80.6% of nurses presented high demand (16.2 ± 1.0) and 63.9% presented high control (19.1 ± 1.0), with an equal distribution in terms of social support. Regarding stress scores, the majority of participants presented high psychological demand (16.2) and high control (19.1), which translates into active work. Nurses who did not receive support and recognition from superiors had a lower average score in the psychological demand and control dimensions. **Conclusion:** the experiences of participants in critical care during the pandemic influenced their perception of work, and that, even though active work is considered less harmful, in the long term it can become negative.

DESCRIPTORS: Occupational stress; Intensive care units; Nursing.

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RESUMO:

Objetivo: avaliar os níveis de estresse ocupacional de enfermeiros intensivistas de Boa Vista, Roraima. **Método:** estudo descritivo-correlacional, realizado entre novembro/2022 e janeiro/2023 com 36 enfermeiros intensivistas de um hospital público. **Resultados:** 80,6% dos enfermeiros apresentaram alta demanda ($16,2 \pm 1,0$) e 63,9% apresentaram alto controle ($19,1 \pm 1,0$), havendo uma distribuição igualitária quanto ao apoio social. Referente aos escores de estresse, a maioria dos participantes apresentaram alta demanda psicológica (16,2) e alto controle (19,1), o que se traduz como um trabalho ativo. Os enfermeiros que não receberam apoio e reconhecimento por parte dos superiores apresentaram escore médio mais baixo nas dimensões demanda psicológica e controle. **Conclusão:** as vivências dos participantes no cuidado crítico durante a pandemia influenciaram na percepção do trabalho, e que, mesmo tendo um trabalho ativo considerado menos nocivo, a longo prazo pode se tornar negativo.

DESCRITORES: Estresse ocupacional; Unidades de terapia intensiva; Enfermagem.

RESUMEN

Objetivo: evaluar los niveles de estrés laboral de enfermeros de terapia intensiva en Boa Vista, Roraima. **Método:** estudio descriptivo-correlacional, realizado entre noviembre/2022 y enero/2023 con 36 enfermeros de cuidados intensivos de un hospital público. **Resultados:** el 80,6% de los enfermeros presentó alta exigencia ($16,2 \pm 1,0$) y el 63,9% presentó alto control ($19,1 \pm 1,0$), con igual distribución en cuanto al apoyo social. En cuanto a los puntajes de estrés, la mayoría de los participantes presentó alta exigencia psicológica (16,2) y alto control (19,1), lo que se traduce en trabajo activo. Los enfermeros que no recibieron apoyo y reconocimiento de los superiores tuvieron menor puntaje promedio en las dimensiones demanda psicológica y control. **Conclusión:** las vivencias de los participantes en cuidados críticos durante la pandemia influyeron en su percepción del trabajo, y que, si bien el trabajo activo se considera menos dañino, en el largo plazo puede volverse negativo.

DESCRIPTORES: Estrés laboral; Unidades de cuidados intensivos; Enfermería.

INTRODUCTION

The COVID-19 pandemic has generated feelings of fear and anguish in a large part of the population, and has been a stress factor, especially for health professionals who have worked on the front line of the disease.¹ There have been many impacts on nursing professionals, especially intensive care nurses, whose workload has increased, generating physical and mental exhaustion in these professionals. In addition, the lack of equipment and highly complex beds made their work process even more difficult. All these factors contributed directly to the development of occupational stress, anxiety and dissatisfaction with the quality of life at work.²

Occupational stress is defined as something that results from the relationship between the worker and their work environment, where the demands of the job are so intense that the worker is unable to use their skills to overcome them and, as a consequence, the worker may experience a negative physical and/or psychological reaction.³ The main factors that trigger stress at work are related to aspects of the organization, management and interpersonal relationships at work.⁴

Occupational stress is one of the main causes of illness and is considered a risk factor for the psychosocial well-being of professionals. The consequences can involve absenteeism, low performance, high turnover, violence in the workplace, sleep disorders and Burnout Syndrome.⁵ Considering the impacts on workers' health, occupational stress has been gaining more visibility and has become an important source of concern. In view of this, many models have been used to analyze and understand

this phenomenon and its contributing factors.

In this sense, the present study opted for the Demand-Control model, which indicates that stress in the workplace results from the interaction between high psychological demands, low control in the execution of work and low social support acquired from superiors, whereby demands are related to the psychological demands of the job, control is related to the skills required to carry out the activities, and social support is related to the support acquired from interpersonal relationships in the workplace.⁶

Analysis of the model allows stress to be classified into four working conditions: active work (when the worker has high demand and high control), passive work (low demand and low control), high wear and tear (high demand and low control) and low wear and tear (low demand and high control). The first two indicate that the worker has the motivation and learning to develop new behavior patterns, while the latter two are indicative of the risk of physical and psychological illness.⁷

Based on these concepts, it became relevant to evaluate the occupational stress of intensive care nurses in the context of the pandemic, a pioneering milestone in the state of Roraima and which can contribute to the construction of interventions aimed at mitigating stressors in the work environment and, therefore, improving the quality of work life of professional nurses. The aim of this study was to assess the occupational stress levels of intensive care nurses in Boa Vista, Roraima.

METHOD

This is a descriptive-correlational, cross-sectional study with a quantitative approach, in which 36 intensive care nurses from Roraima's only medium and high-complexity public hospital participated. The hospital receives patients from all municipalities, as well as immigrant patients from Venezuela and Guyana, countries that border Roraima. The EQUATOR Network recommendations and the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines guided this study.

Nurses were recruited by convenience and met the inclusion criteria: age over 18, registered with the Regional Nursing Council of Roraima (Coren-RR) and who worked during the most critical periods of COVID-19. Nurses who resumed their activities after the COVID-19 peaks and were on leave (maternity, unpaid leave, professional qualification and others) were excluded.

Data was collected between November 2022 and January 2023 using three self-completion questionnaires, which were administered in a face-to-face interview. The first instrument used was the INDEX of Work Satisfaction (IWS), cross-culturally validated and modified for the population and location of the study,⁸ with the aim of characterizing the sociodemographic and professional profile of the nurses. The second instrument used was the Job Stress Scale (JSS), translated and validated into Portuguese as the Occupational Stress Scale, based on the Swedish version of the Job Content Questionnaire. The JSS contains 17 items which are distributed into the categories Demand, Control and Social Support, organized on a four-point Likert Scale.⁷ The third questionnaire aimed to find out about the aspects and situations (feelings/behaviours) which were striking during the COVID-19 pandemic.

The data collected was entered into an electronic spreadsheet in Microsoft Excel version 365 and then analyzed using JAMOVI® software version 2.4 in the Windows 10 operating system. The data was analyzed using descriptive statistics, calculating the mean, standard deviation, coefficient of variation, minimum and maximum value and amplitude of the 17 items and dimensions of the JSS. In addition, the correlation between age and the values of each dimension of the JSS was assessed using Pearson's linear correlation coefficient. Differences in the means of each dimension of the JSS according to the various predictor variables were assessed using Student's t-tests and Mann-Whitney tests. The variables that reached a p-value of <0.20 were selected to make up the multiple linear regression models, which had the dimensions of SWB as dependent variables, and the independent variables that reached a p-value of <0.05 remained in the final adjusted models.

Ethical aspects were respected at all stages of the study, in accordance with Resolution 466/12 of the National Health Council (CNS), which deals with research involving human beings. The study protocol was submitted to the Research Ethics Committee of the State University of Roraima (CEP/UERR)

and approved under opinion no. 5.734.174.

RESULTS

The sample in this study (n = 36) was initially assessed in terms of sociodemographic and professional aspects. The age range was wide, from 25 to 56 years, with a mean age of 38.9 ± 7.2 years, the majority being female (66.7%), married (55.6%), with children (66.7%) and an average income above the national floor (5339.0 ± 1690.4), given that they had more than one job (69.4%). In terms of professional characteristics, the average length of training and time working in the ICU was 12.1 ± 5.4 years and 6.6 ± 6.2 years, respectively. The majority had the highest qualification of specialist (75.0%), chose high complexity as their career path (61.1%), felt satisfied working in the ICU (94.4%), perceived direct patient care as the greatest demand (75.0%) and reported not receiving benefits (69.4%).

With regard to occupational stress according to the dimensions of demand, control and social support at work, 80.6% of the nurses had high demand, with a mean of 16.2 ± 1.0 points, and 63.9% had high control, with a mean of 19.1 ± 1.0 points. The quadrant category that included the largest number of nurses was active work (47.2%), with a mean of 17.6 ± 0.7 points. Finally, the average overall score for nurses was 49.9 ± 9.5 points (Table 1).

Table 1 - Characterization of the degree of demand, control, social support and distribution of the demand-control quadrants of the Job Stress Scale. Boa Vista, RR, 2023

Job Stress Scale variables	n (%)	Mean \pm SD	Coefficient of variation	Minimum	Maximum	Range
Psychological demand						
Low demand (LD)	16 (19,4)	12,0 \pm 2,6	21,6	7,0	14,0	7,0
High demand (HD)	20 (80,6)	16,2 \pm 1,0	6,1	15,0	18,0	3,0
Control over work						
Low control (LC)	13 (36,1)	13,8 \pm 4,1	29,7	7,0	17,0	10,0

High control (↑C)	23 (63,9)	19,1 ± 1,0	5,2	18,0	21,0	3,0
Social Support						
Low social support (↓AS)	18 (50,0)	15,5 ± 3,7	23,8	8,0	18,0	10,0
High social support (↑AS)	18 (50,0)	21,4 ± 1,5	7,0	19,0	23,0	4,0
Demand-Control quadrants						
Low wear and tear (↓D ↑C)	6 (16,7)	16,3 ± 0,4	2,4	16,0	17,0	1,0
Passive work (↓D ↓C)	10 (27,8)	12,1 ± 3,6	29,7	7,5	15,5	8,0
Active work (↑D ↑C)	17 (47,2)	17,6 ± 0,7	3,9	16,5	19,0	2,5
High wear (↑D ↓C)	3 (8,3)	16,5 ± 0,9	5,4	16,0	17,5	1,5

Fonte: Own elaboration. Study data.

Based on the correlation analyses, age was negatively correlated with the Demand (-0.082; $p=0.653$), Control (-0.046; $p=0.791$) and Social Support (-0.062; $p=0.717$) dimensions. In the bivariate analyses, nurses with another job had a slightly lower mean occupational stress score in the Control dimension than nurses without another job (18.1 ± 1.3 versus 19.3 ± 0.9) (Table 2).

Table 2 - Benchmarking do INCA e do estudo do IFCC.

Variables	n (%)	Psychological Demand		Control		Social Support	
		Mean ± SD	p	Mean ± SD	p	Mean ± SD	p
Gender			0,246		0,412		0,683
Female	21 (67,7)	14,9 ± 1,5		18,3 ± 1,2		19,7 ± 2,2	
Male	10 (32,3)	15,7 ± 1,5		18,8 ± 1,6		20,1 ± 2,1	
Marital status			0,968		0,531		0,387
Without partner	15 (48,4)	15,2 ± 1,5		18,6 ± 1,1		19,4 ± 2,1	
With partner	16 (51,6)	15,1 ± 1,7		18,3 ± 1,5		20,1 ± 2,2	
Professional background			0,943		0,735		1,000
Graduation/Specialization	24 (77,4)	15,1 ± 1,7		18,5 ± 1,3		18,5 ± 1,3	
Master's/ PhD	7 (22,6)	15,2 ± 1,1		18,2 ± 1,3		18,2 ± 1,3	
Presence of another employment relationship			0,108		0,028		0,927
Yes	23 (74,2)	14,9 ± 1,6		18,1 ± 1,3		19,8 ± 2,1	
No	8 (25,8)	16,0 ± 1,3		19,3 ± 0,9		19,8 ± 2,4	
Reason for working in the ICU			0,765		0,661		0,207
Personal interest	23 (74,2)	15,2 ± 1,5		18,5 ± 1,3		20,0 ± 2,0	
Institutional interest	8 (25,8)	15,0 ± 1,9		18,2 ± 1,4		19,1 ± 2,5	
Satisfaction with working in the ICU			0,205		0,593		0,683
Yes	29 (93,5)	15,1 ± 1,6		18,5 ± 1,4		19,9 ± 2,2	
No	2 (6,5)	16,5 ± 0,7		18,0 ± 0,0		19,0 ± 1,4	
Management position in the ICU			0,946		0,260		0,177
Yes	3 (9,7)	15,3 ± 2,3		17,6 ± 1,1		18,0 ± 1,0	
No	28 (90,3)	15,1 ± 1,5		18,5 ± 1,3		20,0 ± 2,2	
Higher demand in the ICU			0,939		0,168		0,703
Assistance	25 (80,6)	15,1 ± 1,5		18,6 ± 1,2		19,9 ± 2,1	
Supervision/Management	6 (19,4)	15,3 ± 1,9		17,8 ± 1,8		19,5 ± 2,4	
Family incomeR\$			0,806		0,602		0,461
Up to 4,999.00	26 (83,9)	15,1 ± 1,6		18,5 ± 1,4		19,9 ± 2,2	
5,000.00 and over	5 (16,1)	15,4 ± 1,1		18,2 ± 0,4		19,2 ± 2,1	
Benefits			0,402		1,000		0,949

Yes	10 (32,3)	14,8 ± 1,5		18,5 ± 1,5		19,8 ± 2,2	
No	21 (67,7)	15,3 ± 1,6		18,4 ± 1,3		19,8 ± 2,2	

Source: Own elaboration. Study data.

As for the aspects and situations experienced by nurses during COVID-19, the average score for the Psychological Demand dimension was lower among nurses who felt more tired (they reported having a COVID-19 diagnosis (3.4 points lower) and those who were afraid of losing friends and relatives (2.6 points lower). In the Control dimension, nurses who had support and recognition from their superiors had a higher average score (3.4 points more) (Table 3).

Table 3 - Occupational Stress dimension scores (mean ± SD) according to aspects and situations (feelings/behaviors) related to the COVID-19 pandemic in participants. Boa Vista, RR, Brazil, 2023

Features	n (%)	Psycho-logical Demand	p	Control	p	Social Support	p
		Mean ± SD		Mean ± SD		Mean ± SD	
Diagnosed with COVID-19			0,487		0,139		1,000
Yes	33 (91,7)	14,1 ± 2,8		16,9 ± 3,7		18,3 ± 4,2	
No	3 (8,3)	15,6 ± 2,0		19,3 ± 0,5		19,3 ± 2,0	
Increased alcohol consumption			0,780		0,916		1,000
Yes	2 (5,6)	14,5 ± 0,7		18,0 ± 0,0		19,5 ± 3,5	
No	34 (94,4)	14,2 ± 2,8		17,1 ± 3,7		18,3 ± 4,1	
Increased consumption of tobacco			0,643		0,523		0,685
Yes	3 (8,3)	12,6 ± 4,9		18,5 ± 1,3		18,5 ± 1,3	
No	33 (91,7)	14,4 ± 2,5		18,2 ± 1,3		18,2 ± 1,3	
Started using stimulant			0,408		0,893		0,923
Yes	8 (22,2)	13,0 ± 3,9		16,2 ± 5,3		17,6 ± 5,3	
No	28 (77,8)	14,6 ± 2,3		17,4 ± 3,0		18,6 ± 3,7	
Felt able to care for critically ill patients with COVID-19			0,566		0,681		0,286
Yes	22 (61,1)	14,3 ± 3,0		17,2 ± 3,7		18,8 ± 4,0	
No	14 (38,9)	14,2 ± 2,4		17,0 ± 3,5		17,7 ± 4,2	
Felt safe with protective measures and PPE in the ICU			0,673		0,445		0,163
Yes	15 (41,7)	14,6 ± 2,6		17,9 ± 2,9		19,6 ± 3,2	
No	21 (58,3)	14,1 ± 2,9		16,6 ± 3,9		17,6 ± 4,4	

Felt more tired			0,036		0,552		0,834
Yes	34 (94,4)	14,1 ± 2,7		17,1 ± 3,7		18,4 ± 4,2	
No	2 (5,6)	17,5 ± 0,7		17,5 ± 0,7		18,5 ± 0,7	
Had insomnia			0,342		0,376		0,714
Yes	23 (63,9)	14,5 ± 2,7		17,4 ± 3,5		18,3 ± 4,0	
No	13 (36,1)	13,9 ± 2,8		16,6 ± 3,7		18,5 ± 4,2	
Became more irritable and intolerant			0,309		0,259		0,239
Yes	26 (72,2)	14,3 ± 3,1		17,1 ± 4,0		18,0 ± 4,1	
No	10 (27,8)	14,3 ± 1,7		17,3 ± 2,2		19,4 ± 3,8	
Afraid of losing friends and relatives			0,049		0,839		0,931
Yes	33 (91,7)	14,0 ± 2,8		17,0 ± 3,7		18,3 ± 4,2	
No	3 (8,3)	16,6 ± 0,5		18,3 ± 2,5		19,3 ± 2,3	
Afraid of losing your job			0,690		0,356		0,358
Yes	11 (30,6)	13,7 ± 3,3		17,0 ± 4,6		18,7 ± 4,9	
No	25 (69,4)	14,5 ± 2,5		17,2 ± 3,1		18,3 ± 3,7	
Had to compromise on finances			0,554		0,657		0,941
Yes	9 (25,0)	13,8 ± 2,9		17,5 ± 3,4		18,6 ± 3,5	
No	27 (75,0)	14,4 ± 2,7		17,0 ± 3,7		18,3 ± 4,3	
Had support and recognition from superiors			0,116		0,002		0,252
Yes	11 (30,6)	12,9 ± 3,8		14,8 ± 4,4			
No	25 (69,4)	14,9 ± 1,9		18,2 ± 2,6			
Obtained some action for the physical, mental and social health of superiors			0,683		0,401		0,577
Yes	6 (16,7)	14,3 ± 3,9		16,5 ± 3,8		17,6 ± 3,4	
No	30 (83,3)	14,3 ± 2,5		17,3 ± 3,6		18,6 ± 4,2	

Source: Own elaboration. Study data.

The multivariate model estimated that nurses who did not receive support and recognition from their superiors had lower mean scores in the Psychological Demand (2.12 units lower) and Control (3.26 units lower) dimensions compared to nurses who did. The standardized coefficient (BETA) for the variable “Had support and recognition from superiors” was the highest among all the variables analyzed, in all the dimensions of the JSS, in which it showed a significant negative correlation ($\beta = -0.763$), and the model is explained by 15.3% including all the variables in the Psychological Demand dimension. The same variable also showed a significant positive correlation ($\beta = 0.903$)

in the Control dimension, with 19.9% explained (Table 4).

Table 4 - Unstandardized and standardized regression coefficients of multiple linear regression equations. Boa Vista, RR, Brazil, 2023.

Dimension / Predictor (reference)	b	b(EP)	BETA	P	R ² (R ² _{aj})
Psychological Demand					
Presence of another bond (No)	0,57	0,94	0,208	0,547	0,250 (0,153)
Felt more tired (No)	-2,84	2,05	-1,020	0,176	
Fear of losing friends and relatives (No)	-1,79	3,78	-0,645	0,290	
Support and recognition from superiors (No)	-2,12	0,93	-0,763	0,030	
Control					
Presence of another link (No)	2,10	1,32	0,582	0,121	0,291 (0,199)
Higher demand in the ICU (Assistance)	0,58	1,46	0,162	0,692	
Diagnosed with COVID-19 (No)	-3,95	2,21	-1,093	0,084	
Support and recognition from superiors (No)	-3,26	1,17	0,903	0,009	
Social support					
Management position in the ICU (No)	-1,05	2,48	-0,257	0,676	0,063 (0,007)
Felt safe with protective measures and PPE in the ICU (No)	2,07	1,39	0,507	0,147	

b - Unstandardized regression coefficient; b(EP) - Standard error of b; BETA - Standardized regression coefficient; R²_{aj} - Adjusted R².

Source: Own elaboration. Study data.

DISCUSSION

The participants in the study were mostly female, married, with children, had a mean education duration of 6.6 years, and an average age of 38.9 years. A multicenter study conducted with 153 nurses from 14 ICUs and dialysis wards in three Iranian hospitals showed similar results to this study: an average age of 31.3 (6.5), a majority female (75.2%), and married (81.7%).⁹

The healthcare sector is marked by the division of labor, gender stereotypes, and the feminization of the profession, especially in nursing, which has historically been made up of female professionals.¹⁰ However, over the years, this profile has changed, showing a trend towards an increase in male professionals in various healthcare categories.¹¹ Regarding the predominance of married professionals with children, the findings align with studies where a higher frequency of respondents had children and lived with partners.¹²⁻¹³ Concerning academic and professional training, the data are similar to those found in a study where participants had more than 11 years of education, up to 5 years of work experience, and 74.07% of nursing professionals had postgraduate degrees.¹²

In evaluating the dimensions of JSS, most study respondents showed high psychological demands combined with high job control. The results of this study were similar to those of a

study conducted with nursing staff in an emergency hospital in Porto Alegre, Rio Grande do Sul, Brazil, where they had an average score of 14.6 points in the Psychological Demand dimension and 16.9 points in the Control dimension, both with high ratings.¹⁴ Supporting other studies, although these demands are excessive, they are less harmful as the worker can choose how to plan their work hours according to their biological rhythm and develop strategies to deal with difficulties, so high control can offset the negative effects of high psychological demands.^{7,10} However, a study showed that even with high control, in some situations this characteristic may not mitigate the negative aspects of high psychological demand, such as understaffing and other work activities.¹⁵

The quadrant category of the Demand-Control Model with the highest number of professionals was the active work category, which combined high demand and high control. This work situation allows most nurses in the study to be classified as having an intermediate exposure to occupational stress. Given that the active work condition allows professionals to use their knowledge and skills to meet demands in their work environment, and although the demands are excessive, the high control contributes to the worker's growth and learning.¹⁶ However, a study showed high prevalences of minor psychological disorders in the active work quadrant, revealing that work with high demand, even in high control situations, can be detrimental to individuals' psychological health.¹⁷

Regarding social support, it was evenly distributed, with half of the nurses reporting high social support, indicating a positive factor in the Demand-Control relationship. The literature highlights the harmful consequences of weak social support and the protective effects of access to rich and functional social networks in maintaining physical and psychological health.¹⁸ Other studies also emphasized the importance of social support as an indispensable means of managing occupational stress, enhancing health professionals' confidence in their skills, and minimizing the negative effects of high work demands.^{15,19}

Although most nurses in the study were classified as active workers, they might experience higher demand and low control situations at some point, leading to classification as highly stressed workers. Therefore, the ideal work condition would be characterized by low demand, high control, and high social support.⁴

Regarding sociodemographic data, age negatively correlated with all three JSS dimensions. A study showed that stress was twice as high in older nurses.²⁰ Supporting this finding, the literature points out that advanced age is a significant factor for developing occupational disorders, as individuals lose their ability to adapt to occupational stress conditions over time.²¹ It was identified that participants with additional employment had a slightly lower average stress score in the Control dimension compared to those without. A study showed a significant association between Burnout Syndrome and working in two or more shifts,²² as well as other contributing factors like low/inadequate nursing staff levels, shifts \geq 12 hours, low schedule

flexibility, time pressure, high professional and psychological demands, low task variety, role conflict, low autonomy, negative doctor-nurse relationships, insufficient supervisor/leader support, poor leadership, negative team relationships, and job insecurity.²³

Regarding aspects and situations experienced by participants during the COVID-19 pandemic, a study showed similar results to this study, where most nurses reported stress due to a lack of protective measures (91%), stress about potentially infecting loved ones (99%), exhaustion or fatigue (85%), irritability (54%), and a lack of support or recognition from superiors (89%).²⁴ Supporting these findings, the pandemic had significant impacts on healthcare professionals' health, including extended working hours, fear of infecting family and friends, reduced PPE availability, among other factors contributing to physical and mental exhaustion.²⁵

As mentioned, an indispensable resource that helps professionals cope with the demands described earlier is the support received in the workplace. However, most study participants reported not receiving support or recognition from superiors during the pandemic. Nonetheless, social support in the Demand-Control Model quadrant category was high for half of the professionals, indicating that they sought coping strategies on their own for work-related stress. Supporting this, a study showed that institutional support is not strongly promoted in the work environment, becoming a stress factor, and professionals themselves have adopted coping strategies to minimize stressors.¹ Another study also showed that most respondents did not receive strong institutional support, and the little they did receive was for laboratory tests, consultations, and psychological care, which was still considered insufficient.²⁶

Fatigue was strongly associated with the Psychological Demand dimension. This is due to the intensive nursing work having more extensive hours, among other factors like understaffing and performing high-complexity procedures. As such, exhaustive work makes nurses more vulnerable to occupational stress. With the pandemic, these factors were exacerbated, and work hours became even more challenging, leading workers to extreme stress conditions.^{1,27}

Still within Psychological Demand, the fear of losing friends and family was strongly associated with this dimension. During the pandemic, the most common behavioral reactions among healthcare professionals were recurring thoughts about family health, as direct patient care increased the fear of infection and transmission to loved ones.²⁸ Supporting another study, living with family was considered a risk factor for developing work-related stress, possibly due to the fear of transmitting infection, which creates a significant psychosocial burden on the professional.¹⁹

Support and recognition from superiors were strongly associated with the Control dimension. When data were subjected to multivariate analysis, the association of fatigue and fear of losing friends and family with the Psychological Demand dimension lost statistical significance. Only support and recognition

from superiors remained statistically significant in the Control dimension, and it also became significant in the Psychological Demand dimension. A study highlighted the importance of superior recognition of employees, which contributes to greater harmony in the work environment, increased commitment from professionals, and motivation to develop their skills more efficiently, thus justifying the strong influence on the Control dimension.²⁹ Receiving support from superiors makes professionals feel more secure and gain greater autonomy in decision-making, as recognition is essential for nursing leadership, which relies on greater autonomy and less subordination.²⁹⁻³⁰

This study provides a diagnosis of occupational stressors impacting the physical and mental health of intensivists nurses at the only Adult Intensive Care Unit in Roraima, Brazil, considering the COVID-19 pandemic's specificities. It is one of the few studies focusing specifically on these professionals in the extreme north of Brazil. Therefore, it offers initial information for future explorations with an emphasis on protective factors for occupational stress.

Some limitations were identified in the study. The participants were nurses, which does not allow for generalizing the results to other healthcare professionals. Another limitation was the use of a cross-sectional design, which does not allow for dynamic inferences about the causality of associated variables. Furthermore, the results cannot be generalized due to the sample size and the study being conducted in a single institution. In this context, further research in this thematic area is suggested to address these limitations, using different methodological approaches to produce more reliable results.

CONCLUSION

The research showed that nurses working in intensive care, particularly in the care of critically ill patients during the pandemic, have been undeniably influenced in their perception of work. It was found that nurses had an active job, with intermediate exposure to occupational stress, which is considered less harmful to health. However, despite being a positive aspect, it is possible that, in the long term, it could become negative due to the constant expenditure of physical and psychological energy in response to multiple demands and occupational stressors.

These professionals may, at some point in their work environment, experience situations of lower control, which could contribute to a shift from intermediate to high exposure to stress, leading to potential damage to their biopsychosocial health and directly impacting their quality of work life.

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