

## Anxiety and depression in health workers in a COVID-19 ICU in a reference hospital

### *Ansiedade e depressão em trabalhadores de saúde de UTI Covid-19 em um hospital de referência*

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**ABSTRACT** This study aimed to assess the prevalence of anxiety and depression among Intensive Care Unit (ICU) workers providing care to suspected or confirmed COVID-19 patients in a referral hospital in Pernambuco, Brazil. A descriptive, quantitative, cross-sectional study was conducted with 140 ICU workers from the Oswaldo Cruz University Hospital, including physicians, nurses, and nursing technicians. The workers completed a sociodemographic and occupational questionnaire, the General Anxiety Disorder-7 (GAD-7), and the Patient Health Questionnaire-9 (PHQ-9). The prevalence of anxiety was 38.6%, with a higher rate among nursing technicians (42.2%). The prevalence of depression was 41.4%, with a higher rate among physicians (46.4%). Younger workers or those who lacked leisure time had a higher rate of anxiety and depression. An association was also found between working both day and night shifts and the presence of depressive symptoms. It is concluded that ICU healthcare professionals are experiencing distress due to intensified work caused by the pandemic, highlighting the importance of mental health prevention and care policies.

**KEYWORDS** Occupational health. Mental health. Anxiety. Depression. COVID-19.

**RESUMO** Este estudo teve como objetivo avaliar a prevalência de ansiedade e depressão entre trabalhadores de Unidades de Terapia Intensiva (UTI) que prestam atendimento a pacientes suspeitos ou confirmados para covid-19 em um hospital de referência em Pernambuco, Brasil. Foi realizado um estudo descritivo, quantitativo, de corte transversal com 140 trabalhadores da UTI de um hospital universitário na cidade de Recife, incluindo médicos, enfermeiros e técnicos de enfermagem. Os trabalhadores responderam a um questionário sociodemográfico e ocupacional, ao General Anxiety Disorder-7 (GAD-7) e ao Patient Health Questionnaire-9 (PHQ-9). A prevalência de ansiedade foi de 38,6%, sendo maior entre os técnicos de enfermagem (42,2%). A prevalência de depressão foi de 41,4%, mostrando-se maior entre médicos (46,4%). Trabalhadores jovens ou aqueles que não possuíam momentos de lazer apresentaram uma taxa maior de ansiedade e depressão. Também foi encontrada associação entre trabalhar nos dois turnos (diurno e noturno) e a presença de sintomas depressivos. Conclui-se que os profissionais de saúde da UTI estão em sofrimento, que pode ter se agravado devido à intensificação do trabalho causada pela pandemia, e que políticas de prevenção e cuidado à saúde mental se fazem necessárias nesse contexto.

**PALAVRAS-CHAVE** Saúde do trabalhador. Saúde mental. Ansiedade. Depressão. Covid-19.

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## Introduction

The COVID-19 pandemic, an event of international epidemiological importance, recorded around 37 million confirmed cases and more than 704 thousand deaths in Brazil between February 26, 2020 and August 2023<sup>1</sup>. The lack of coordination at the federal level during the pandemic led to the production of bulletins by the Oswaldo Cruz Foundation (FIOCRUZ) on the epidemiological situation in the country, creating the COVID-19 Observatory Bulletins. In March 2021, they reported a possible health and hospital collapse, becoming one of the largest ever recorded. At the time, 24 states and the Federal District had an Intensive Care Unit (ICU) bed occupancy rate above 80%, with 15 federative units having rates equal to or greater than 90%<sup>2</sup>.

In Pernambuco, in May 2020, during the first wave of the pandemic, the number of patients waiting for ICU beds surpassed the mark of 275 people, exposing a possible collapse in the state's healthcare system. After the emergence of the gamma variant, Pernambuco had 340 patients waiting for ICU beds<sup>3</sup>.

This article talks about the impact on the mental health of health workers who provided care for suspected or confirmed COVID-19 patients in a reference hospital. It is the result of a master's degree research that aimed to evaluate the presence of anxiety and depression in nurses, doctors and nursing technicians working in a COVID-19 ICU.

The health crisis was aggravated by the political-institutional crisis, which intensified following the impeachment of President Dilma Rousseff, culminating in the imposition of State reforms that resulted in setbacks in labor and social security rights in Brazil, with significant losses relating to health, social security, social assistance and the environmental area<sup>4</sup>. Furthermore, the acceleration of the dismantling of public policies was materialized by the 2017 labor reform, through Law No. 13,874/2019 and by

Provisional Measure No. 905/2019, which resulted in the precariousness of labor relationships<sup>5</sup>.

In the health area, it is possible to observe the impact of these measures through changes in the way doctors are hired. Previously hired under the Consolidation of Labor Laws (CLT), they are now being hired as a 'legal entity', losing autonomy in relation to the terms of employment and working conditions<sup>6</sup>. Furthermore, the fragility of working conditions, for example, influenced the great contamination of some workers by COVID-19. In increasingly precarious relationships, delivery app drivers continued to expose themselves to the risk of becoming infected even in phases of greater social isolation<sup>7</sup>. When it comes specifically to health professionals, the Federal Nursing Council (Cofen) recorded 872 deaths among nursing professionals, and the Federal Council of Medicine (CFM) recorded 906 deaths among doctors<sup>8,9</sup>.

Due to the high transmissibility and morbidity, there was an increase in the demand for hospital care, which resulted in greater demand and, consequently, the overload of health professionals – with talks about the collapse of the health system emerging – with hundreds of patients waiting for a place in an ICU bed. Thus, it was necessary to open hundreds of ICU beds, but the amount of labor available was not capable of meeting this sudden increase in demand<sup>10-12</sup>. This scenario directly impacted the organization and operationalization of the work of health professionals, in the physical, cognitive and/or emotional fields, increasing workloads. Furthermore, all these changes resulting from the COVID-19 pandemic had the potential to impact the mental health of these workers<sup>13,14</sup>.

ICU professionals are very susceptible to psychological distress, which is associated with greater physical and emotional exhaustion favored by highly specific work and the need for constant attention. In this sense, the high labor and psychological demand can encourage these workers to become ill<sup>15</sup>.

COVID-19, therefore, can be identified as an event that can serve as a trigger for acute stress disorder and post-traumatic stress disorder, also due to the high morbidity and mortality of the infection. Furthermore, health professionals were subjected to unprecedented demand due to the need to deal with a massive number of cases and deaths, with important impacts on their health<sup>16</sup>.

In a study carried out in China, 1,257 health-care professionals who provided direct care in secondary and tertiary hospitals were interviewed. The data drew attention to the high prevalence of mental disorders: 44.6% had symptoms of anxiety; 50.4%, symptoms of depression; 34%, of insomnia; and 71.5%, stress<sup>17</sup>.

When considering these questions, this study aimed to analyze the prevalence of anxiety and depression among doctors, nurses and nursing technicians in a COVID-19 ICU in a reference hospital in Pernambuco.

## Material and methods

This is a descriptive, quantitative, and cross-sectional study, carried out in a university hospital in the city of Recife, capital of Pernambuco, characterized as a reference center for infectious diseases, being the first state health service to adapt to receive patients suspected or confirmed COVID-19 after the start of the pandemic.

The following took part in the study: all nursing professionals (higher and technical level) and medical staff working in the COVID-19 ICU of the selected hospital. The sample included all professionals in these categories who were registered in the sector in the month of February 2022, according to information collected from the sector's medical and nursing leadership, totaling 189 professionals, 33 of whom were doctors, 21 nurses, 135 nursing technicians.

To be included in the study, workers needed to have been carrying out their activities for at least six months since the first case of

COVID-19 was registered. Workers who were on vacation or on any other type of leave in the month prior to collection for a period longer than 30 days were excluded from the research.

To collect data, three questionnaires were applied: the sociodemographic and occupational questionnaire, the General Anxiety Disorder-7 (GAD-7) and the Patient Health Questionnaire-9 (PHQ-9).

The first instrument was aimed at characterizing workers, containing 21 questions aimed at describing the sociodemographic profile (gender, age, marital status, income, race, education, number of children, presence of leisure time during the week, quantity of leisure time during the week, physical activity) and occupational (profession, type of employment, number of weekly hours worked, number of employment relationships, period of work, highest degree, presence of justified absences during the last month, vacations in the last 13 months).

The GAD-7 questionnaire, a Brazilian version adapted by Moreno et al.<sup>18</sup>, presents a scale that identifies the presence of symptoms of generalized anxiety disorder. The instrument identifies the frequency in which each of the symptoms bothered the respondent in the last two weeks<sup>18</sup>. It consists of seven items, and response options range from '0 – Not at all' to '3 – Almost every day'. The higher the score (from 0 to 21 points), the greater the presence of anxious symptoms.

The final score of the test classifies the interviewee according to the degree of severity of their symptoms: minimal or null (0-4); light (5-9); moderate (10-14); and severe (15-21). It is considered a positive indicator of signs and symptoms of Anxiety Disorder (AD) a value equal to or greater than 10.

In the study by Moreno et al.<sup>18</sup>, the GAD-7 presented an internal consistency of  $\alpha = .916$ , and in the present study,  $\alpha = .893$ , in a single-factor structure, which can be observed when comparing eigenvalues of the sample data and the simulated data, having only one factor of the sample data above the simulated ones.

The PHQ-9 questionnaire, a Brazilian version adapted/validated by Osório et al.<sup>19</sup>, identifies the presence of symptoms of a major depressive episode. The respondent needs to indicate how often each of the symptoms described bothered him during the last two weeks. The scale consists of 9 items, and its response options range from '0 – Not at all' to '3 – Almost every day'.

The PHQ-9 score ranges from 0 to 27 points, and the result of this total score will also be analyzed according to the PHQ-9 classification criteria regarding the level of severity of depression: minimal or null (0-4); light (5-9); moderate (10-14); moderately severe (15-19); and severe (20-27).

A value greater than or equal to 10 is considered a positive indicator of depressive symptoms or depressive disorder<sup>19</sup>. Nunes and Faro<sup>20</sup> analyzed the factorial structure of the PHQ-9 and found an internal consistency of  $\alpha = .900$ , whereas the present research observed an  $\alpha = .908$ , with a unidimensional structure, proving the quality and suitability of the instrument for the objective of this research.

All instruments were self-administered, prepared via Google Forms and sent via WhatsApp link, eliminating the need for in-person data collection on different days and shifts to adapt to the professionals' working hours. The dependent variables were anxiety and depression, and the independent variables were sociodemographic characteristics.

In total, 140 professionals agreed to participate in the research, with five contact attempts being made via WhatsApp and phone calls. As data collection took place between March and May 2022, there was no loss of participants due to vacation/leave in the 30 days prior to the application of the questionnaire.

For data analysis, the Statistical Package for the Social Sciences (SPSS Inc.) version 22.0 and JASP version 0.16.3 were used. It was found that the data presented a deviation from normality using the Shapiro Wilk test, which presented  $p < 0.001$ , which points to

the impossibility of carrying out parametric analyses. Using this data as a basis, in addition to descriptive statistics, non-parametric inferential analysis was carried out.

Spearman correlation analysis was performed to evaluate the relationships between GAD-7, PHQ-9 and age group. The magnitudes of the correlations were analyzed based on what was proposed by Goss-Sampson<sup>21</sup>: equal to/below 0.29, low; between 0.30 and 0.49, moderate; equal to/above 0.50, high.

Analysis of the Mann Whitney test was also used for dichotomous variables/groups and the Kruskal-Wallis test for variables/groups with more than two classes. These analyzes allow comparing differences in medians or ranks.

Another test used was the chi-square, which allows comparing categorical variables and analyzing when the result is random. To analyze the psychometric qualities of the GAD-7 and PHQ-9, a parallel analysis of the questionnaires was carried out to analyze the factorial structure; and to assess reliability and internal consistency, Cronbach's Alpha was used.

The study was approved by the Research Ethics Committee of the Aggeu Magalhães Institute (Certificate of Presentation of Ethical Appreciation – CAAE 50153721.9.0000.5190; opinion number 5.141.014), and was carried out respecting the Guidelines and Regulatory Norms for Research involving Human Beings in accordance with with Resolution No. 466/2012 of the National Health Council.

## Results

In total, 140 professionals participated in the research, including 28 doctors (20%), 20 nurses (14.2%) and 92 nursing technicians (65.7%) from the COVID-19 ICU of the selected hospital. Due to the sample size, it was decided to evaluate the research participants in a single group, not taking into account the independent variables in the analysis of the outcomes.

Women were 82.1% of the workers who made up the sample for this study. Regarding age group, 32.1% of participants were between 30 and 39 years old, followed by those between 40 and 49 years old (28.6%), characterizing a population of young adults (table 1).

In terms of race, there is a predominance of individuals who recognize themselves as black or mixed race (55%). Among the medical team, 50% identify as black or mixed race; Among nurses, 60% declared themselves this way, and among nursing technicians, this figure was 55.4%.

The majority of respondents say they have children (62.9%). Among doctors (64.3%) and nurses (70%), the majority do not have children. Among nursing technicians (78.3%), the largest number of respondents have children.

In relation to monthly income, most professionals receive up to 4 minimum wages

(78.7%). In relation to doctors, most of these professionals receive more than 8 minimum wages (92.8%), among nurses, most workers receive up to 4 minimum wages (80%) and most nursing technicians receive up to 3 minimum wages (94.2%).

Regarding the number of employment relationships, the majority of professionals have more than one employment relationship (82.1%). Of these, 89.3% of doctors, 80% of nurses and 80.4% of nursing technicians have two or more jobs.

With regard to working hours, the majority of individuals work more than 60 hours per week (57.7%), and 21 individuals (15%) work more than 90 hours per week. With regard to leisure, 38 professionals (27.1%) do not have any leisure time during the week.

Table 1. Sociodemographic characteristics of participants

Variables	Total		Nurses		Physicians		Nursing Technicians	
	n	%	n	%	n	%	n	%
<b>Total</b>	<b>140</b>		<b>20</b>	<b>14.2</b>	<b>28</b>	<b>20</b>	<b>92</b>	<b>65.7</b>
<b>Gender</b>								
Female	115	82.1	17	85	14	50	84	91.3
Male	25	17.9	3	15	14	50	8	8.7
<b>Age group</b>								
20-29 years	24	17.1	6	30	6	21.4	12	13
30-39 years	45	32.1	7	35	16	57.1	22	23.9
40-49 years	40	28.6	2	10	5	17.9	33	35.9
> 50 years	13	9.3	1	5	0	0	12	14.1
<b>Work shift</b>								
Only day	26	18.6	5	25	0	0	21	22.8
Only night	18	12.9	2	10	2	7.1	14	15.2
Day and night	96	68.6	13	65	26	92.9	57	62
<b>Leisure</b>								
Sometimes	66	47.1	9	45	11	39.3	46	50
Yes	36	25.7	11	39.3	7	35	18	19.6
No	38	27.1	6	21.4	4	20	28	30.4

Source: Own elaboration (2022).

In the sample analyzed, 38.6% of professionals showed symptoms of anxiety. Regarding the professional category, among nursing technicians, a prevalence of 42.2% for anxiety disorder was recorded, while among nurses and doctors, the prevalence was 35%

and 32.1% respectively. Women had a prevalence of 41.7% for anxiety symptoms while men had 24%. In terms of race, 39% of black or brown individuals and 37.8% of white people reported symptoms of anxiety.

Table 2. Anxiety symptoms and sociodemographic data

Variables	Absence of anxiety symptoms		Presence of anxiety symptoms or Anxiety Disorder (AD)	
	n	%	n	%
<b>Total</b>	<b>86</b>	<b>61.4</b>	<b>54</b>	<b>38.6</b>
<b>Profession</b>				
Physician	19	67.8	9	32.2
Nurse	13	65.0	7	35.0
Nursing Technician	54	56.7	38	42.2
<b>Gender</b>				
Female	67	58.3	48	41.7
Male	19	76.0	6	24.0
<b>Age group</b>				
20-29 years	10	45.4	12	54.6
30-39 years	22	53.6	19	46.3
40-49 years	31	70.5	13	29.6
> 50 years	8	66.6	5	33.3
<b>Work shift</b>				
Day or night	31	70.5	13	29.5
Day and night	55	57.3	41	42.7
<b>Leisure</b>				
Yes/sometimes	68	66.7	34	33.3
No	18	47.4	20	52.6

Source: Own elaboration (2022).

The study revealed a prevalence of 41.4% of depressive symptoms among the workers evaluated, with 42.6% of records among the total number of women evaluated and 36% among men. Regarding the professional category, 46.4% of doctors, 45% of nurses and

40% of nursing technicians reported depressive symptoms. Among individuals who identify as white, 45.9% reported depressive symptoms, while among those who identify as black or mixed race, 37.7% reported these same symptoms.

Table 3. Depressive symptoms and sociodemographic data

Variables	Absence of depressive symptoms		Presence of depressive symptoms (DM)	
	n	%	n	%
<b>Total</b>	<b>82</b>	<b>58.6</b>	<b>58</b>	<b>41.4</b>
<b>Profession</b>				
Physician	15	53.6	13	46.4
Nurse	11	55	9	45
Nursing Technician	56	60	36	40
<b>Gender</b>				
Female	66	57.4	49	42.6
Male	16	64	9	36
<b>Age group</b>				
20-29 years	10	45.5	12	54.5
30-39 years	102	51.2	20	48.8
40-49 years	31	70.5	94	29.5
> 50 years	90	60	24	40
<b>Work shift</b>				
Day or night	32	72.7	12	27.3
Day and night	50	52.1	118	47.9
<b>Leisure</b>				
Yes/sometimes	66	64.7	36	35.3
No	16	42.1	22	57.9

Source: Own elaboration (2022).

Table 4 indicates a negative correlation between the GAD-7, PHQ-9 scores and the age group of the population studied, that is, the younger the worker, the greater the chance of obtaining high scores on the GAD-7.

A negative correlation was also observed between the number of hours worked and age group, indicating that the younger the worker, the greater the workload. The GAD-7 recorded

that people classified as anxious have a lower average age ( $M = 36.4$ ).

Another negative correlation was noted between the PHQ-9 score and the age group of the population studied, that is, the younger the worker, the greater the chance of obtaining high scores on the PHQ-9 (table 4). Workers with depressive symptoms have a lower average age ( $M = 36.577$ ).

Table 4. Correlation between age group, working hours, number of jobs, anxiety symptoms and depression traits

Variable	Working hours	Number of jobs	GAD-7	PHQ-9	Age group
Weekly working hour	—				
Number of jobs	-0.120	—			
GAD-7	0.051	-0.003	—		
PHQ-9	-0.003	0.031	0.800	—	
Age group	-0,202	-0,096	-297	-0.316	—

Source: Own elaboration (2022).

The majority of individuals (68.6%) work during the day and night (*table 1*). These workers had a prevalence of 42.7% for anxiety symptoms, while individuals who work only one of the shifts had a prevalence of 29.5% (*table 2*).

In total, 27.1% of professionals do not have any leisure time during the week (*table 1*). This

group has a prevalence of anxiety symptoms of 52.6% while those with leisure time had a prevalence of 33.3% (*table 2*).

The chi-square test ( $\chi^2 = 4.352$ ,  $DF = 1$ ) indicated a statistically significant difference in anxiety symptoms between those who have leisure time during the week and those who do not ( $p < 0.05$ ) (*table 5*).

Table 5. Relationship between symptoms of anxiety or depression and sociodemographic (leisure) and occupational (work shift) characteristics of workers. Correlation between anxiety symptoms and depression symptoms

	Absence of anxiety symptoms	Presence of anxiety symptoms
<b>Leisure</b>		
Yes/sometimes	68	34
No	18	20
	Absence of symptoms of depression	Presence of symptoms of depression
<b>Leisure</b>		
Yes or sometimes	66	36
No	16	22
<b>Work shift</b>		
Day or night	32	12
Day and night	50	46
	GAD_Total	PHQ_Total
GAD_Total		.800
PHQ_Total	.800	

Source: Own elaboration (2022).

Note: Correlation is significant at the 0.01 level (2-tailed).

Regarding depressive symptoms, professionals who work in both shifts (day and night) had a prevalence of 47.9%. Among professionals who only work day or night, the prevalence was 27.3% (*table 3*).

A statistically significant difference ( $p < 0.05$ ) in depressive symptoms was observed between those who had leisure time during the week and those who did not ( $\chi^2 = 5.828$ ,  $DF = 1$ ) and between those who worked both shifts and those who work only one of the shifts ( $\chi^2 = 5.299$ ,  $DF = 1$ ) (*table 5*).

In this study, 42 professionals (30% of the

sample) presented symptoms of anxiety and depression simultaneously. Corroborating this data, a high magnitude correlation was found between the GAD-7 and PHQ-9 scores (*table 5*).

## Discussion

In view of the results presented, there is a high prevalence of anxiety and depression among health professionals who work in ICUs focused on caring for suspected and confirmed COVID-19 patients.



The proportion of doctors, nurses and nursing technicians can be explained by the division of ICU teams, defined by Cofen and CFM. In the ICU, there must be one nurse and three nursing technicians for every five beds and one doctor for every ten beds. As expected, in this study, a higher proportion of nurses and nursing technicians was found compared to doctors<sup>22,23</sup>.

In terms of race, this study found a predominance of individuals who recognize themselves as black or mixed race, which is consistent with the distribution of the Pernambuco population according to data from the Brazilian Institute of Geography and Statistics (IBGE)<sup>24</sup>. Due to an error in the data collection stage, 24 (17.1%) of the professionals did not answer the question of race. This fact compromises the analysis of the research. In this understanding, a bibliographic review that set out to evaluate the impacts of the pandemic on the black population draws attention to the high rates of non-completion of the race/color question by health professionals. This fact can mask or distort information about this population<sup>25</sup>. In any case, it is important to clarify that some studies indicate that black individuals are more exposed and susceptible to contamination by COVID-19 and the impacts of the pandemic given the greater difficulty in accessing health services, the need to use public transport and poor work and housing conditions. Furthermore, these individuals are also those who predominate in informal jobs or those with greater interaction with the public. This section highlights the structural racism present in Brazilian society<sup>26,27</sup>.

Regarding the sociodemographic profile, the predominance of females in care spaces was also observed in other studies carried out during the COVID-19 pandemic<sup>17,28</sup>. A Brazilian study developed by Hirata<sup>29</sup> comparatively evaluated care work in Brazil, France, and Japan, reflecting on the sexual and international division of labor. In this reflection the social organization of care places women in a central role, both in the professional and

family spheres. It is important to note that care spaces, in general, offer precarious jobs, with low wages, little recognition and little valued<sup>29</sup>. This finding is confirmed in the present study when it is assessed that nursing work is mostly occupied by women and that nurses have a lower average salary than doctors.

The predominance of female presence in care spaces was intensified during the pandemic. Due to isolation, most women with children lost their support network and had an increase in the 'mental load' due to the demand for managing socially assigned domestic tasks. Worldwide, there has been an increase in cases of domestic violence, possibly associated with the pressure of social isolation on partners and the intensification of historically structured violence. Some authors suggest that control of domestic finances by men, the division of domestic tasks that overload women and the feeling of ownership and loss of power in men may justify the increase in violence against women<sup>30</sup>.

In this research, it is possible to identify that, among women, there was a higher prevalence of anxiety symptoms. Vieira, Anido and Calife<sup>31</sup>, in research that assessed the repercussions of the pandemic on female health professionals, found that the gender pay gap, the greater responsibility for unpaid work carried out at home and the need to reduce working hours are factors that favor the illness of female professionals.

In addition to anxiety, the present study identified that, among women, there was a higher prevalence of depression symptoms. These findings are also repeated in other studies that identified a greater risk of developing depressive symptoms in women who work on the front lines<sup>17,32</sup>. Some epidemiological research indicates that depression is more prevalent in women than in men<sup>20,22</sup>. Rolland et al.<sup>33</sup> state that women showed more symptoms of stress, anxiety, and depression during COVID-19<sup>33</sup>.

In line with this study, Duarte et al.<sup>34</sup> state that the mental illness profile identified is

mostly that of nurses, women, and mothers. In their bibliographical analysis results, there is evidence that the stress of working on the front line of a pandemic, added to the demands of children and domestic work, can trigger exhaustion, and have repercussions on mental health<sup>34</sup>. In their analysis, they infer that, over the years, there has been much progress with regard to the role of women in society, however, caring for children is still a female responsibility, therefore, there is a need for reconciliation between health work and family care, which can lead women to exhaustion and, consequently, to the presence of mental health illnesses that interfere with the quality of sleep, stress and symptoms of anxiety<sup>34</sup>.

Regarding the occurrence of cases of anxiety among health professionals, the study carried out by Alves et al.<sup>35</sup> during the COVID-19 pandemic, with nursing professionals in the Southeast region, showed the presence of psychopathological symptoms of this condition related to the work situation. Furthermore, they are in line with a study carried out in France by Azoulay et al.<sup>28</sup>, which evaluated the presence of depressive and anxiety symptoms by doctors working in ICUs, revealing a high prevalence of anxiety symptoms. Another study, carried out by Dal’Bosco et al.<sup>36</sup>, with nursing professionals from a university hospital, found a high prevalence of anxiety. The findings confirm the hypothesis that professionals who work in ICUs have a high risk of compromised mental health.

According to a study by Matos et al.<sup>37</sup>, it is possible that the impact on the mental health of these workers is associated with the risk of contamination, lack of personal protective equipment, precarious working conditions, and intensification of the workload.

Rezio et al.<sup>39</sup> carried out a qualitative study during the pandemic in a virtual environment in which they analyzed the relationship between neoliberalism and the degradation of nursing work. An impact on workers’ mental health was identified due to work overload, increased time spent working, increased responsibilities,

lack of personal protective equipment, reduction in stable jobs, privatization of state-owned companies, low remuneration, weakening of professional associations and double employment relationship. The authors’ considerations are in line with the results of this research, contained in *table 1*, in which multiple bonds and work overload were identified among workers, translated into long and exhausting working hours. Given this scenario, there is mental suffering aggravated by the lack of support from the work environment<sup>38,39</sup>.

Before the pandemic, a survey carried out with 715 professionals (doctors, nurses, nursing technicians, physiotherapists) from Brazilian ICUs revealed that 18.7% of these employees had symptoms of anxiety<sup>40</sup>.

In relation to the health worker’s routine, a qualitative study, carried out among nursing technicians in Rio Grande do Sul, identified that, often, the work process makes it impossible for the professional to have access to family, leisure, physical exercise and healthcare<sup>41</sup>.

A report from the World Health Organization (WHO), published in 2022, also demonstrated that the COVID-19 pandemic was responsible for a 25.6% increase in cases of anxiety<sup>42</sup>. These data show that the pandemic was (and still is) associated with the worsening of these workers’ mental health conditions.

A quantitative study, carried out with nursing professionals from Paraná, during the COVID-19 pandemic, also found a higher prevalence of anxiety symptoms in nursing professionals between 31 and 40 years old<sup>36</sup>. A study carried out with ICU professionals in France, during the second wave of the pandemic, suggests that the length of experience in the ICU was a protective factor for the development of burnout and post-traumatic stress disorder; better working conditions were protective factors for the presence of anxiety and post-traumatic stress disorder; and the possibility of taking care of the family protected against depression<sup>28</sup>.

In this study, it was also possible to observe the high prevalence of anxiety among workers,

especially among those with a high workload and those who carry out their activities in both shifts (night and day). Alves et al.<sup>35</sup> evaluated the presence of mental symptoms in nursing professionals, identifying an association between working hours and symptoms of mental suffering<sup>35</sup>.

### ICU professionals suffer more

The high prevalence of depression observed among professionals in this study is in line with evidence from other studies<sup>17,36</sup>. Furthermore, they are in line with a study carried out by Azoulay et al.<sup>28</sup>, which points to a high prevalence of depression symptoms among health professionals who worked in ICUs in France.

As it is a space dedicated to the care of critical patients, with high density, intense work pace and a large amount of technology, the ICU environment favors the development of mental health disorders<sup>15,16</sup>.

A multicenter study carried out in Brazilian ICUs identified a prevalence of 11.2% of depressive symptoms pre-pandemic (2017-2018)<sup>40</sup>. The WHO Report mentioned above identified a 27.6% increase in cases of anxiety<sup>42</sup>. Therefore, COVID-19 appears to be associated with worsening mental health in the population.

The present study found a higher prevalence of depressive symptoms among younger people. Similar conclusions were also detected in a study carried out in Saudi Arabia, which interviewed health professionals who provided care to patients with COVID-19, identifying that those between 30 and 39 years old had an intermediate-high risk of presenting depressive symptoms<sup>43</sup>.

Dejours<sup>44</sup> states that younger workers are more susceptible to mental suffering resulting from the activity. He justifies this statement by indicating that less experience in the profession's activities increases fear in active workers.

The pandemic represented a moment of intensification of the work process. A study

carried out among nursing professionals who worked to combat COVID-19 in Brazil aimed to evaluate the working conditions and perceptions of these professionals<sup>45</sup>. According to their findings, only 32.3% of participants stated that they felt prepared to deal with the pandemic, also reporting: fear, increased irritability, sadness and loneliness, due to isolation<sup>45</sup>. Furthermore, they highlighted the work overload, with more than 90% of participants stating that COVID-19 changed their work processes<sup>45</sup>. A study carried out in Rio Grande do Norte evaluated the mental health of nursing professionals in medium and high complexity services during the pandemic and found a high prevalence of symptoms of anxiety and depression<sup>46</sup>.

All this evidence presented indicates the need to invest in prevention strategies for the mental health of these professionals and highlight the need to strengthen unions and associations to implement the creation of social protection policies that are being weakened by neoliberalism<sup>39</sup>.

Given the scenario of health crisis and precarious work that has been observed, it is possible to state that many health professionals are in mental distress<sup>4,39</sup>. This suffering is related to a double burden of morbidity, resulting both from the transformations in the world of work – with intensification and increase in worker overload – and from the overload inherent to the increase in work imposed by the large number of cases of patients with COVID-19 who required care in health units of high technological complexity.

## Conclusions

This study contributes to highlighting the mental suffering of healthcare professionals in an ICU environment in a pandemic scenario. A challenge in achieving this was the collection stage, only possible through the option of using a self-administered questionnaire, considered a fundamental strategy, which, however,

does not eliminate the occurrence of errors during completion by participants. Another aspect also arising from the questionnaire is its limitations in analyzing the mental health of workers, since it is not possible to assess the subjectivity of each professional. Despite the limits in the use of this type of instrument, the results reveal the need to discuss and promote public policies aimed at the mental health of health professionals.

In a scenario of loss of labor rights and denialism as a policy to combat the COVID-19 pandemic, a high prevalence of symptoms of anxiety and depression was found among doctors, nurses and nursing technicians who worked in the ICU of suspected or confirmed COVID-19 patients, indicating that the pandemic may have contributed to the impact on professionals' mental health.

In this environment, some prevention strategies, such as offering psychosocial support and telecare, are feasible forms of worker health care. To strengthen the capacity for social demands and protection, it is essential to strengthen worker groups so that other forms of mental health care are developed.

It is also necessary for managers in the health sector to look more carefully at the impact on workers' health caused by the tension of neoliberalism and materialized by

the precariousness of work. To build a more human society, it is necessary to create a space that favors the development of workers' subjectivities and that is, in fact, concerned with the health of these workers in an integral way.

Finally, the results suggest carrying out qualitative research that can provide more support for tracing relationships between the health condition and the health work process.

## Collaborators

Ishigami B (0009-0002-9262-5333)\* and Gurgel AM (0000-0002-5981-3597)\* contributed to the design, analysis and interpretation of data, preparation of the work and critical review for intellectual content, and final approval of the version to be published. Barros JMS (0009-0001-7102-7783)\*, Medeiros KR (0000-0002-7518-4137)\* and Gurgel IGD (0000-0002-2958-683X)\* contributed to the preparation, critical review of the intellectual content and final review of the version to be published. Souza WV (0000-0002-0939-9332)\* contributed to data analysis and interpretation, preparation of the work and critical review for intellectual content, and final approval of the version to be published. ■

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