



# Brazilian nurses' perception of professional and personal stress during the COVID-19 pandemic

*Percepção de enfermeiros e enfermeiras brasileiros sobre estresse profissional e pessoal durante a pandemia de COVID-19*

*Percepción de enfermeros y enfermeras brasileños sobre el estrés profesional y personal durante la pandemia de COVID-19*

José Luís Guedes dos Santos<sup>1</sup>

Kaiane Neves<sup>1</sup>

Marcella Gabrielle Betat<sup>1</sup>

Messias Lemos<sup>1</sup>

Glauber Weder dos Santos Silva<sup>2</sup>

Giulia Gazineo Trindade Assis<sup>3</sup>

Marluci Andrade Conceição Stipp<sup>3</sup>

Liana Amorim Corrêa Trotte<sup>3</sup>

Javier Isidro Rodríguez López<sup>4,5</sup>

Allison Patricia Squires<sup>6</sup>

1. Universidade Federal de Santa Catarina.  
Florianópolis, SC, Brasil.

2. Secretaria de Estado da Saúde Pública do  
Rio Grande do Norte. Natal, RN, Brasil.

3. Universidade Federal do Rio de Janeiro.  
Escola de Enfermagem Anna Nery. Rio de  
Janeiro, RJ, Brasil.

4. Growing Up Foundation. Bogotá D.C,  
Colômbia.

5. Universidad Nacional de Trujillo. Trujillo,  
Peru.

6. Global Consortium of Nursing and  
Midwifery Studies, Rory Meyers College of  
Nursing, New York University. Nova Iorque,  
Estados Unidos das América.

## Corresponding author:

José Luís Guedes dos Santos.  
E-mail: santosjl29@gmail.com

Submitted on 12/18/2024.

Accepted on 05/06/2025.

DOI: <https://doi.org/10.1590/2177-9465-EAN-2024-0113en>

## ABSTRACT

**Objective:** to describe Brazilian nurses' perspectives on the sources of work-related and personal stress sources during the COVID-19 pandemic. **Method:** a qualitative, descriptive study conducted in a virtual environment with 308 Brazilian nurses between April 2022 and September 2023. The Qualtrics XM Survey software was used for data collection, and content analysis was conducted using the IRaMuTeQ software. **Results:** the main causes of work-related stress were fear of infection, work overload, changes in the work environment and psychological impact. On a personal level, fear of death, social isolation, anxiety, worries about family members' health and economic difficulties were the main stressors. The vaccine brought relief and hope, but emotional challenges and the need for psychological recovery remained. **Final considerations and implications for practice:** Brazilian nurses faced numerous professional and personal stressors. Understanding this is critical to developing support and coping strategies during health crises. Implications for practice include promoting mental health, improving working conditions, strengthening social and institutional support and building resilience.

**Keywords:** COVID-19; Mental Health; Nurses; Occupational Stress; SARS-CoV-2.

## RESUMO

**Objetivo:** descrever a perspectiva de enfermeiros e enfermeiras brasileiros sobre as fontes de estresse relacionadas ao trabalho e à vida pessoal durante a pandemia de COVID-19. **Método:** estudo qualitativo, descritivo, conduzido em ambiente virtual com 308 enfermeiros e enfermeiras brasileiros entre abril de 2022 e setembro de 2023. Utilizou-se o *software Qualtrics XM Survey* para coleta de dados, e a análise de conteúdo foi realizada com auxílio do *software IRaMuTeQ*. **Resultados:** as principais fontes de estresse relacionadas ao trabalho foram o medo da infecção, a sobrecarga de trabalho, as mudanças no ambiente de trabalho e o impacto psicológico. No âmbito pessoal, o medo da morte, o isolamento social, a ansiedade, as preocupações com a saúde de familiares e as dificuldades econômicas foram os principais estressores. A vacina trouxe alívio e esperança, mas os desafios emocionais e a necessidade de recuperação psicológica persistiram. **Considerações finais e implicações para a prática:** os enfermeiros e enfermeiras brasileiros enfrentaram múltiplos fatores de estresse profissional e pessoal. A compreensão disso é crucial para o desenvolvimento de estratégias de apoio e enfrentamento em crises sanitárias. As implicações para a prática incluem a promoção da saúde mental, a melhoria das condições de trabalho, o fortalecimento do apoio social e institucional e o desenvolvimento da resiliência.

**Palavras-chave:** COVID-19; Enfermeiros e Enfermeiras; Estresse Ocupacional; SARS-CoV-2; Saúde Mental.

## RESUMEN

**Objetivo:** describir la perspectiva de enfermeros y enfermeras brasileños sobre las fuentes de estrés relacionadas con el trabajo y la vida personal durante la pandemia de COVID-19. **Método:** estudio cualitativo, descriptivo, realizado en ambiente virtual con 308 enfermeros y enfermeras brasileños entre abril de 2022 y septiembre de 2023. Para la recolección de datos se utilizó el *software Qualtrics XM Survey*, y el análisis de contenido se realizó con auxilio del *software IRaMuTeQ*. **Resultados:** las principales fuentes de estrés laboral fueron el miedo al contagio, la sobrecarga laboral, los cambios en el ambiente laboral y el impacto psicológico. A nivel personal, el miedo a la muerte, el aislamiento social, la ansiedad, la preocupación por la salud de los familiares y las dificultades económicas fueron los principales factores estresantes. La vacuna trajo alivio y esperanza, pero persistieron los desafíos emocionales y la necesidad de recuperación psicológica. **Consideraciones finales e implicaciones para la práctica:** los enfermeros y enfermeras brasileños enfrentaron múltiples factores de estrés profesional y personal. Comprender esto es crucial para desarrollar estrategias de apoyo y afrontamiento en las crisis de salud. Las implicaciones para la práctica incluyen promover la salud mental, mejorar las condiciones laborales, fortalecer el apoyo social e institucional y desarrollar la resiliencia.

**Palabras clave:** COVID-19; Enfermeras y Enfermeros; Estrés Laboral; SARS-CoV-2; Salud Mental.

## INTRODUCTION

COVID-19, caused by SARS-CoV-2, was declared a pandemic in March 2020, severely affecting healthcare systems worldwide. It required hospitals to adapt quickly, placing a heavy burden on workers, who had to change their ways of working amid fear of the unknown in an attempt to protect themselves from the virus.<sup>1,2</sup>

The various measures to control the spread of the disease have had an impact on the mental health of not only the general population, but also of healthcare professionals. This health crisis has changed work processes, impacting nursing professionals' mental health due to stress in both the personal and professional spheres. A study conducted in Europe indicates an alarming increase in burnout and the desire to leave the profession among nurses, reflecting the emotional burden of the crisis.<sup>3</sup>

Nursing teams, known for their direct contact with patients, were deeply impacted by the pandemic. Physical exhaustion and mental fatigue during this period intensified, aggravated by work overload, amid adverse conditions, such as fear of contamination and uncertainty regarding treatment. Challenges such as overcrowding, lack of supplies and personal protective equipment (PPE), absenteeism, long working hours, inexperience, and communication failures were identified as factors that significantly impacted mental well-being, increasing the risk of physical illness and the development of stress.<sup>4-6</sup>

Stress is the body's response to internal or external situations that generate tension, which can result in physical and emotional changes<sup>7</sup>. Stress in the workplace occurs when it is not possible to meet the demands of a situation, compromising the well-being of professionals.<sup>8,9</sup>

In Brazil, nurses have faced several professional and personal stressors throughout the phases of the COVID-19 pandemic.<sup>2</sup> Previous studies have focused on stressors faced by professionals, but restricted to a single level of analysis or a specific context of activity.<sup>10-12</sup> This segmented approach limits understanding of the breadth and diversity of challenges experienced by nursing as a whole. Furthermore, most studies were conducted in the early phase of the pandemic.

Thus, this study seeks to broaden this perspective by including reports from nurses who worked in different professional contexts and moments during the pandemic. Another distinguishing feature of this study is its qualitative approach, which allows for a deeper understanding of stress-related experiences and events imposed by the pandemic on nurses<sup>13</sup>. Further research on this topic is also necessary, as understanding these factors can provide valuable input for developing support and coping strategies for future health crises.

This study aimed to describe Brazilian nurses' perspective on sources of work-related and personal stress during the COVID-19 pandemic.

## METHOD

This study is linked to the Global Consortium of Nursing & Midwifery Studies (GCNMS), Rory Meyers College of Nursing New

York University, United States of America. This qualitative, descriptive study was conducted in a virtual environment and is based on data collected in Brazil. It is in line with the scope of a macroproject.

Participants had to have a nursing degree and have worked in any nursing role between April 2022 and September 2023 to participate in the study. Due to the general recruitment strategy adopted, which was a snowball method, the non-probability sample was intentionally selected. The survey was publicized through social media to expand recruitment efforts nationwide. The sample size adhered to the GCNMS standard of reaching a minimum of 300 respondents<sup>6-14</sup>. For this section, the study included all participants who responded to at least one of the open-ended questions selected for analysis.

Digital cards were developed for the recruitment process, accompanied by an invitation to participate in the study, to provide a consistent visual image associated with the study. To address the potential limitation of national representation associated with the traditional snowball method, we also opted to employ horizontal networks to expand the scope of the sample.<sup>15</sup> Therefore, the invitation to participate in the research was distributed through institutional and professional social networks as well as through the notice boards of health institutions and nursing training programs. It was also distributed via an email list of educational institution departments focused on nursing. Printed forms were distributed to potential participants and later collected and transcribed to the online platform.

The Qualtrics XM Survey software was used for data collection. All respondents initially read and agreed to the Informed Consent Form and confirmed their participation. Participants were instructed to access an online link to complete a standard data collection form consisting of objective and free-text questions. This form was developed by the GCNMS for all participating countries and is available in 28 languages. Participants were requested to respond to all questions; however, each question was accompanied by the option to "prefer not to say/answer".

A comprehensive set of socio-professional variables was initially collected to characterize participants, including age, gender, length of experience, and work location. The instrument was subsequently determined to comprise seven dimensions: 1) Mental health; 2) Workplace and response to the pandemic; 3) Burnout assessment; 4) Economy; 5) Migration/burnout assessment; 6) Patient care management and treatment observations; and 7) Occupational health risks.

In this research section, two open-ended questions from the first dimension (mental health) were selected. These questions were broadly formulated, allowing participants to spontaneously share their perceptions about the personal and professional stressors experienced during a pandemic: 1) Describe your main sources of work-related stress during the pandemic and comment on whether your sources of work-related stress have changed over time; and 2) Describe your main sources of personal stress during the pandemic. If your sources of personal stress have changed over time, describe

how. The first question was answered by 295 participants, and the second question received 283 responses.

Within the digital environment, each question was allocated a single page on the screen for the purpose of documenting the response. The text box was designed to be sufficiently spacious to occupy the entirety of the screen, with the objective of motivating participants to articulate their thoughts in an unrestricted manner. Participants were permitted to review their answers prior to submitting them.

To analyze participants' free-text responses, a pragmatic qualitative design was used. A pragmatic approach adopts a variety of methods, emphasizing those that are most effective and appropriate for solving research questions, which is especially valuable in professional application areas such as healthcare.<sup>13</sup>

Therefore, a combination of content analysis was used to analyze participants' responses to the free-text questions. The content analysis technique is a versatile research method that can be applied in various ways. The approaches developed to examine content are subject to variation according to the subject matter under investigation and the decisions made by the researcher and their team.<sup>16</sup>

For the initial analysis of the data in this study, the study used the *Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires* (IRaMuTeQ) version 07 alpha 2 software. The Descending Hierarchical Classification (DHC) analysis was performed on all of the text segments. The statistical significance of all occurrences was measured by p-value ( $p \leq 0.05$ ). In the course of DHC analysis, a comprehensive array of linguistic elements was considered, encompassing verbs, adjectives, nouns, and unrecognized forms. This approach was meticulously designed to include terms that were pertinent to the specific subject matter under investigation and were not recognized by the software dictionary.<sup>17</sup>

Subsequently, the individuals who uttered such words and phrases were identified and allocated to the categories generated by the software. This procedure is essential to verify whether the excessive presence of contributions from a single participant may be artificially influencing the frequency count, which could lead to a misinterpretation of the analyzed data. Overall, the process provides insights into how and why speakers used the words, since frequencies are always considered within the context of who spoke and how often.<sup>6</sup>

In parallel, a second researcher analyzed the responses using traditional content analysis, serving as an additional component. To assess categorization reliability, the percentage of simple agreement between the researcher and the software was calculated, resulting in 83.04% for work-related stress sources and 66.7% for personal stress sources.

Moreover, an analytical triangulation process was adopted, in which researchers compared automatically generated codes with those identified manually, reviewing any discrepancies until reaching a final consensus. Comparing the results of traditional human coding with automatically generated topics and their respective interpretations adds rigor to the analysis, increasing confidence in the validity of the response categories obtained.

This study was approved by the New York University Institutional Review Board (#IRB-FY2020-4440) as the proposing institution. Since the study was not limited to a specific healthcare service or setting, its dissemination in Brazil was based on the Institutional Review Board's approval of the institution responsible for the global project of which this research is a part.

All participants completed the online informed consent process before answering the study questions. The system did not collect participant email addresses or names, place of residence or place of work. No incentives were offered to participants as part of completion. The system allowed participants to answer only the questions that interested them, without requiring them to complete all sections. Participants were identified with codes consisting of the letter "P" and a sequential number from 1 to 308, considering the total number of respondents.

## RESULTS

### Participant description

A total of 308 Brazilian nurses participated in the survey. All respondents had received training in Brazil, the majority of whom were of Latin origin, and there was a predominance of females (77.92%). The respondents' mean age was 37.46 (SD 9.8) years. The length of professional experience was concentrated in the periods of 0 to 3 years (17.53%) and 4 to 6 years (16.23%), consecutively. The level of education ranged from undergraduate degree to doctoral degree. The largest proportion was at the graduate level (47.73%) and the master's level (25.65%).

During the fight against the COVID-19 pandemic, responding nurses' work was concentrated on the front line (64.29%), in the management of healthcare services (14.61%), and in education and research (4.55%). In the healthcare context, work in intensive care services stood out at 30.52%, with hospitals being the main setting for professional work at 59.9%. Primary healthcare services were also an important setting, ranking second among the most frequent places of work for survey participants (13.64%).

Public institutions (63.64%) and those located mainly in urban environments (77.92%) were the main organizations to which respondents were linked, with the minority being affiliated with a university or nursing school.

The most common type of work was full-time (40 hours per week or more) (45.78%). Twenty-four percent reported temporary or daily work contracts, and of those, 52.7% said this was their only option for staying in the job market. The multiplicity of employment relationships was also assessed, showing that 35.06% held more than one nursing job, and 15.58% held jobs outside of nursing.

Below is a qualitative analysis of open-ended questions on work-related and personal stress factors.

### Sources of work-related stress

Five semantic classes emerged from the computational analysis of the material for the question on sources of work-related stress. After validation, these classes were categorized and synthesized into four categories, as shown in Chart 1.

## Sources of personal stress

Six semantic classes emerged from the analysis of the material for the question on sources of personal stress. These classes were summarized into four and categorized and synthesized, as shown in Chart 2.

## DISCUSSION

This study identified the main sources of stress in the workplace as fear of viral contamination, material and personnel overload,

and the constant need to adapt to changes in routine, which often lead to communication breakdowns. Furthermore, a significant psychological impact was observed, evidenced by mixed feelings about vaccination, frequent mourning, and post-traumatic stress in some professionals.

On a personal level, stress was aggravated by the fear of death, the impact of isolation, anxiety in the face of uncertainty, concerns about families' and friends' health, social distancing, the need to maintain a support network, and economic difficulties, which led to multiple employment relationships.

**Chart 1.** Description of classes, synthesis of results and fragments of statements, using the IRaMuTeQ® software, on sources of work-related stress during the COVID-19 pandemic in Brazilian nurses. Florianópolis, SC, Brazil, 2024

| Class/synthesis  | Fragments   |
|--|---|
| <p><b>I) Fear of the risk of infection by the virus:</b></p> <p>It groups words related to fear and concern about contamination by the virus. Work overload influenced the risk of contracting the disease and its implications for the family environment.</p>  | <p><i>"The most stressful thing was the fear of getting infected, of not knowing how to care for patients, of infecting my family and of dying [...]" (P113)</i></p> <p><i>"Anguish, worry, fear of contamination, fatigue, work overload and fear for my family were my main sources of stress. Today they have diminished, but the memory is still alive and whenever I remember it, I feel sad." (P183)</i></p>  |
| <p><b>II) Feelings and expectations about vaccination:</b></p> <p>It reflects ambivalent feelings about vaccination, delays in manufacturing and distribution, and how time could impact more losses, concomitantly, expectations for better days after the vaccine is available.</p>  | <p><i>"The government's slow response in providing resources, especially the vaccine, to immunize the population was a source of stress." (P32)</i></p> <p><i>"Fear was the main source of stress, but as time went by and, especially when the vaccine arrived, everything became calmer, although many were unable to fully overcome the trauma." (P229)</i></p>  |
| <p><b>III) Changes in the work environment:</b></p> <p>It includes terms related to relationships between healthcare professionals and the nursing team itself, communication and changes in the work process. It reflects the difficulties faced in teamwork during the pandemic.</p>   | <p><i>"The lack of communication with management, the changes in service flows and the feeling of uncertainty stressed me out a lot." (P09)</i></p> <p><i>"My main sources of stress during the pandemic were the constant changes in service protocols, the shortage of materials to work with, reduced work staff, fights and arguments among coworkers." (P114)</i></p>  |
| <p><b>IV) Operational and psychological impacts of the pandemic</b></p> <p>It mainly addresses the work overload caused by the high demand for patients, the shortage of trained professionals and the lack of basic resources such as protective equipment and beds. The statements also highlight the psychological impact resulting from constant grief, post-traumatic stress, anxiety, and fear of contagion.</p> | <p><i>"During my experience with the pandemic, the main source of stress was the fact that healthcare services were not prepared to deal with pandemics. I highlight the shortage of qualified professionals, inadequate physical structure, lack of Personal Protective Equipment and supplies. The sum of these factors directly influenced my stress load as a nurse." (P07)</i></p> <p><i>"The increase in the number of Intensive Care Unit beds in our hospital increased the number of critically ill patients, and this was my biggest source of stress, as there was a need to always rush as demand was very high." (P021)</i></p> <p><i>"The work overload stressed me out [...] dealing with the loss of patients during shifts, seeing the suffering of families, lack of psychological support, normalization of death." (P189)</i></p> <p><i>"Some points were sources of stress such as employee turnover, lack of practice and work overload due to the absence of complete teams." (P235)</i></p> |



**Chart 2.** Description of classes and synthesis of results, using the IRaMuTeQ® software, on sources of personal stress during the COVID-19 pandemic in Brazilian nurses. Florianópolis, SC, Brazil, 2024

| Class/synthesis   | Fragments  |
|---|--|
| <p><b>I) Impact of work on mental health</b></p> <p>Statements reveal the profound impact of the pandemic on people's mental health. Fear of death, stress from social isolation, anxiety in the face of uncertainty, concern for families' and friends' health, and helplessness in the face of a crisis are predominant themes.</p>   | <p><i>"The sources of personal stress were fear of contamination (including of members of my family) and emotional shock resulting from the deaths of loved ones." (P67)</i></p> <p><i>"My sources of stress were related to having to stay away from family, uncertainty about an effective vaccine, and the loss of family, friends, and coworkers. It was painful to choose to face a deadly disease and put your life and the lives of the people you love most at risk." (P153)</i></p>   |
| <p><b>II) Mental health and everyday life</b></p> <p>It reflects stress associated with the risk of infecting loved ones and the physical and mental exhaustion of dealing with the pandemic period. The separation from family and friends, the lack of physical contact, and the difficulties with remote teaching of children were also sources of stress.</p>   | <p><i>"My main sources of stress were fear of the unknown, fear of death due to the precarious situation at work, lack of proper rest and disturbed sleep." (P96)</i></p> <p><i>"Low salary, heavy workload, and financial difficulties were my main sources of stress. I developed anxiety throughout the pandemic." (P238)</i></p> <p><i>"I was afraid of infecting my family, of bringing the disease home to my family. Working in a war zone and bringing the enemy home [...]" (P86)</i></p> <p><i>"I was pregnant at the height of the pandemic and with a young daughter, so I was in constant fear of catching the virus and taking it home, and my daughter was taking several strict and constant sanitary measures." (P183)</i></p>  |
| <p><b>III) Resilience and vulnerabilities</b></p> <p>With the arrival of vaccines, there was relief, but care and caution remained. Many developed greater resilience and a more empathetic and introspective outlook, although emotional challenges and psychological recovery persisted.</p>  | <p><i>"My main sources of personal stress during the pandemic were stress-related. Over time, we became more skilled at caring for COVID-19 patients. However, stress continued to increase because we did not have any psychological support. The damage caused is still being felt today with psychiatric treatments." (P49)</i></p> <p><i>"My main sources of personal stress during the pandemic have changed over time. I have started to pay more attention to my spiritual life, going to church, praying more, and becoming more introspective. In a special way, I have matured and my fear of death has diminished." (P113)</i></p> <p><i>"This improved from the moment the vaccine was developed and arrived. It meant hope for controlling the spread of the virus, but for it to work, we also had to continue taking precautions." (P139)</i></p> |
| <p><b>IV) Economic balance and challenges in the support network</b></p> <p>Statements highlighted concerns related to direct patient care, in addition to the need to maintain family, religious, and friendship ties. In addition, the difficulty in achieving economic stability became a significant source of stress, reinforced by the need for multiple employment relationships and maintaining employment.</p> | <p><i>"During the pandemic, I often had to leave my daughter at friends' houses, some of whom lived far away. It took a financial and emotional toll on the child. Keeping her distance from family members and following the spread of the virus through social media was painful [...]" (P184)</i></p> <p><i>"Loneliness was very present in my life, as it was in other colleagues' lives. I often cried because I was living with the fear of the disease and because I was far from my husband, because I felt alone." (P294)</i></p> <p><i>"I was left without a support network; I felt invaded by an immeasurable void. If I hadn't believed in God, I would have given up. I started taking antidepressants and increased my work hours due to financial necessity." (P304)</i></p>   |

The COVID-19 pandemic has presented an unprecedented scenario for healthcare professionals, with nurses being among the most affected groups. Studies conducted with Brazilian healthcare professionals indicate that the increase in occupational risks and workload during the pandemic had a profound impact on nursing professionals' mental health and job satisfaction.<sup>12,18</sup> These factors created a vicious cycle of stress and burnout that compromised the quality of care provided and the well-being of nurses, affecting team dynamics and the effectiveness of the healthcare system as a whole.<sup>19</sup>

Nursing practice, characterized by close and continuous contact with infected patients, has increased nurses' vulnerability to SARS-CoV-2 infection. Epidemiological data show that, in Brazil, the prevalence of infection was higher among nurses, compared to other healthcare professionals, reflecting the inherent risk of their work on the front line.<sup>20-22</sup> This context resulted in significant physical and emotional consequences, marked by the fear of contagion and the possibility of transmitting the disease to family members, accentuating daily stress and psychological impact on these workers.<sup>18</sup>

The constant loss of patients, family members, and colleagues, coupled with the ever-present threat of infection, fostered an environment of grief and trauma. This environment contributed to the development of mental health disorders, including post-traumatic stress disorder. These factors aggravated the emotional burden on nurses, creating a highly stressful work environment, negatively affecting both their mental health and their professional performance.<sup>23,24</sup> The experience of seeing colleagues succumb to the disease reinforced a cycle of fear and emotional exhaustion, intensifying the psychological impact for those who remained on the front lines.<sup>20</sup>

The initial shortage of vaccines, combined with the workload at vaccination centers and the delay in immunization in Brazil compared to other countries, constituted additional sources of stress for nurses.<sup>25,26</sup> On the other hand, the progressive availability of the vaccine brought renewed hope, promoting a gradual reduction in stress and anxiety levels. The progress of immunization allowed professionals to see a possible path to controlling the pandemic, which represented an important psychological relief amid the challenges faced.<sup>27,28</sup>

Internal conflicts within healthcare teams, combined with pressure from institutional leaders, were significant stressors. Job insecurity and low pay were compounded by financial instability resulting from the closure of healthcare facilities and excessive workloads, adding an economic dimension to nurses' emotional distress.<sup>6,29,30</sup> Changes in organizational structure and work processes during the pandemic have affected nurses' experience, contributing to increased stress.<sup>24</sup>

In addition to professional demands, the social distancing required due to exposure to the virus has had an additional emotional impact, restricting contact with family and friends and increasing the risk of anxiety disorders and depression.<sup>19,29</sup> Studies show that social support, religious practices, psychological support, and institutional management support were fundamental

coping strategies for nurses, helping them deal with the pressures imposed by the pandemic.<sup>2,31-33</sup>

The pandemic imposed unprecedented levels of work overload, with pressure on the time dedicated to care, increased responsibility, excessive shifts and reduced teams, which considerably increased occupational stress.<sup>11,34,35</sup> The continued use of PPE, combined with insufficient wages, has intensified physical and emotional stress, highlighting the urgent need to improve working conditions and support for healthcare professionals during health crises. This stress underscores the need for investment in psychological and financial support structures for professionals in situations of high-risk exposure, such as those in public health.<sup>2,36,37</sup>

Given this scenario, it is essential to reflect on the impact of the pandemic on nurse retention in the profession, and the challenges of keeping these professionals engaged in the long term, especially given the difficulties that were already being faced before the pandemic. The high rate of burnout and the increase in nursing attrition reinforce the need for effective strategies to improve workforce resilience. For instance, some measures, such as the implementation of mental well-being programs, flexible working hours, improved salary conditions and strengthening institutional support, could contribute to professional retention. In addition to this, public policies that prioritize the appreciation of nursing and the creation of contingency plans for future health crises can help mitigate the negative impacts in times of emergency, in favor of a more effective and sustainable response from the healthcare system.

## **FINAL CONSIDERATIONS AND IMPLICATIONS FOR PRACTICE**

The COVID-19 pandemic has imposed unprecedented challenges on Brazilian nurses, significantly affecting their mental health and well-being. This study identified and analyzed the main sources of stress faced by these professionals, such as fear of infection, work overload, changes in work settings, grief, social isolation, anxiety, and economic hardship. Although vaccination has brought relief, emotional consequences and the need for psychological recovery remain evident.

This study's main contributions include expanding knowledge about the psychosocial impacts of the pandemic on nurses and offering support for formulating support strategies and targeted interventions. In the scientific field, the findings underscore the importance of future research delving into the relationship between occupational and personal stress and coping strategies in health crisis contexts. Furthermore, incorporating sociodemographic variables and other professional perspectives can provide a more comprehensive understanding of the phenomenon.

In a practical context, the results emphasize the need for institutional and governmental policies that prioritize nurses' well-being. It is recommended to implement continuous psychological support programs, improve working conditions, strengthen social and institutional support networks, and develop initiatives aimed at increasing professional resilience. Creating healthier and

more sustainable work environments will directly contribute to the quality of care provided to patients and to the effectiveness of the healthcare system as a whole.

Therefore, despite limitations such as sample selection bias, the cross-sectional nature of this study, and the subjectivity of statements, this research provides valuable information for understanding the adversities experienced by nurses during the pandemic, which may guide actions for future health crises. Highlighting these issues reinforces the need for an ongoing commitment to protecting the mental health of nursing professionals, ensuring their safety and well-being and enabling them to perform adequately in different healthcare settings.

## ACKNOWLEDGMENTS

None.

## FINANCIAL SUPPORT

*Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Process 443719/2023-3.*

## DATA AVAILABILITY RESEARCH

The contents underlying the research text are included in the article.

## CONFLICT OF INTEREST

No conflict of interest.

## REFERENCES

1. Aydogdu ALF. Ethical dilemmas experienced by nurses while caring for patients during the COVID-19 pandemic: an integrative review of qualitative studies. *J Nurs Manag.* 2022;30(7):2245-58. <http://doi.org/10.1111/jonm.13585>. PMID:35266597.
2. Ampos LF, Vecchia LPD, Tavares JP, Camatta MW, Magnago TSBS, Pai DD. Implicações da atuação da enfermagem no enfrentamento da COVID-19: exaustão emocional e estratégias utilizadas. *Esc Anna Nery.* 2023;27:e20220302. <http://doi.org/10.1590/2177-9465-ean-2022-0302en>.
3. Bruyneel A, Bouckaert N, Noodhout CM, Detollenaere J, Kohn L, Pirson M et al. Association of burnout and intention-to-leave the profession with work environment: a nationwide cross-sectional study among Belgian intensive care nurses after two years of pandemic. *Int J Nurs Stud.* 2023;137:104385. <http://doi.org/10.1016/j.ijnurstu.2022.104385>. PMID:36423423.
4. Fusari MEK, Andrade GB, Lemos M, Peiter CC, Lanzoni GMM, Santos JLG. Tendências da produção de conhecimento de enfermagem sobre a pandemia. *Rev Rene.* 2024;25:e-92175. <http://doi.org/10.15253/2175-6783.20242592175>.
5. Cheung T, Fong TKH, Bressington D. COVID-19 under the SARS Cloud: mental health nursing during the pandemic in Hong Kong. *J Psychiatr Ment Health Nurs.* 2021;28(2):115-7. <http://doi.org/10.1111/jpm.12639>. PMID:32311811.
6. Squires A, Clark-Cutaja M, Henderson M, Arneson G, Resnik P. "Should I stay or should I go?" Nurses' perspectives about working during the COVID-19 pandemic in the United States: a summative content analysis combined with topic modelling. *Int J Nurs Stud.* 2022;131:104256. <http://doi.org/10.1016/j.ijnurstu.2022.104256>. PMID:35544991.
7. Clemente-Suárez VJ, Nikolaidis PT, Knechtle B, Ruisoto P. Editorial: Psychophysiology of stress. *Front Psychol.* 2022;13:896773. <http://doi.org/10.3389/fpsyg.2022.896773>. PMID:35465508.
8. Werke EB, Weret ZS. Occupational stress and associated factors among nurses working at public hospitals of Addis Ababa, Ethiopia, 2022: a hospital based cross-sectional study. *Front Public Health.* 2023;11:1147086. <http://doi.org/10.3389/fpubh.2023.1147086>. PMID:37143975.
9. Diño MJS, Bracero PJ, Buencamino A, Cajayon SB, Catajan MW, De Leon MLL et al. 'Should I stay or should I go?': a mixed methods study on nurse retention during challenging times. *Belitung Nurs J.* 2022;8(6):481-90. <http://doi.org/10.33546/bnj.2327>. PMID:37554232.
10. Góes FGB, Silva ACSS, Santos AST, Pereira-Ávila FMV, Silva LJ, Silva LF et al. Adversidades vivenciadas por profissionais de enfermagem em unidades de terapia intensiva em tempos de COVID-19. *Rev Baiana Enferm.* 2022;36:e45555. <http://doi.org/10.18471/rbe.v36.45555>.
11. Centenaro APFC, de Andrade A, da Silva RM, Bonow CA, da Costa MC, Brum K et al. Common mental disorders and risk perception in nursing work at COVID-19 hospital units. *Texto Contexto Enferm.* 2024;33:e20230019. <http://doi.org/10.1590/1980-265x-tce-2023-0019en>.
12. Cohen M, Cruz LN, Cardoso RB, Albuquerque MFPM, Montarroyos UR, de Souza WV et al. Impact of the COVID-19 pandemic on the mental health of frontline healthcare workers in a highly affected region in Brazil. *BMC Psychiatry.* 2023;23(1):255. <http://doi.org/10.1186/s12888-023-04702-2>. PMID:37069533.
13. Pyo J, Lee W, Choi EY, Jang SG, Ock M. Qualitative research in healthcare: necessity and characteristics. *J Prev Med Public Health.* 2023;56(1):12-20. <http://doi.org/10.3961/jpmph.22.451>. PMID:36746418.
14. Lee JJ, Ji H, Lee S, Lee SU, Squires A. Moral distress, burnout, turnover intention, and coping strategies among Korean nurses during the late stage of the COVID-19 pandemic: a mixed-method study. *J Nurs Manag.* 2024;2024:5579322. <http://doi.org/10.1155/2024/5579322>. PMID:40224793.
15. Geddes A, Parker C, Scott S. When the snowball fails to roll and the use of 'horizontal' networking in qualitative social research. *Int J Soc Res Methodol.* 2017;21(3):347-58. <http://doi.org/10.1080/13645579.2017.1406219>.
16. Silva DC, Hernández LG. Aplicação metodológica da análise de conteúdo em pesquisas de análise de política externa. *Rev Bras Ciênc Polít.* 2020;33(33):e218584. <http://doi.org/10.1590/0103-3352.2020.33.218584>.
17. Souza MARD, Wall ML, Thuler ACDMC, Lowen IMV, Peres AM. O uso do software IRAMUTEQ na análise de dados em pesquisas qualitativas. *Rev Esc Enferm USP.* 2018;52(0):e03353. <http://doi.org/10.1590/s1980-220x2017015003353>. PMID:30304198.
18. Santos Jr DF, Bittencourt MN, Marcheti PM, Pena JLC, Chaves SCS, Gonçalves AM, et al. Trabalho e sofrimento mental dos enfermeiros da Região Amazônica do Brasil durante a pandemia de COVID-19. *Rev Bras Enferm.* 2023;76(6):1-8. <http://doi.org/10.1590/0034-7167-2022-0792pt>.
19. Joshua R, Chehab F, David R, Salim NA. Impact of Work Stress during COVID-19 Epidemic on Job Satisfaction and Job Performance among Nurses in Critical Care Units, United Arab Emirates 2020. *Int J Clin Exp Med.* 2021;5(2):225-31. <http://doi.org/10.26855/ijcemr.2021.04.018>.
20. Alves LS, Ramos ACV, Crispim JA, Martoreli Jr JF, Santos MS, Berra TZ et al. Magnitude e severidade da COVID-19 entre profissionais de enfermagem no Brasil. *Cogitare Enferm.* 2020;25(0):1-15. <http://doi.org/10.5380/ce.v25i0.74537>.
21. Carlos DJD, Oliveira LPBA, Barros WCTS, Almeida Jr JJ. Adoecimento e morte por covid-19 na enfermagem brasileira. *Enferm Foco.* 2022;13:e-202216. <http://doi.org/10.21675/2357-707X.2022.v13.e-202216>.
22. Xu H, Stjernswärd S, Glasdam S. Psychosocial experiences of frontline nurses working in hospital-based settings during the COVID-19 pandemic: a qualitative systematic review. *Int J Nurs Stud.* 2021;3:100037. <http://doi.org/10.1016/j.ijnusa.2021.100037>. PMID:34308373.
23. Vázquez-Sánchez MA, Ayllón-Pérez V, Gutiérrez-Sánchez D, Valero-Cantero I, Fernandez-Ordoñez E, García-Gámez M et al. Professional grief among nurses in Spanish public health centers after caring for COVID-19 patients. *J Nurs Scholarsh.* 2023;55(1):56-66. <http://doi.org/10.1111/jnu.12809>. PMID:36102356.

24. Williams LA, Accardo D, Dolgoff J, Farrell A, McClinton T, Murray E et al. A mixed methods study: the grief experience of registered nurses working on the frontlines during the COVID-19 pandemic. *J Clin Nurs*. 2024;33(1):344-56. <http://doi.org/10.1111/jocn.16579>. PMID:36352533.
25. Fleury S, Fava VMD. Vacina contra Covid-19: arena da disputa federativa brasileira. *Saúde Debate*. 2022;46(1):248-64. <http://doi.org/10.1590/0103-11042022e117>.
26. Rosa SS, Barros THB, Laipelt RCF. O discurso antivacina no ontem e no hoje: a Revolta da Vacina e a pandemia da covid-19, uma abordagem a partir da Análise do Discurso. *Rev Electron Comun Inf Inov Saude*. 2023;17(3):617-32. <http://doi.org/10.29397/reciis.v17i3.3774>.
27. Couto MT, Barbieri CLA, Matos CCSA. Considerações sobre o impacto da covid-19 na relação indivíduo-sociedade: da hesitação vacinal ao clamor por uma vacina. *Saude Soc*. 2021;19(1):1-11. <http://doi.org/10.1590/s0104-12902021200450>.
28. Souza JB, Heidemann ITSB, Vendruscolo C, Zenevitz LT, Durand MK, Funai A. significados da vacina coronavírus 19: reflexões de enfermeiros que atuam na atenção primária à saúde. *Enferm Foco*. 2022;13:1-8. <http://doi.org/10.21675/2357-707X.2022.v13.e-202248>.
29. Sousa Fo JD, Sousa KHJF, Silva IR, Zeitoune RCG. Covid-19 pandemic and Brazilian Nursing: unveiling meanings of work. *Rev Esc Enferm USP*. 2022;56:e20220156. <http://doi.org/10.1590/1980-220x-reeusp-2022-0156pt>. PMID:36122363.
30. Chan G, Bitton J, Allgeyer R, Elliott D, Hudson L, Burwell PM. The impact of COVID-19 on the nursing workforce: a national overview. *Online J Issues Nurs*. 2021;26(2). <http://doi.org/10.3912/OJIN.Vol26No02Man02>.
31. Sehuloro LA, Molato BJ, Mokgaola IO, Gause G. Coping strategies used by nurses during the COVID-19 pandemic: A narrative literature review. *Health SA*. 2021;26:1652. <http://doi.org/10.4102/hsag.v26i0.1652>. PMID:34667654.
32. Arévalo-Ipanaqué JM, Obando Zegarra R, Cabanillas Chávez MT. Experiences of the nursing professionals hospitalized by COVID-19 in Peru: dawning every day meant one more chance to live. *SAGE Open Nurs*. 2023;9:23779608231196844. <http://doi.org/10.1177/23779608231196844>. PMID:37691719.
33. Jang SY, Ko Y. Influence of job stress and resilience on burnout of clinical nurses working in small and medium-sized hospital: focusing on comparing national safety hospital and COVID-19 dedicated hospital. *Korean J Health Promot*. 2023;23(2):65-74. <http://doi.org/10.15384/kjhp.2023.23.2.65>.
34. Rasheed SM, Bakhsh LS, Alhameedi RS, Mohidin S. Perceived stress among nurses at a tertiary care teaching hospital in Saudi Arabia during the COVID-19 pandemic. *Cureus*. 2024 mar 3;16(3):e55433. <http://doi.org/10.7759/cureus.55433>. PMID:38567217.
35. Santos TCC, Soares GC, Lima KCO, Souza BBC, Velloso ISC, Caram CS. Sobrecarga de trabalho de enfermeiros na pandemia de COVID-19: potência para vivências de sofrimento moral. *Rev Bras Enferm*. 2024;77(Suppl 4):e20230200. <http://doi.org/10.1590/0034-7167-2023-0200>. PMID:38511826.
36. Hagopian EM, Fernandes G, Taffner VBM, Mello FS, Rodrigues MM, Oliveira MV. Vivências e desafios enfrentados pelos profissionais de enfermagem na assistência a pacientes com COVID-19. *Rev Gaúcha Enferm*. 2022;43:e20200405. <http://doi.org/10.1590/1983-1447.2022.20200405.pt>. PMID:36477998.
37. Luna Fa DOM, Magalhães BC, Silva MMO, Albuquerque GA. Cuidamos dos outros, mas quem cuida de nós? Vulnerabilidades e implicações da COVID-19 na enfermagem. *Enferm. Foco*. 2020;11(1):135-40. <http://doi.org/10.21675/2357-707X.2020.v11.n1.ESP.3521>.

## AUTHOR'S CONTRIBUTIONS

Study design. José Luís Guedes dos Santos. Messias Lemos. Glauber Weder dos Santos Silva. Marlucci Andrade Conceição Stipp. Liana Amorim Correa Trotte. Javier Isidro Rodríguez López. Allison Patricia Squires.

Data acquisition. José Luís Guedes dos Santos. Messias Lemos. Glauber Weder dos Santos Silva. Marlucci Andrade Conceição Stipp. Liana Amorim Correa Trotte. Javier Isidro Rodríguez López. Allison Patricia Squires.

Data analysis and interpretation of results. José Luís Guedes dos Santos. Kaiane Neves. Marcella Gabrielle Betat. Messias Lemos. Glauber Weder dos Santos Silva. Giulia Gazineo Trindade Assis. Marlucci Andrade Conceição Stipp. Liana Amorim Correa Trotte. Javier Isidro Rodríguez López. Allison Patricia Squires.

Manuscript writing and critical review. José Luís Guedes dos Santos. Kaiane Neves. Marcella Gabrielle Betat. Messias Lemos. Glauber Weder dos Santos Silva. Giulia Gazineo Trindade Assis. Marlucci Andrade Conceição Stipp. Liana Amorim Correa Trotte. Javier Isidro Rodríguez López. Allison Patricia Squires.

Approval of the final version of the article. José Luís Guedes dos Santos. Kaiane Neves. Marcella Gabrielle Betat. Messias Lemos. Glauber Weder dos Santos Silva. Giulia Gazineo Trindade Assis. Marlucci Andrade Conceição Stipp. Liana Amorim Correa Trotte. Javier Isidro Rodríguez López. Allison Patricia Squires.

Responsibility for all aspects of the content and integrity of the published article. José Luís Guedes dos Santos. Kaiane Neves. Marcella Gabrielle Betat. Messias Lemos. Glauber Weder dos Santos Silva. Giulia Gazineo Trindade Assis. Marlucci Andrade Conceição Stipp. Liana Amorim Correa Trotte. Javier Isidro Rodríguez López. Allison Patricia Squires.

## ASSOCIATED EDITOR

Pedro Ricardo Martins Bernardes Lucas 

## SCIENTIFIC EDITOR

Marcelle Miranda da Silva 