

## Burnout in nursing leaderships during the COVID-19 pandemic

*Burnout em lideranças de enfermagem durante a pandemia da COVID-19*

*Burnout en líderes de enfermería durante la pandemia de COVID-19*

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### ABSTRACT

**Objective:** to analyze the relationship between the work context of nursing leaders in the COVID-19 pandemic and Burnout. **Method:** mixed method study, with a quantitative sample of 64 nursing leaders, from all sectors of four hospitals in Rio Grande do Sul. Data collection carried out from August to October 2020, after approval by the National Research Ethics Committee. Inferential analysis of quantitative data (n=64) was performed, applying Mann-Whitney tests and bivariate Spearman correlations, considering statistically significant two-tailed “p” differences less than 0.05. Qualitative interviews (n=12) were carried out about the impacts of the pandemic. **Results:** a 6.3% prevalence of Burnout Syndrome was identified. There was an association between the Emotional Exhaustion and Depersonalization domains and the variables fear, increased alcohol consumption and impact on health (p<0.05). There were changes in the work context, an increase in the level of demand and workload, and impacts on health. **Conclusion:** it is concluded that there is an association between the work context in the pandemic and Burnout. The increase in work overload had negative effects on mental health. **Descriptors:** COVID-19; Nursing; Leadership; Nursing, Supervisory; Burnout, Professional.

### RESUMO

**Objetivo:** analisar a relação entre o contexto de trabalho das lideranças de enfermagem na pandemia da COVID-19 e o Burnout. **Método:** estudo de método misto, com uma amostra quantitativa de 64 líderes de enfermagem, de todos os setores de quatro hospitais gaúchos. A coleta de dados ocorreu de agosto a outubro de 2020, após aprovação do Comitê Nacional de Ética em Pesquisa. Foi realizada a análise inferencial dos dados quantitativos (n=64), aplicados os testes de Mann-Whitney e correlações bivariadas de Spearman, considerando diferenças estatisticamente significativas “p” bicaudal menor que 0,05. Realizaram-se entrevistas qualitativas (n=12) acerca dos impactos da pandemia. **Resultados:** identificou-se 6,3% de prevalência de Síndrome de Burnout. Houve associação entre os domínios Desgaste Emocional e Despersonalização e as variáveis medo, aumento do consumo de álcool e impacto na saúde (p<0,05). Evidenciaram-se mudanças no contexto laboral, aumento do nível de exigência e da carga de trabalho e impactos na saúde. **Conclusão:** conclui-se que há associação entre o contexto de trabalho na pandemia e o Burnout. O aumento da sobrecarga de trabalho repercutiu em prejuízos na saúde mental. **Descritores:** COVID-19; Enfermagem; Liderança; Supervisão de Enfermagem; Esgotamento Profissional.

### RESUMEN

**Objetivo:** analizar la relación entre el contexto de trabajo de los líderes de enfermería en la pandemia de COVID-19 y el *Burnout*. **Método:** estudio de método mixto, con muestra cuantitativa de 64 líderes de enfermería, de todos los sectores de cuatro hospitales de Rio Grande do Sul. La recolección de datos tuvo lugar de agosto a octubre de 2020, previa aprobación del Comité Nacional de Ética en Investigación. Se realizó el análisis inferencial de datos cuantitativos (n=64), se aplicaron pruebas de Mann-Whitney y correlaciones bivariadas de Spearman, considerando diferencias estadísticamente significativas “p” de dos colas menor a 0,05. Se realizaron entrevistas cualitativas (n=12) sobre los impactos de la pandemia. **Resultados:** se identificó una prevalencia del Síndrome de Burnout del 6,3%. Hubo asociación entre los dominios Cansancio Emocional y Despersonalización y las variables miedo, aumento del consumo de alcohol e impacto en la salud (p<0,05). Se han producido cambios en el contexto laboral, aumento en el nivel de exigencia y en la carga de trabajo e impactos en la salud. **Conclusión:** se concluye que existe asociación entre el contexto laboral en la pandemia y el Burnout. El aumento de la sobrecarga de trabajo tuvo efectos negativos sobre la salud mental. **Descritores:** COVID-19; Enfermería; Liderazgo; Supervisión de Enfermería; Agotamiento Profesional.

## INTRODUCTION

The pandemic of the disease caused by SARS-Cov-2 (COVID-19) resulted in a health collapse which challenged and generated consequences, mainly in health services<sup>1</sup>. Overcrowding became part of the routine of health institutions, and above all led to worsening of working conditions<sup>2,3</sup>.

In this context, nursing began to face strenuous working hours and significant changes in routines, resulting in a stressful work environment. At the same time, the feeling of impotence caused by the lack of effective treatment against the disease, and the concern for their own health and that of their family members was constant as hospitalizations increased<sup>3</sup>.

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Amid this panorama, it is noted that the problems triggered by direct care provided to infected patients are aggravating for nurses who occupy leadership positions in the hospital environment. This is because these professionals are essential in decision-making aimed at qualified, integrated, and strategic care for the entire team.

There is little preparation in nurses' academic training for the management area, often limiting this professional from improving leadership. On the other hand, leadership is intrinsic to this profession, since, in addition to care functions, nurses work daily in coordinating the team of nursing technicians.

However, the task of the "lead nurse" varies according to each institution's routine, in some being only administrative/managerial, and in others with added care<sup>4,5</sup>. These professionals are often responsible for units, sectors and services, and are also recognized as bosses, managers, leaders, and coordinators.

The term "leadership" will be considered for the present study to refer to nurses who occupy management positions, meaning those who coordinate their peers, in addition to sectors and/or hospital services. They are responsible for organizing the physical, material and human resources of their sector/service.

The responsibility of the leadership position is accompanied by a dual function: dealing with the needs of the work team under its coordination, and at the same time serving as an intermediary between management and the nursing team. In addition to this, it is responsible for meeting the expectations and demands of the institution<sup>4,5</sup>.

Leadership responsibilities during the COVID-19 pandemic have multiplied both in terms of making quick decisions, planning, and organizing work and staffing. As a result, these professionals experienced an exacerbated pace of work and accumulation of functions<sup>6</sup>, which can lead to various psychological problems, including Burnout<sup>7,8</sup>.

Burnout syndrome presents itself as a state of professional exhaustion. Suffering from the syndrome affects the individual physically and mentally, impairing their performance in carrying out their work activities<sup>9</sup>, in addition to causing a drop in professional performance when their team needs the presence of a leader capable of facing adversity. The consequences of Burnout can be definitive and impede performance of the profession<sup>10</sup>.

Therefore, it is important to take a careful look at the physical and mental health of these professionals. Based on the above, this study aims to answer the following question: are nursing leaders affected by Burnout syndrome due to the work changes caused by the pandemic? The objective was to analyze the relationship between the work context of nursing leaders in the COVID19 pandemic and Burnout.

## METHOD

This is a multicenter study designed using a mixed research method with a sequential explanatory approach. This study design is characterized by the collection of quantitative and qualitative data with temporal asymmetry between the two phases. Priority is given to data from the first stage (quan) over data from the second stage (qual), and the interaction of these data occurs in the final interpretation phase of the study<sup>11</sup>.

The research sites were four public hospitals in the state of Rio Grande do Sul which acted as references in the care of patients with COVID-19, identified as H1, H2, H3 and H4. H1 contains 784 beds and offers all the specializations of a general hospital in its outpatient, emergency and inpatient departments. H2 is a trauma hospital, consisting of 237 beds. H3 has 850 beds and is characterized as a teaching hospital focused on highly complex clinical and surgical care. H4 contains 403 beds and is a supplementary body of the university, a reference in medium and high complexity care.

All professionals linked to the four institutions were invited to participate in the study via institutional email. Those who held a leadership position during the period from the beginning of the COVID-19 pandemic to the data collection date were included. The population was composed of 75 nurses who held leadership positions in these hospitals. The sample (quan) was selected by convenience and composed of 64 nursing leaders from all sectors of the participating hospitals who accepted the invitation to respond to an electronic form.

Professionals who were away from their duties during all or most of the pandemic period were excluded. Data collection for this phase was carried out between August and October 2020 using a form which comprised questions about sociodemographic and work variables, as well as the Maslach Burnout Inventory (MBI) burnout syndrome assessment instrument.

The MBI has 22 statements which measure the frequency of feelings related to the syndrome, addressing three main domains: Emotional Exhaustion (EE), Depersonalization (D) and Professional accomplishment (PA)<sup>9-12</sup>. One of the

MBI instruments validated in Brazil<sup>13</sup> was used, which has a Likert-type scale ranging from 1 (never) to 5 (daily). The occurrence of high scores in the EE and D domains and low scores in FP domain indicates a risk for developing the syndrome<sup>13,14</sup>.

Quantitative data analysis was performed using the Statistical Package for Social Sciences (SPSS) version 18. The Shapiro-Wilk test was used to verify the distribution of variables with categorical variables presented in absolute and relative frequency, and continuous central tendency and dispersion measures. In addition, the Mann-Whitney tests and Spearman bivariate correlations were used. Data with a two-tailed “p” less than 0.05 were considered statistically significant differences.

Following what was proposed by the sequential explanatory design and after analyzing the quantitative data, the second stage of the study (qual) was conducted with the aim of adding greater understanding to the data initially found. All leaders who participated in the quantitative stage were invited to participate in the qualitative stage. The qualitative phase sample was chosen by convenience and was composed of 12 nursing leaders who agreed to participate in this second stage.

Data collection took place through semi-structured interviews online following the data saturation criterion. The interviews were performed from February to April 2021 through the Google Meet® platform and addressed the experiences and perceptions about the impacts of acting in the pandemic on the health of the participants.

The analysis of this information followed the content method in the thematic modality, which consists of pre-analyzing the transcription of the interviews, exploring the material through the construction of categories to reduce it to meaningful expressions, and finally processing the results and comparing them with other results found in the literature<sup>15</sup>. After analyzing the quantitative findings and qualitative information, it is expected that the second stage will enable us to evaluate how the context may have influenced the results of the first<sup>16</sup>. Thus, integrating data originating from the interviews about the experiences of the leaders took place together with the Burnout results, providing a complementary perspective<sup>16</sup>.

The study respected all ethical principles regarding research with human beings, having been submitted and approved by the National Research Ethics Committee, and by the Ethics Committees of the participating institutions.

The Informed Consent Form was attached to the electronic form in the first stage of the study. To preserve anonymity, participants were identified with the letter “N” followed by the interview number. Furthermore, the points pertinent to the security and confidentiality of participants’ personal information contained in the general data protection law were respected.

## RESULTS

The sample was composed of 64 nurses who occupy nursing leadership positions across the four participating hospitals, with 23 (35.9%) professionals belonging to H1, 23 (35.9%) to H2, 9 (14.1%) to H3, and 9 (14.1%) to H4. Table 1 presents sociodemographic and work variables that characterize the sample.

**Table 1:** Profile of nursing leaders, according to sociodemographic and work variables (n=64). Porto Alegre, RS, Brazil, 2020.

Sociodemographic and work variables		n (%)
Sex	Female	56 (87.5%)
	Male	8 (12.5%)
Age		43 (± 9.60)
Skin color – Race	White	55 (85.9%)
	Brown	4 (6.3%)
	Black	5 (7.8%)
Marital status	Single or no companion	13 (20.3%)
	Married or have a companion	51 (79.7%)
Number of children		1 (1 - 2)
Time working	In the profession (years)	17.31 (± 9.64)
	At the institution (years)	12.44 (± 9.39)
	At the work set	7.26 (± 5.87)
Impact in health	Physical	3 (3 - 4)
	Mental	4 (3 - 5)
Fear of exposition		3 (3 - 4)
Risk group		22 (34.4%)
Living with people from the risk group		24 (37.5%)

Among the 64 participating nursing managers, 12 (18.8%) worked in units dedicated to patients infected with COVID-19. Despite this, 75% (n=48) stated that they had already received suspected or confirmed patients with the disease in their units. Leave due to suspicion of COVID-19 was observed in 32.8% (n=21) of professionals and 8 (12.5%) received confirmation of the diagnosis.

Regarding health habits during the pandemic, 65.6% (n=42) said they did not perform physical activities, 31.3% (n=20) noticed an increase in alcohol consumption and 26.6% (n=17) started using medications that they did not use before the pandemic. When asked about sleep quality, on a scale of 1 to 5 - with 1 corresponding to poor and 5 to excellent, the median found was 3 (3-4).

Table 2 presents the results of the Burnout dimensions in nursing workers.

**Table 2:** Descriptive data on the Burnout dimensions obtained by the Maslach Burnout Inventory (MBI) instrument (n=64). Porto Alegre, RS, Brazil, 2020.

Variables	n (%)
Emotional exhaustion	
Low	19 (29.7)
Moderate	23 (35.9)
High	22 (34.4)
Depersonalization	
Low	19 (29.6)
Moderate	25 (39.1)
High	20 (31.3)
Professional accomplishment	
Low	15 (23.4)
Moderate	34 (53.1)
High	15 (23.4)
Burnout syndrome	
No	60 (93.7)
Yes	4 (6.3)

There was a higher percentage of participants scoring a moderate level in the three Burnout syndrome dimensions, corresponding to 35.9% in the Emotional Exhaustion dimension, 39.1% in Depersonalization, and 53.1% in Professional accomplishment. The moderate and high levels exceed 70% in the Emotional exhaustion (70.3%) and Depersonalization (70.4%) dimensions when evaluated together. There was a prevalence of the Syndrome in 6.3% (n=4) of nursing leaders.

Regarding the associations between the MBI domains and the socio-occupational variables, it was found that the Emotional exhaustion (EE) dimension was related to the variables Fear of exposure to the virus ( $r=0.437$ ;  $p<0.001$ ), Impact on physical health ( $r=0.430$ ;  $p<0.001$ ) and Impact on mental health ( $r=0.498$ ;  $p<0.001$ ). The Depersonalization dimension (D) was correlated with the same variables, Fear ( $r=0.330$ ;  $p=0.008$ ), Impacts on physical health ( $r=0.297$ ;  $p=0.017$ ) and Impacts on mental health ( $r=0.432$ ;  $p<0.001$ ).

Nursing leaders who increased alcohol consumption during the pandemic had higher medians in the EE ( $p=0.039$ ; median= 28.50) and D ( $p=0.003$ ; median=10.50) domains. The other variables did not show statistical significance when associated with the Burnout domains ( $p>0.05$ ).

Next, the following categories based on the thematic content analysis emerged in the second stage of the study (qual): Daily work during the pandemic, Fear of exposure to the virus, Repercussions on physical and/or mental health, Professional burnout and Care strategies.

Daily work during the pandemic was mentioned in the interviews as one of the biggest challenges for nursing leaders, linked to an increased level of demands and workload. Participants above all highlighted the occurrence of changes in hospital protocols and conduct, in addition to the need for greater availability for management functions and the significant increase in the number of employees and beds under their coordination.

*We received the first COVID patient at the end of March in this hospitalization unit and we had practically the same week to organize ourselves, so we had to change the uniform, physical area, setup of the rooms, flow of how these patients would go to the ICU, where they would leave the hospital if they were discharged [...] (N1)*

*I had WhatsApp on all the time, 24 hours a day, 7 days a week. I slept and woke up with countless messages and issues to always resolve. I often stayed late at the institution, and sometimes I needed to go on weekends too. (N4)*

*We increased the number of beds, but did not increase the number of managers, so I ended up getting very involved with employee admissions, new COVID routines and managing schedules with more new people and, at the same time, a lot of absenteeism. (N7)*

When asked about their feelings regarding daily exposure to the virus, the feeling of fear emerged as the answer for many participants. In addition to concerns about their own health, fear was also related to contagion among family members and their work teams, according to the following reports:

*I saw a lot of people saying goodbye, others were too afraid to go to the ICU because they said they wouldn't come back. This touched me and made me rethink the fear of COVID, I thought "my God, I don't want to be in this situation of having to say goodbye to my family". (N5)*

*I was very scared, I cried a lot at the beginning of the pandemic. I was very afraid of getting it because I have an older mother. I haven't been to my mother's house for over a year, so this was very difficult for me and I needed psychological support. (E12)*

The presence of repercussions on physical and/or mental health due to the COVID-19 pandemic stood out as the third category. Speeches about a lack of care for one's own health were highlighted, such as: weight gain and increased intake of alcoholic beverages. Some needed to start psychological treatments and use medication, as seen in the following statements.

*I feel that my physical health has suffered because I stopped exercising, became more sedentary and ended up becoming more tired. My mental health too, because the routine ended up being from hospital to home, from home to hospital. I miss socializing with people, leisure outside the home and this has often left me frustrated, even depressed. (N7) Physically, what changed was that I gained weight. I feel more anxious and end up eating more, or if I'm tired I also think "oh I deserve to eat" and in those cases I gained weight. I started eating very poorly. (N5)*

*I had difficulty sleeping, irritability, anxiety, more sadness [...] In addition to starting with the anxiolytic, I also started drinking more. It was very exhausting. (N9)*

Another category which stood out in the interviews was professional burnout. Feelings such as tiredness, frustration and the desire to give up were associated with their daily work during the pandemic on the part of those interviewed. It is noted in most reports that professional exhaustion is linked to feelings of concern and responsibility towards the team, which served as motivation for not giving up on duties as a leader.

*I thought it would be calm, but it wasn't. I got really tired. I questioned whether I was really going to be able to handle it. (N6)*

*There were about three or four months there when I really thought about giving up and going back to care. I thought "at least in the care I'll do my 6 hours and leave, no one keeps calling me or sending me messages all the time." (N7)*

*I started to rethink more about life. Especially in the leadership part, where we end up working a lot and trying to be so present for the team, and we end up forgetting a little about ourselves. This made me rethink taking care of myself a little. (N3)*

*What impacted the most was the physical tiredness, due to these constant trips to the hospital, the phone ringing at night, on Saturday and Sunday. In other words, I was always working. (N2)*

A fifth category was highlighted, in which healthcare strategies are highlighted in the context of the pandemic. Among the main mechanisms reported are physical exercise, conventional or alternative therapies and leisure time with the family.

*I started exercising, walking and weight training. I used to do it, but I stopped and didn't do it for several months. Now this is more regular, I'm taking more care of this part. (N3)*

*I had already seen a psychologist before, but this year I ended up needing it a lot more often. I looked for resources in alternative therapies, because I thought I needed them at that moment. Every time I did reiki, or every time I talked to the therapist, I felt like it gave me more encouragement to continue and also gave me direction. (N2)*

*One thing I've been doing is these short trips with the family, a weekend at the beach or something like that, spending more time with my daughter too. I think therapy is super important to have a space to talk about yourself, and for me it was essential. (N6)*

## DISCUSSION

Concern about the physical and emotional health of healthcare professionals has gained prominence due to the stressful work environment. The results presented in this article sought to identify relationship factors between the work context, the experiences and repercussions of the pandemic on the health of these professionals aiming at the presence of signs of professional exhaustion in the daily lives of nurses with leadership positions.

Professional exhaustion, or Burnout syndrome, is among the main occupational disorders that affect healthcare professionals, being frequently identified in nurses and documented in studies over the years<sup>17-19</sup>.

The prevalence of Burnout syndrome was observed in 6.3% of participants. A study carried out in Italy<sup>20</sup> highlighted the first psychological and physical impacts on healthcare professionals who worked during the COVID-19 outbreak. The results revealed that 37% and 24.7% of professionals presented high Emotional Exhaustion and Depersonalization levels, respectively, while 15.3% presented low Professional accomplishment levels. As in the present study, changes such as increased irritability, difficulty sleeping and changes in eating habits were also identified among professionals. The EE, D and PA rates are similar, with higher rates of low PA among leaders (23.4%).

There was an association between the EE and D domains and the work variables that dealt with daily life and the impacts of work during the pandemic, such as fear of exposure, physical and mental impacts, in addition to an increase in alcohol consumption. Regarding the repercussions caused by greater exposure to the virus during work activities, the data revealed major negative impacts on the health of nurses.

Psychological suffering was more observed in comparison to physical, impacting the professional's life in the psychosocial and general well-being areas. The thematic categories identified that professionals lived with fear during the pandemic. This is in line with the findings of the study carried out in partnership with the Federal Nursing Council (COFEN)<sup>21</sup>, in which 83% among the 445 participating professionals reported feeling afraid of exposure to the virus. This sensation was associated with several reasons, such as the fear of becoming infected and/or transmitting it to co-workers and family members. These professionals socially isolate themselves in order to protect them, which intensifies mental suffering.

Another repercussion mentioned by the participants was the feeling of anxiety, which may be linked to the increase in the search for psychological support, the increase in alcohol consumption and the use of medications which they did not use, such as anxiolytics. A study that deals with the triggering factors and risks of occupational stress in nurses<sup>22</sup> demonstrated that the use of anxiolytics may be associated with the difficulty of facing problems in the work environment and high levels of stress, being used as a way of alleviating the suffering to which they are exposed.

It is noted that the presence of the leader is essential for health services in a health crisis such as the COVID-19 pandemic. In line with a study carried out in Iran<sup>23</sup>, nurse managers reported that they experienced troubled moments with their teams, with a shortage of professionals and an increase in work demand being part of their daily lives. The study also showed that one of the most important measures, with the aim of motivating their teams, was to remain present. Many felt the need to support their teams even outside of their work shifts.

Studies have identified that the development of spirituality, resilience, hope and good social support act as protective factors against Burnout in a stressful situation such as a pandemic<sup>24,25</sup>. In addition to the presence of protective factors, participants developed care strategies with the aim of alleviating the stress caused by work and promoting physical and psychological well-being. It is essential that healthcare professionals take care of themselves so that they can take care of others<sup>25</sup>.

The results presented herein have implications for the field of studies and practices in occupational health and refer to the first peak in the increase in deaths due to the COVID-19 pandemic, a time when services were in the process of intense adaptations. Considering this, there is a need to identify the relationship between the work context of nursing leaders in the COVID-19 pandemic and Burnout syndrome, evidence which provides support for implementing measures that promote maintenance of nursing leaders' health in facing the COVID-19 pandemic.

### Study limitations

As a limitation of this study, the intrinsic bias of the cross-sectional design stands out, as well as the bias of reverse causality, in which it is not possible to conclude about causal relationships and monitor leaders before and after the pandemic. Furthermore, the sample size, which can generate a false negative. When recognizing the

importance of the topic, it is suggested that longitudinal studies to monitor leaders be carried out in the future, aiming to fill the existing gaps in the health of these professionals.

## CONCLUSION

It is concluded that there was a relationship between the work context during the pandemic and Burnout in nursing leaders. Signs of professional burnout were statistically associated with working conditions and the repercussions of the pandemic.

It was also evident that the daily work of the participants suffered intense changes with the pandemic, mainly linked to the increased level of demand and work overload. The nursing leader in their role has a direct influence on the quality of care provided by their team and on the success of the institution in which they operate. At such a challenging time for managers, such as a pandemic, personal well-being becomes essential so that all the support the team needs is offered.

It is noteworthy that the results presented herein have implications for the scientific field of studies and practices in occupational health and refer to the first peak in the increase in deaths and illnesses in Brazil due to the COVID-19 pandemic, a period in which leaders were overloaded and health services were in the process of intense adaptation.

Considering the above, the importance of identifying the prevalence of Burnout syndrome, changes in the work context, increased demand and workload levels, and impacts on physical and mental health stand out. Such evidence provides support for implementing measures that promote maintaining the health of leaders in the context of the COVID-19 pandemic and in other adverse situations.

## REFERENCES

1. Lima NT, Buss PM, Paes-Sousa R. COVID-19 pandemic: a health and humanitarian crisis. *Cad. Saúde Pública*. 2020 [cited 2023 Nov 09]; 36(7):e00177020. DOI: <https://doi.org/10.1590/0102-311X00177020>.
2. Backes MTS, Higashi GDC, Damiani PR, Mendes JS, Sampaio LSS, Soares GL. Working conditions of Nursing professionals in coping with the Covid-19 pandemic. *Rev Gaúcha Enferm*. 2021 [cited 2022 Nov 24]; 42(esp):e20200339. DOI: <https://doi.org/10.1590/1983-1447.2021.20200339>.
3. Fernandez M, Lotta G, Passos H, Cavalcanti P, Corrêa MG. Working conditions and perceptions of nursing professionals who work to cope with covid-19 in Brazil. *São Paulo: Saúde Soc*. 2021 [cited 2023 Mar 20]; 30(4):e201011. DOI: <https://doi.org/10.1590/S0104-12902021201011>.
4. Costa JR, Marcon SS, Testón EF, Arruda GO, Peruzzo HE, Cecilio HPM, Marquete VF. Care in the hospital routine: perspectives of professional managers and nursing assistants. *Rev Rene*. 2020 [cited 2021 Dec 22]; 21:e43239 DOI: <https://doi.org/10.15253/2175-6783.20202143239>.
5. Silva AGI, Silva FJN, Costa F, Alcântara GC, Costa GF. Good nurse leadership practices in the hospital context. *Rev Nurs*. 2021[cited 2023 Jun 02]; 24(276):5726-30. DOI: <https://doi.org/10.36489/nursing.2021v24i276p5726-5735>.
6. Bitencourt JV, Meschial WC, Frizon G, Biffi P, de Souza JB, Maestri E. Nurse's protagonism in structuring and managing a specific unit for COVID-19. *Texto Contexto Enferm*. 2020 [cited 2023 Jun 01]; 29:e20200213. DOI: <https://doi.org/10.1590/1980-265X-TCE-2020-0213>.
7. Souza e Souza LP, Souza AG. Brazilian nursing against the new Coronavirus: who will take care for those who care? *J. nurs. health*. 2020 [cited 2023 Apr 27]; 10 (n.esp.):e20104005. DOI: <https://doi.org/10.15210/jonah.v10i4.18444>.
8. Hee SK, Ye DS, Sun-Mi C, Colleen C. Working experiences of nurses during the Middle East respiratory syndrome outbreak. *Int. j. nurs. pract.*; 2018 [cited 2023 May 16]; Apr 08;24(5):e12664. DOI: <https://doi.org/10.1111/ijn.12664>.
9. Maslach C, Jackson SE. The measurement of experienced Burnout. *J. Organ. Behav.*, 1981 [cited 2022 Nov 18]; 2(2):99-113. DOI: <https://doi.org/10.1002/job.4030020205>.
10. Dutra HS, Gomes PAL, Garcia RN, Oliveira HC, Freitas SC, Guirardello EB. Burnout among nursing professionals in hospitals in Brazil. *Rev Cuid*. 2019 [cited 2023 Apr 21]; 10(1):e585. DOI: <http://dx.doi.org/10.15649/cuidarte.v10i1.585>.
11. Creswell JW. *Projeto de pesquisa: métodos qualitativo, quantitativo e misto*. Porto Alegre: Artmed, 2007.
12. Tomazzini AA, Caporal R. Burnout syndrome in nursing professionals in a private hospital in West Paraná during the COVID-19 pandemic. *Braz. J. Surg. Clin*. 2022[cited 2023 Feb 01]; 40(2):5-10. DOI: <http://www.mastereditora.com.br/bjscr>.
13. Lautert L. O desgaste profissional do enfermeiro. [tese de doutorado], Programa de Pós-Graduação em Psicologia, Universidade Pontifícia de Salamanca; 1995. 275 p. Available from: <https://lume.ufrgs.br/bitstream/handle/10183/11028/000117551.pdf?sequence=1&isAllowed=y>.
14. Munhoz OL, Arrial TS, Barlem ED, Dalmolin GL, Andolhe R, Magnago TS. Occupational stress and Burnout in health professionals of perioperative units. *Acta paul enferm*. 2020 [cited 2023 Jan 24]; 33:eAPE20190261. DOI: <https://doi.org/10.37689/acta-ape/2020A00261>.
15. Minayo MCS. O desafio do conhecimento: pesquisa qualitativa em saúde. 14. ed. São Paulo (SP): Hucitec, 2014. 406 p.
16. Oliveira, JLC. Data integration in mixed-method research studies: challenge and opportunity for nursing. *Texto Contexto Enferm*. 2020 [cited 2023 Jan 09]; 29:e20200203. DOI: <https://doi.org/10.1590/1980-265X-TCE-2020-0002-0003>.

17. Chemali Z, Ezzeddine FL, Gelaye B, Dossett ML, Salameh J, Bizri M, et al. Burnout among healthcare providers in the complex environment of the Middle East: A systematic review. *BMC Public Health*. 2019 [cited 2023 Jan 12]; 19(1):13-37. DOI: <https://doi.org/10.1186/s12889-019-7713-1>.
18. Woo T, Ho R, Tang A, Tam W. Global prevalence of Burnout symptoms among nurses: A systematic review and meta-analysis. *J. psychiatr. res.* 2020 [cited 2023 Feb 14]; 123:9-20. DOI: <https://doi.org/10.1016/j.jpsychires.2019.12.015>.
19. Molina-Praena J, Ramirez-Baena L, Gómez-Urquiza JL, Cañadas GR, De la Fuente EI, Cañadas-De la Fuente GA. Levels of Burnout and Risk Factors in Medical Area Nurses: A Meta-Analytic Study. *Int J Environ Res Public Health*. 2018 [cited 2023 Mar 01]; 15(12):2800. DOI: <https://doi.org/10.3390/ijerph15122800>.
20. Barello S, Palamenghi L, Graffigna G. Burnout and somatic symptoms among frontline healthcare professionals at the peak of the Italian COVID-19 pandemic. *Psychiatry Res*. 2020 [cited 2022 Jul 02]; 290:113129. DOI: <https://doi.org/10.1016/j.psychres.2020.113129>.
21. Fernandez M, Lotta G, Passos H, Cavalcanti P, Corrêa MG. Working conditions and perceptions of nursing professionals who work to cope with covid-19 in Brazil. *Saúde Soc*. 2021 [cited 2023 Mar 22]; 30(4):e201011. DOI: <https://doi.org/10.1590/S0104-12902021201011>.
22. Bogossian T. Nursing hours worked and the stress in nurses' work. *Glob Acad Nurs*. 2021 [cited 2023 Jul 5]; 2(4):e203. DOI: <https://doi.org/10.5935/2675-5602.20200203>.
23. Poortaghi S, Shahmari M, Ghobadi A. Exploring nursing managers' perceptions of nursing workforce management during the outbreak of COVID-19: a content analysis study. *BMC Nurs*. 2021 [cited 2021 Oct 20]; 20:27. DOI: <https://doi.org/10.1186/s12912-021-00546-x>.
24. Shaw SCK. Hopelessness, helplessness and resilience: The importance of safeguarding our trainees' mental wellbeing during the COVID-19 pandemic. *Nurse educ. pract.* 2020 [cited 2022 Jan 18]; 44:102780. DOI: <https://doi.org/10.1016/j.nepr.2020.102780>.
25. Castañeda RF, Hernández-Cervantes Q. Self-care and spirituality in times of contingency due to COVID-19. *Cogitare Enferm*. 2020 [cited 2021 Nov 1]; 25:e73518; 25. DOI: <http://dx.doi.org/10.5380/ce.v25i0.73518>.

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