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Work organization and burnout among nursing professionals during the pandemic: a mixed-methods study

Organização do trabalho e burnout entre profissionais de enfermagem na pandemia: estudo de método misto

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ABSTRACT

Objective: this study aims to assess the repercussions of the COVID-19 pandemic on work organization and burnout among nursing professionals in a hospital in the southern region of Brazil. **Method:** a sequential explanatory mixed-methods design was employed across five adult inpatient units from August to November 2020. In the quantitative phase, a sample of 78 participants completed the Maslach Burnout Inventory, and the data were subjected to descriptive and analytical statistical analysis. In the qualitative phase, online semi-structured interviews were conducted with nine purposively selected professionals, and the data underwent thematic categorical content analysis. **Results:** 99% of the professionals attended to suspected or confirmed COVID-19 patients; 64% took leave due to suspicion, and 35% due to confirmed COVID-19 cases; 11.5% exhibited symptoms of Burnout Syndrome. The themes emerging from the analysis included fear, commitment to work, protocol failures, and institutional communication breakdowns. **Conclusion:** despite the relatively low frequency of Burnout Syndrome among nursing personnel, it was observed that the COVID-19 pandemic significantly impacted the work organization of these professionals.
Descriptors: Burnout, Professional; Nursing; Coronavirus.

RESUMO

Objetivo: avaliar as repercussões da pandemia de COVID-19 na organização do trabalho e no *Burnout* dos profissionais de enfermagem em um hospital da região sul do Brasil. **Método:** desenho misto explanatório sequencial, em cinco unidades de internação adulta, realizado de agosto a novembro de 2020. Na etapa quantitativa, numa amostra de 78 participantes, foi aplicado o Inventário de *Burnout* de Maslach e os dados foram analisados por meio de estatística descritiva e analítica. Na etapa qualitativa, foram realizadas entrevistas semiestruturadas online, por amostragem intencional, com nove profissionais, e os dados foram submetidos à análise de conteúdo categorial temática. **Resultados:** 99% dos profissionais atenderam pacientes suspeitos ou confirmados com a doença; 64% afastaram-se por suspeita e 35% por confirmação de COVID-19; 11,5% apresentaram a Síndrome de *Burnout*. O medo, o compromisso com o trabalho, as falhas nos protocolos e na comunicação institucional foram temas das categorias. **Conclusão:** apesar de a Síndrome de *Burnout* ter apresentado baixa frequência entre os trabalhadores de enfermagem, constatou-se que a pandemia de COVID-19 repercutiu sobremaneira na organização do trabalho desses profissionais.
Descritores: Esgotamento Profissional; Enfermagem; Coronavírus.

INTRODUCTION

The exponential numbers of COVID-19 cases, coupled with the scarcity of nursing staff, as well as the lack of Personal Protective Equipment (PPE) and necessary materials for providing care in constant contact with patients, along with the overcrowding of healthcare services, have become threatening to the health of professionals and have heightened the occupational risk of contracting the novel coronavirus. This reality can also have repercussions on the quality of care and patient safety, as it is known that a reduced work-force and a deficit of resources necessary for care provision are factors that negatively contribute to the outcome of healthcare work[1].

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Amid the challenges posed by the pandemic, it is evident that, in addition to the insufficient number of workers to meet healthcare demand, another emerging problem is the absence of professionals due to illness or other reasons. This reality further diminishes the already deficient available workforce and can lead to health-related damages for these workers[2]. In Italy, 20% of healthcare workers were infected; in China, 3,300 were infected in early March 2020[3].

Insufficient mental health treatment stands out among professionals in this field to cope with the multiple adversities experienced[4]. Burnout Syndrome (BS) was investigated in the 1970s, revealing that professionals used the term "burnout" to refer to emotional exhaustion[5]. Despite not being a recent issue, it is observed to be a recurrent problem in nursing, which is consistently exposed to risks and damages stemming from precarious working conditions and the inherent nature of the work[6].

These conditions tend to be exacerbated in scenarios such as the ongoing pandemic[7]. For healthcare professionals, a period of quarantine and absence from work due to health or other reasons raises concerns about staff shortage and increased workload for the team, along with apprehension about negative perceptions from colleagues and heightened feelings of isolation[8]. According to studies, work precarization has been directly linked to the absence of nursing professionals and tasks involving repetitive efforts[9]. A total of 24.1% of absences among nursing professionals were attributed to depressive conditions, with 31.3% occurring within hospital inpatient units[10].

Given these considerations, it is essential from a societal and scientific perspective to investigate factors that have impacted work management and organization, as well as work absences and BS among the nursing team during the COVID-19 pandemic. This urgency arises because such knowledge tends to reinforce the need to maintain adequately available and healthy teams, especially during times of crisis such as the one experienced, to demonstrate to government officials, healthcare authorities, and society at large the significance of the nursing workforce more robustly in human care. This study aims to assess the repercussions of the COVID-19 pandemic on work organization and burnout among nursing professionals in a hospital in the southern region of Brazil.

METHOD

This study was designed using a sequential explanatory mixed-methods approach, which combined quantitative and qualitative methodologies in the investigation, as depicted in Figure 1, assigning equal weight to both approaches[11]. The STROBE and COREQ guidelines were employed for each study phase[12,13]. The research was conducted in a philanthropic private hospital located in the southern region of Brazil. Although the study site was not originally designated as a reference center for COVID-19 treatment, the health crisis necessitated adapting one of the inpatient units for the official care of patients affected by the coronavirus. It is important to note that, despite other areas of the research not initially being designated as units for COVID-19 patients, many hospitalized patients subsequently tested positive for the disease within the inpatient units, leading to the continuous exposure of healthcare professionals to the virus.

Four general inpatient units and one unit responsible for the care of COVID-19 patients were selected. The data collection period for the quantitative phase was from August 3rd to September 11th, 2020, and the qualitative phase took place from October to November 2020, coinciding with the occurrence of the initial wave of increased cases and severity in the country.

The study population comprised 219 nursing professionals (43 nurses and 176 nursing technicians) engaged in patient care activities within the institution under study.

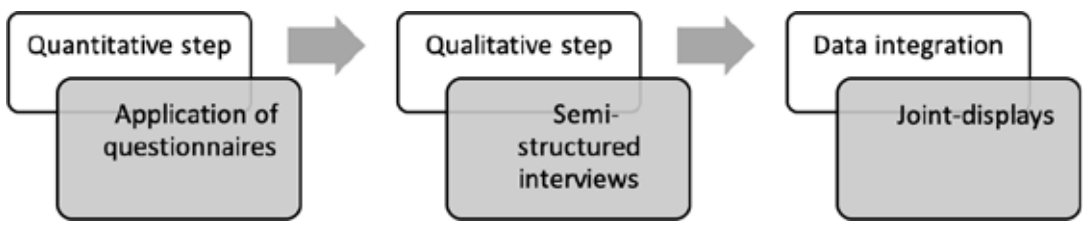

Figure 1 - Representative diagram of the study design. Porto Alegre, RS, Brazil, 2021

In the quantitative phase, a survey was conducted by distributing questionnaires through Google Forms to all professionals working in the inpatient units. Data was collected through this questionnaire, which included a form for personal, professional, and work environment characterization, along with the Maslach Burnout Inventory (MBI), adapted and validated for the Brazilian culture[14].

Based on convenience, the sample consisted of 78 professionals, with a response rate of 36%, comprising 24 (30.8%) nurses and 54 (69.2%) nursing technicians. Inclusion criteria were employment at the institution for a period equal to or longer than 60 days. Exclusion criteria included absence due to leave or vacations during the data collection period.

In the qualitative phase, the sample comprised nine participants. The sampling criterion was intentional, selecting participants interested in discussing the theme of work organization and absence due to COVID-19 contagion, as indicated by a specific question in the quantitative phase instrument. Consequently, participation in the first phase of the study was adopted as an inclusion criterion, and three unsuccessful researcher attempts to contact the participant served as an exclusion criterion.

Qualitative data were collected through semi-structured interviews with professionals who had experienced work absence or the absence of their colleagues due to disease contagion. This strategy was adopted to connect the data, seeking to comprehend and explain the quantitative findings. The researchers developed the questions to understand better the phenomenon of interest: work absence and organization during the pandemic. Interviews were conducted via Google Meet, recorded, transcribed in full, and subsequently sent to the respective participants for validation of the information. The interviews had an average duration of 32 minutes.

Quantitative data were entered into Excel and later exported to Statistic Package for Social Science for Windows (SPSS), version 21.0. Categorical variables were described using frequencies and percentages, and continuous variables using mean and standard deviation, based on the normality of data as assessed by the Shapiro-Wilk test. In addition to descriptive statistics, inferential tests such as Pearson's Chi-Square and Fisher's Exact Test were employed to determine differences between groups and the presence of BS, considering a significance level of $p\text{-value} \leq 0.05$.

Qualitative data analysis was conducted using the thematic categorical content analysis method[15], aided by Nvivo software. During the processing and interpretation of information, it was possible to group them into six thematic categories when data saturation of the analyzed material was identified.

Data integration was performed to deepen the understanding of the phenomenon. The previous quantitative analyses were integrated with the subjectively explored aspects in the interviews[16], as demonstrated in the table below (Figure 2).

The project was submitted through the *Plataforma Brasil* system and approved by the Research Ethics Committee (REC) following Resolution no. 466/12 of the National Health Council (NHC)[17]. Workers were invited to participate in the study voluntarily and informed about the objectives and conduct of the research. In both phases of the research, the Informed Consent Form was applied.

RESULTS

The research participants comprised 78 professionals, with 54 (69.2%) nursing technicians and 24 (30.8%) nurses from inpatient units, as described in the sample characterization presented in Table 1.

Table 2 describes the exposure and absence data of professionals due to COVID-19, wherein it is observed that 99% of the professionals attended to suspected or confirmed COVID-19 patients. The median number of days absent was 14 (3 to 14) for the entire sample.

Table 3 displays the dimensions of the MBI and the presence of BS among the study participants. No correlation was found between BS and the sociodemographic and work-related variables studied.

In the qualitative phase, the data were categorized into six themes. The first theme, "Institutional support, and team training", encompasses the professionals' perceptions regarding the support provided by the institution during the pandemic. This theme centers on providing training and education about the disease. Several participants noted having received adequate training, while others reported the absence of such training.

> *The information was shared with everyone all the time, we kept updating each other about what we had to use, what was allowed, there were trainings. (E2)*

Because... I was in one unit, then when it closed to become an ICU, I was reassigned without any training to a COVID area. (E3)

The second theme, "Protocol guidelines and use of personal protective equipment", addresses the discussions highlighting the PPE shortage, particularly concerning masks. The lack of clarity and guidance from the Hospital Infection Control created confusion and apprehension among the professionals. This was attributed to the constant changes in guidelines and the lack of effective communication with the frontline workers.

What made it difficult was the lack of clarification and lack of PPEs, really. (E4)
But you know, what's really tricky is the protocol issue, like, "Oh, today I'll wear a mask," tomorrow you'll wear a different one, today you'll put on the gown, tomorrow you won't, today you'll transport a COVID patient with the mask. (E6)

The third theme, "Telemedicine medical care", pertains to the new approach for monitoring work absences, eliciting differing opinions among participants. While some identified this strategy

Aim	**Mixed methods research with sequential explanatory design**	
	To evaluate the repercussions of the COVID-19 pandemic on the organization of work and the health of nursing professionals in a hospital in southern Brazil	
	Quantitative	**Qualitative**
Study design	Cross-sectional study	Descriptive exploratory study
Participants	78 participants	9 participants
Data collection	Personal, professional, and work environment characterization form Maslach Burnout Inventory	Semi-structured interviews
Data analysis	SPSS Pearson's chi-square test Fisher's exact test	NVivo Minayo content analysis

Figure 2 - Synthesis of methodological aspects of the study. Porto Alegre, RS, Brazil, 2021

Table 1 – Sociodemographic and work profile of nursing professionals in a private philanthropic hospital. Porto Alegre, RS, Brazil, 2021

Variables and categories	**Nurse (n=24)**	**Nurse technician (n=54)**	**Total (n=78)**
Age*	34.52 ± 7.63	31.96 ± 9.29	32.79 ± 8.820
Sex			
Female	20 (83.3%)	49 (90.7%)	69 (88.5%)
Male	4 (16.7%)	5 (9.3%)	9 (11.5%)
Marital status			
Married or living with a partner	19 (79.2%)	35 (64.8%)	54 (69.2%)
Single or without a partner	5 (20.8%)	19 (35.2%)	24 (30.8%)
Hospital unit			
Inpatient unit	15 (62.5%)	32 (59.3%)	47 (60.3%)
COVID-19 unit	9 (37.5%)	22 (40.7%)	31 (39.7%)
Working time at the institution			
Up to 1 year	16 (66.7%)	38 (70.4%)	54 (69.2%)
1 to 5 years	4 (16.7%)	6 (11.1%)	10 (12.8%)
5 to 10 years	2 (8.3%)	8 (14.8%)	10 (12.8%)
More than 10 years	2 (8.3%)	2 (3.7%)	4 (5.1%)
Number of patients under care*	23.58 ± 6.9	4.58 ± 1.2	-

*Mean and standard deviation; n (%).

Table 2 - Distribution of exposure and sick leave due to COVID-19 among nursing professionals in a private philanthropic hospital, Porto Alegre, RS, Brazil, 2021

Variables of exposure to COVID-19	Total (n=78)		Nurse (n=24)		Nurse technician (n=54)	
	Yes	No	Yes	No	Yes	No
Attended a suspected or confirmed case	77 (99%)	1 (1%)	24 (100%)	0 (0%)	53 (98.1%)	1 (1.9%)
Sick leave due to suspicion	50 (64%)	28 (36%)	15 (62.5%)	9 (37.5%)	35 (64.8%)	19 (35.2%)
Sick leave due to confirmation	27 (35%)	19 (24%)	8 (33.3%)	16 (66.7%)	19 (35.2%)	35 (64.8%)
Sick leave for other reasons	39 (50%)	39 (50%)	8 (33.3%)	16 (66.7%)	31 (57.4%)	23 (42.6%)

Source: Prepared by the authors, 2021.

Table 3 - Maslach Burnout Inventory dimensions and occurrence of Burnout Syndrome among nursing professionals in a private philanthropic hospital. Porto Alegre, RS, Brazil, 2021

MBI Dimensions	Total (n=78)	Nurse (n=24)	Nurse technician (n=54)	*P*-value
Emotional exhaustion*				0.233
High	27 (34.6%)	5 (20.8%)	22 (40.7%)	
Average	27 (34.6%)	10 (41.7%)	17 (31.5%)	
Low	24 (30.8%)	9 (37.5%)	15 (27.8%)	
Depersonalization*				0.107
High	23 (29.5%)	11 (45.8%)	12 (22.2%)	
Average	26 (33.3%)	6 (25%)	20 (37%)	
Low	29 (37.2%)	7 (29.2%)	22 (40.7%)	
Professional achievement*				0.010
High	27 (34.6%)	14 (58.3%)◆	12 (24.1%)	
Average	29 (37.2%)	7 (29.2%)	22 (40.7%)	
Low	22 (28.2%)	3 (12.5%)	19 (35.2%)◆	
Burnout syndrome†				0.445
Yes	9 (11.5%)	4 (16.7%)	5 (9.3%)	
No	69 (88.5%)	20 (83.3%)	49 (90.7%)	

*Pearson's Chi-Square; †Fisher's Exact Test; ◆Difference revealed by the statistical test.

as positive, others highlighted challenges in conducting medical care through this format.

> *It happened really quickly. Everyone was like, "Oh, because I wasn't able to," and for me, it was a matter of hours. (E5)*
> *"Someone from telemedicine will call you and guide you," [...], but no one ever called me again. (E6)*

In the fourth theme, "Nursing team adaptation during the pandemic", topics were gathered concerning aspects involving the organization and resources of the nursing team to provide patient care. The shortage of personnel and the absence of a policy for the return of absent professionals were identified as factors that compromised patient care and the well-being of the professionals.

> *Regular shift, dealing with regular patients, the whole unit, and then I was already thinking, if anything, I'll ask for help. (E5)*
> *Because sometimes what ends up happening is you're short-staffed, and then the schedule gets tight, and the one who stayed can't provide good care, the kind of care the patient really needs. (E9)*

In the fifth theme, "Fears, uncertainties, and commitment as nursing professionals during

the pandemic", explicit feelings were addressed, such as the fear of contamination, concern for colleagues, and the apprehension of facing a pandemic. Instances of stress and anxiety were also expressed, potentially contributing to an understanding of the development of emotional exhaustion or BS among these professionals. However, professional commitment was also emphasized.

> *You go to work worried, you come back even more worried. There were times I came home crying... it was really tough. (E1)*
> *The comeback was great because those of us in the healthcare field don't want to stay out, even if we get sick or infected, we want to be on the front lines, we want to be in the battle. (E2)*

The sixth theme, "Prevention of health-related situations and suggestions for nursing work organization during the pandemic", had psychological support as the predominant theme in the responses. Additionally, the proper use of PPE, the implementation of clearer protocols, and the daily supervision of these protocols were also listed.

> *I think psychological support would be essential, you know, a psychology group at work. I believe that was greatly missed by the teams, for us to know how to deal with the unknown, because it was an unfamiliar disease, so that's why everyone was very scared. (E2)*
> *Looking at the care in the cleaning unit, at the critical moment, providing clear guidance to the staff, using the available PPEs, and also guiding the medical team. (E5)*

The integration of data, as proposed in the study design, was accomplished through linkage. In this manner, the primary quantitative data are presented in the first column and linked with insights extracted from the qualitative phase in the second column, which collaboratively confirm and expound upon the results of both study phases. The thematic categories associated with the highlighted information are presented in the final column, as outlined in Figure 3.

DISCUSSION

The data reveal a significant prevalence of work absences, a high level of professional burnout, and the identification of BS within the studied sample, considering the critical, challenging, and uncertain nature of the pandemic.

The study results indicate that most nursing professionals are female, a historical trend consistent with the literature[18,19]. Most professionals

Attended a suspected or confirmed case (99%)	"They put it there at the workplace, updating about COVID and training about gowning and degowning." E1	Institutional support and training of teams Guidelines for protocols and use of Personal Protective Equipment (PPE)
Sick leave due to suspicion (64%) Sick leave due to confirmation (35%)	" "Someone from telemedicine will call you and guide you," [...], but no one ever called me again." E6	Medical care via telemedicine: a new strategy for monitoring work absences Adequacy of the nursing team during the pandemic
Number of patients per nursing technician (4.58±1.2)	"The first day I had 7 patients, 7 or 8 patients if I'm not mistaken, then I couldn't handle it, I just couldn't." E4	Adequacy of the nursing team during the pandemic
High emotional exhaustion (34.6%)	"You go to work worried, you come back even more worried. There were times I came home crying... it was really tough." E1	Fears, uncertainties, and commitment to being a nursing professional during a pandemic
High professional achievement among nurses (58.3%)	"The comeback was great because those of us in the healthcare field don't want to stay out, even if we get sick or infected, we want to be on the front lines, we want to be in the battle." E2	Fears, uncertainties, and commitment to being a nursing professional during a pandemic

Figure 3 - Joint display integrating the approaches. Porto Alegre, RS, Brazil, 2021

have been with the organization for only one year, and only 5.1% have over 10 years of experience, suggesting a relatively new workforce with the potential for high turnover[20].

The diminished number of professionals, when coupled with an increased workload, becomes a potential source of overload, leading to physical and mental fatigue. Overload directly impacts the quality of care provided[21], as overwhelmed professionals may not carry out their tasks with due attention, fragmenting patient care[22].

Although the study does not detail the other reasons for professional absence, participants mentioned during interviews that they observed colleagues taking leave due to anxiety, stress, and depression. The elevated percentage of absences due to other reasons, along with professionals' testimonials, reinforces the negative impact of the pandemic on the nursing workforce, creating a vicious cycle in which burnout leads to illness and work absence, burdening those who must attend to patient demands. The current study's data corroborate prior findings and reinforce the elevated rate of nursing professional absences during the pandemic[23].

The fear of transmitting the disease to family members or infecting others was also evident in the interviewees' narratives, highlighting how the fear of family transmission caused significant moral distress among nursing professionals[24]. All these factors, combined with the adoption of new protocols and the use of PPE, suggest a heightened emotional burden that may have influenced work absences during this period.

One strategy to cope with professional absences was the implementation of telemedicine, a tool used in Brazil since the early 20th century, which gained popularity due to the advancement of COVID-19 and social isolation guidelines[25]. In Brazil, the literature is extensive, focusing primarily on patients' use of telemedicine and rarely addressing the perspective of professionals who utilized it during the pandemic.

The professionals attended to suspected or confirmed COVID-19 patients, even when not in the designated unit, regardless of specific training. Studies emphasize that proper training of professionals is essential for controlling the spread of infectious diseases, providing a sense of security and protection, and reducing the risk of professional illness[26]. The need for reorganizing teaching strategies and services underscores the nursing team's role in early detection, screening, and health promotion in the face of infectious diseases such as the COVID-19 pandemic[27].

The necessity of learning the correct procedures for donning and doffing PPE, coupled with their scarcity, became a new source of stress, as professionals had to relearn how to reuse materials without risking potential contamination[28]. This situation is a significant contributor to nursing professionals' illness, leading to exhaustion and care failures due to overload[29].

Stress and excessive workload during shifts, combined with intense schedules, render professionals more susceptible to developing BS, resulting in emotional fatigue and dissatisfaction[30].

The level of professional achievement showed a moderate prevalence across the entire participant sample, aligning with the results of a study conducted in Minas Gerais, where participants demonstrated moderate professional achievement[31]. In the present study, a statistically significant difference was found between nurses and nursing technicians ($p=0.010$), indicating higher professional satisfaction among nurses.

From the nurses' accounts, it was apparent that despite the challenges they faced daily, they remained content with their work, expressing gratitude for their ability to fulfill their roles.

The prevalence of BS was 11.5% among the participating professionals. The pandemic experience exacerbated pre-existing challenges in the profession, highlighting the precarious state of the healthcare field and the unpreparedness of both the system and professionals to face the challenges at hand[32]. An international study conducted in 2020 indicated that 22.7% of the participants were at high risk of developing BS due to low professional satisfaction[33].

The findings of this investigation demonstrate lower levels of BS compared to a study in Singapore, where nursing was identified as the professional category with the highest burnout scores (28%)[34].

Through an integrated analysis of quantitative and qualitative data in this study, it is reasonable to speculate that professional commitment, social engagement, and professional values emphasized during the interviews may have influenced higher levels of professional achievement and protected participants from developing BS.

As a limitation of this study, it is worth noting the sample size from a single institution, despite a satisfactory return rate. Another limitation is the scarcity of literature regarding the development of BS during the COVID-19 pandemic, which hindered comparisons with other studies' results.

The study contributes to understanding this subject during a unique period and holds the potential to inform managers and public policies regarding the effects of the pandemic on work organization and professional well-being. This perspective comes directly from those who were at the frontline of patient care, thus enabling the development of measures that support worker protection and improved nursing work organization. The mental health monitoring of healthcare professionals, along with supportive strategies, remains limited during this period, despite established guidelines in recent years.

CONCLUSION

Although BS exhibited a low frequency among nursing professionals, it was evident that the COVID-19 pandemic significantly affected the organization of their work. This can be seen through the professionals' testimonies regarding the lack of PPE, workload, untrained reassignments, and inconsistency in institutional protocols, which had an impact on hospital routines.

In addition to the presence of BS, a high level of emotional exhaustion and low depersonalization was observed in the studied group, along with a difference in professional achievement between categories. Nurses displayed a higher level of professional achievement compared to nursing technicians.

The study revealed the absence of professionals through quantitative results, evident in the number of absences due to suspicion, confirmation, and/or other reasons, as well as in qualitative data through participants' statements during interviews. Professionals emphasized signs of overload, the shortage of staff, and difficult access to PPE as factors contributing to increased emotional exhaustion and absences.

The presented data indicate that in most cases, professionals had contact with COVID-19 patients, underscoring the pandemic's impact on the entire healthcare system, extending beyond specific patient containment areas.

*Paper extracted from the master's dissertation "Covid-19 and its repercussions on the organization of work and the health of nursing workers: a mixed method study", presented to the Federal University of Rio Grande do Sul, Porto Alegre, MS, Brasil.

CONFLICT OF INTERESTS

The authors have declared that there is no conflict of interests.

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