REVISTA DE ENFERMAGEM REFERÊNCIA
homepage: https://rr.esenfc.pt/rr/
ISSNe: 2182.2883

RESEARCH ARTICLE (ORIGINAL)

Medical-surgical emergency nurses' burnout after the COVID-19 pandemic

Burnout em enfermeiros do serviço de urgência médico-cirúrgica após a pandemia COVID-19

Burnout en enfermeros del servicio de urgencias médico-quirúrgicas tras la pandemia de COVID-19

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Received: 07.10.22
Accepted: 13.03.23

Abstract
Background: Burnout is a tridimensional syndrome resulting from professional activities.
Objectives: To identify the level of burnout perceived by medical-surgical emergency nurses after the COVID-19 pandemic and to analyze the relationship between the mean scores of the burnout dimensions and the sociodemographic and professional variables.
Methodology: Quantitative, descriptive-correlational, and cross-sectional study on a sample of 39 nurses.
Results: Most participants (51.3%) have no burnout or a low burnout level, 28.2% have a moderate burnout level, and 20.5% have a high burnout level. Regarding the mean score per dimension, the highest score was emotional exhaustion, with 2.60 ± 1.35. A statistically significant relationship was found in some dimensions, such as gender, working hours per day, workplace satisfaction, and perception of increased fatigue/exhaustion due to the pandemic.
Conclusion: The percentages of moderate and high burnout highlight the importance of continuous monitoring, aiming at planning and promoting appropriate prevention and intervention strategies.

Keywords: burnout; nurses; emergency service, hospital

Resumo
Enquadramento: O *burnout* consiste numa síndrome de índole tridimensional, decorrente do exercício de uma atividade profissional.
Objetivos: Identificar o nível de *burnout* percecionado pelos enfermeiros do serviço de urgência médico-cirúrgica, após a pandemia COVID-19. Analisar a relação entre as pontuações médias das dimensões do *burnout* e as variáveis sociodemográficas e profissionais.
Metodologia: Estudo quantitativo, descritivo-correlacional, num plano transversal, envolvendo uma amostra de 39 enfermeiros.
Resultados: A maioria da amostra (51,3%) enquadra-se no nível sem *burnout*/*burnout* reduzido, 28,2% no *burnout* moderado e 20,5% no *burnout* elevado. No que concerne à pontuação média por dimensão, a mais elevada surge na exaustão emocional, com 2,60 ± 1,35. Constatou-se uma relação estatisticamente significativa em algumas dimensões, como: o sexo, as horas de trabalho diárias, a satisfação no local de trabalho e a perceção do aumento da exaustão decorrente da pandemia.
Conclusão: As percentagens de *burnout* moderado e *burnout* elevado relevam a importância da sua monitorização contínua, visando o planeamento/promoção de estratégias de intervenção combativas adequadas, bem como a sua prevenção.

Palavras-chave: *burnout*; enfermeiros; serviço hospitalar de emergência

Resumen
Marco contextual: El *burnout* consiste en un síndrome tridimensional derivado del ejercicio de una actividad profesional.
Objetivos: Identificar el nivel de *burnout* percibido por los enfermeros del servicio de urgencias médico-quirúrgicas tras la pandemia de COVID-19. Analizar la relación entre las puntuaciones medias de las dimensiones del *burnout* y las variables sociodemográficas y profesionales.
Metodología: Estudio cuantitativo, descriptivo-correlacional, en un plano transversal, con una muestra de 39 enfermeros.
Resultados: La mayoría de la muestra (51,3%) se encuentra en el nivel de sin *burnout*/*burnout* reducido, el 28,2% en el de *burnout* moderado y el 20,5% en el de *burnout* alto. En cuanto a la puntuación media por dimensión, la más alta se registró en el agotamiento emocional, con 2,60 ± 1,35. Se observó una relación estadísticamente significativa en algunas dimensiones, como el sexo, las horas de trabajo diarias, la satisfacción en el lugar de trabajo y la percepción de un aumento del agotamiento debido a la pandemia.
Conclusión: Los porcentajes de *burnout* moderado y *burnout* alto ponen de manifiesto la importancia de su seguimiento continuo, con el fin de planificar/promover estrategias adecuadas de intervención para combatirlo, así como para prevenirlo.

Palabras clave: *burnout;* enfermeros; servicio de urgencia en hospital

How to cite this article: Sauane, S. M., & Magalhães, C. P. (2023). Burnout in nursing professionals of a medical-surgical emergency service after the pandemic COVID-19. *Revista de Enfermagem Referência, 6*(2), e22091. https://doi.org/10.12707/RVI22091

Introduction

Work-related burnout in environments characterized by intense interpersonal activity has been heavily researched because it is a concern for several organizations which seek to implement measures to reduce it. Its consequences can be severe, both for the workers, the institutions, and their clients. Some examples are described in the literature: decreased quality of care or services; personal dysfunction; absenteeism; increased alcohol and drug use; marital and family problems (Maslach et al., 2018). The emergency service is one of the most crowded hospital areas with unrestricted access, increasing demand for health care, high complexity of care, and unpredictability, requiring health professionals to adapt to dynamic, multitasking, constantly changing environments with multiple demands and pressures (Brazão et al., 2016).

The SARS-CoV-2 pandemic contributed to highlighting health professionals' fundamental role in alleviating suffering and saving lives (Silva et al., 2021). However, as this was a public health emergency, health institutions experienced increased pressure in service provision, affecting all health professionals with an increased risk of developing burnout (Oliveira, 2021). Based on an integrative review of the consequences of burnout in nurses, Kimura et al. (2021) emphasized that the COVID-19 pandemic was responsible for increasing the number of burnout cases in this professional group. This study aimed to identify the level of burnout perceived by medical-surgical emergency nurses after the COVID-19 pandemic and analyze the relationship between the mean scores of burnout dimensions and the sociodemographic and professional variables.

Background

In the 1970s, the psychiatrist Herbert Freudenberger was one of the first to study burnout, which is understood as failing, wearing out, and becoming exhausted by excessive demands on energy, strength, or resources (Freudenberger, 1974). This author explored and described the physical and behavioral signs associated with burnout, considering that the first ones are easy to detect, such as the feeling of exhaustion and fatigue, frequent headaches, gastrointestinal disturbances, insomnia, and difficulty breathing, with a somatic over-involvement with bodily functions. As for behavioral signs, examples are quickness to anger, frustration, irritation, and ease of crying (Freudenberger, 1974).

The approach to burnout as an occupational risk deserved the attention of Maslach and Jackson (1981), from a multifactorial perspective, who designed an assessment tool called Maslach Burnout Inventory (MBI) to be applied to human service professionals. Their analysis resulted in three subscales whose psychometric properties were evaluated. Burnout is a psychological syndrome characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment resulting from professional activities, with individual and organizational implications (Maslach et al., 1996). Emotional exhaustion is characterized by low energy and low enthusiasm, accompanied by depletion of emotional resources. Depersonalization (cynical, inhuman attitude) refers to a callous and dehumanized perception of those in one's care. Decreased personal accomplishment refers to the tendency to evaluate oneself negatively and feel unhappy about oneself and one's work with clients. New versions of the MBI were developed based on distinct occupational groups/contexts (Maslach et al., 1996; Maslach et al., 2018).

The World Health Organization (WHO) included burnout in the 11th Revision of the International Classification of Diseases (ICD-11) as an occupational phenomenon (WHO, 2022). Besides hindering the quality of patient care (Moss et al., 2016), burnout also impacts social and family contexts negatively (Rodrigues, 2018). Ferreira et al. (2015) emphasize the importance of identifying the sources of stress at work to implement preventive measures into work systems, schedules, free time, and extra-work activities. In a systematic literature review on the factors that lead to burnout in health professionals during the pandemic, who worked on the frontline in hospital settings, Costa (2021) identified the following main categories: individual, work, organizational, and social risk factors.

Many studies consider burnout as a global phenomenon. Borges et al. (2021) sought to identify and compare the levels of burnout among Portuguese, Spanish, and Brazilian nurses. In a quantitative study on a sample of 37 medical-surgical emergency nurses in northern Portugal using the MBI, Nogueira (2016) found that most nurses had high emotional exhaustion. In a study conducted during the pandemic on a sample of 795 nurses and 151 physicians in health institutions in Mainland Portugal and the Autonomous Regions of Azores and Madeira and based on previous studies, Oliveira (2021) identified significantly higher emotional exhaustion, higher depersonalization, and lower personal accomplishment.

Research Questions

(I) What is the level of burnout perceived by the medical-surgical emergency nurses of a Local Health Unit in northern Portugal after the COVID-19 pandemic?; (II) What is the relationship between the mean scores of the burnout dimensions and the sociodemographic and professional variables?

Methodology

A descriptive, correlational, and cross-sectional quantitative study was conducted on a population of medical-surgical emergency nurses of a Local Health Unit in northern Portugal. Non-probability convenience sampling was used to obtain a sample of 39 nurses in July 2022 from a population of 79 nurses. The inclusion criteria were: a) working at a medical-surgical emergency department

in the region under study; b) working at a medical-surgical emergency department for one year or more. A self-completion questionnaire with two sections was used as a data collection instrument. The first section refers to the independent (sociodemographic and professional) variables: gender; age group; marital status; children; academic qualifications; specialization in nursing; length of professional experience as a nurse; length of professional experience as an emergency nurse; professional category; professional relationship; working schedule; working hours per day; job accumulation; workplace satisfaction; perceived increase of fatigue/exhaustion due to the pandemic. The second section refers to the dependent variable - experienced burnout- assessed using the Maslach Burnout Inventory-Human Services Survey - MBI-HSS (Maslach et al., 1996). The Human Services version consists of 22 ordinal items, evaluated using a Likert scale from 0 (never) to 6 (always). This scale integrates the three dimensions of burnout: emotional exhaustion (nine items), depersonalization (five items), and personal accomplishment (eight items). Higher scores on the emotional exhaustion and depersonalization dimensions and lower scores on the personal accomplishment dimension reflect higher burnout values. To calculate the total burnout score, the items of the personal accomplishment subscale were inverted. In calculating all scores, the mean of all related items was considered. In the study by Marôco et al. (2016), the MBI-HSS was translated and culturally adapted to Portugal and Brazil. In this study, the classification into levels followed the one used by Marôco et al. (2016), in which: the level "no burnout/low burnout" corresponds to a score below 2, the level "moderate burnout" corresponds to a score in the interval [2,3[, and "high burnout" corresponds to a score greater than or equal to 3. This classification was also used in the study by Borges et al. (2021). The analysis of the results contemplated the evaluation obtained in each of the three subscales (dimensions), considering the mean scores obtained.

After permission was obtained from the company (Mind Garden, Inc.), the copyright holder of the instrument to be used, the study protocol was submitted to the institution where the nurses worked, which forwarded it to its Ethics Committee, both of which authorized the data collection process (opinion no. 47/2022). Free participation, confidentiality, and anonymity were ensured, and the data collection instrument included an informed consent form.

Descriptive statistics were used - frequency values for qualitative variables and analysis of mean (M) and standard deviation (SD), maximum and minimum values for quantitative variables to perform the sample's sociodemographic and professional characterization. Cronbach's alpha coefficient was used to evaluate the internal consistency of the MBI-HSS based on its three dimensions. Statistically significant differences between the mean scores in the three dimensions and the independent variables were assessed using parametric and non-parametric tests. The Student's *t*-test was used to compare the means of two independent groups. When assumptions were not met, the Mann-Whitney test was used. The one-way ANOVA test was used to compare means for variables consisting of three or more groups. When assumptions were not met, the Kruskal-Wallis test was used. The assumption of normality was not fulfilled. A significance level of 0.05 was set at 0.05 to decide on the significance of the results. IBM SPSS Statistics for Windows software (Version 24.0. Armonk, NY: IBM Corp.) was used for the statistical analyses.

Results

Table 1 shows the sample's sociodemographic characterization. Most participants are female (n = 33; 84.6%), have a mean age of 41.44 ± 6.19 years, are married (82.1% married/cohabiting), and have children (76.9%). Regarding academic qualifications, 61.5% (n = 24) hold a bachelor's degree, and 38.5% have a master's degree. Most of the sample (n = 22; 56.4%) are nurse specialists.

Table 1

Sociodemographic characterization of the sample

Sociodemographic variables		*n*	%
Gender	Female	33	84.6
	Male	6	15.4
Age group	Up to 40 years	19	48.7
	More than 40 years	20	51.3
	Min = 31; Max = 56; *M* ± *SD* = 41.44 ± 6.19		
Marital status	Single	5	12.8
	Married/Cohabiting	32	82.1
	Divorced	1	2.6
	Widowed	1	2.6
Children	No	9	23.1
	Yes	30	76.9
Academic qualifications	Bachelor's degree	24	61.5
	Master's degree	15	38.5
Nursing specialization	No	17	43.6
	Yes	22	56.4
	Total	39	100%

Note. n = Number of sample subjects; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation.

The professional characteristics of nurses are shown in Table 2. It was found that 48.7% (*n* = 19) of the sample had more than 15 years of experience as nurses, with a mean time of 16.72 ± 6.81 years. The mean time of experience as emergency nurses is 11.41 ± 8.20 years. Most of them (*n* = 27; 69.2%) are generalist nurses, 87.2% (*n* = 34) are permanent employees, 82.1% (*n* = 32) work only rotating hours, 89.7% (*n* = 35) work 12 hours a day, and 38.5% (*n* = 15) accumulate jobs. With regard to workplace satisfaction, 46.2% (*n* = 18) are satisfied/totally satisfied, and 20.5% (*n* = 8) are dissatisfied/totally dissatisfied. Notably, 89.7% (n = 35) of the sample reported an increase in fatigue/exhaustion due to the pandemic.

Table 2

Participants' professional characterization (n = 39)

Professional variables		*n*	%
Length of professional experience as a nurse	Up to 15 years	20	51.3
	More than 15 years	19	48.7
	Min = 6; Max = 30; *M* ± *SD* = 16.72 ± 6.81		
Length of professional experience as an emergency nurse	Up to 10 years	22	56.4
	More than 10 years	17	43.6
	Min = 1; Max = 30; *M* ± *SD* = 11.41 ± 8.20		
Professional Category	General Nurse	27	69.2
	Nurse Specialist	12	30.8
Professional Relationship	Permanent	34	87.2
	Fixed-term contract	5	12.8
Work Schedule	Rotating schedule	32	82.1
	Fixed schedule	1	2.6
	Mixed schedule	6	15.4
Working hours per day	8 hours	4	10.3
	12 hours	35	89.7
Job Accumulation	No	24	61.5
	Yes	15	38.5
Workplace satisfaction	Totally dissatisfied	2	5.1
	Dissatisfied	6	15.4
	Neither dissatisfied nor satisfied	13	33.3
	Satisfied	15	38.5
	Totally satisfied	3	7.7
Increase in fatigue/exhaustion due to the pandemic	No	4	10.3
	Yes	35	89.7
Total		39	100%

Note. n = Number of sample subjects; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation.

Table 3 shows the internal consistency coefficients of the MBI-HSS obtained for the study developed and the original study (Maslach et al., 1996), as well as for the study conducted by Nogueira (2016) on a sample of medical-surgical emergency nurses in northern Portugal.

In this study, Cronbach's alpha values were higher in all dimensions compared to the study of Nogueira (2016) and higher in the emotional exhaustion and personal accomplishment dimensions compared to the original study's values.

Table 3

Internal consistency coefficient of the MBI-HSS scale

Dimensions	Cronbach's *alpha* (α)		
	Maslach et al. (1996)	**(Nogueira, 2016)**	**This study**
Emotional Exhaustion (EE)	0.90	0.884	0.920
Depersonalization (DP)	0.79	0.729	0.731
Personal Accomplishment (PA)	0.71	0.505	0.898

Note. Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation.

Table 4 shows the minimum and maximum values, the mean, and the standard deviation for the three dimensions of the MBI-HSS scale and its total score. Figure 1 shows the sample distribution by burnout levels in relative values. In the emotional exhaustion dimension, the surveyed nurses present a mean burnout score of 2.60 ± 1.35. In depersonalization, the mean score is 1.73 ± 1.21, and in personal accomplishment (with inverted data), it is 2.10 ± 1.25. The mean total score is 2.21 ± 0.98 (Table 4). Most respondents (n = 20; 51.3%) show no burnout or low levels. Notably, 20.5% of the sample (n = 8) is at a high burnout level. Based on the sample distribution by levels in each dimension, the highest percentage (35.9%) in the "high burnout" level is found in emotional exhaustion. Conversely, the depersonalization dimension shows a higher percentage of the sample (56.4%) at the lowest level (Figure 1).

Table 4

Minimum and maximum values, mean, and standard deviation for the MBI-HSS dimensions and total scale

MBI-HSS (dimensions and total scale)	Min - Max	*M*	*SD*
Emotional exhaustion	0,33-5,56	2,60	1,35
Depersonalization	0,00-5,00	1,73	1,21
Personal Accomplishment	0,13-5,00	2,10	1,25
Total (22 items)	0,55-4,41	2,22	0,98

Note. Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation.

Figure 1

Sample distribution according to burnout levels by dimension and for the total scale

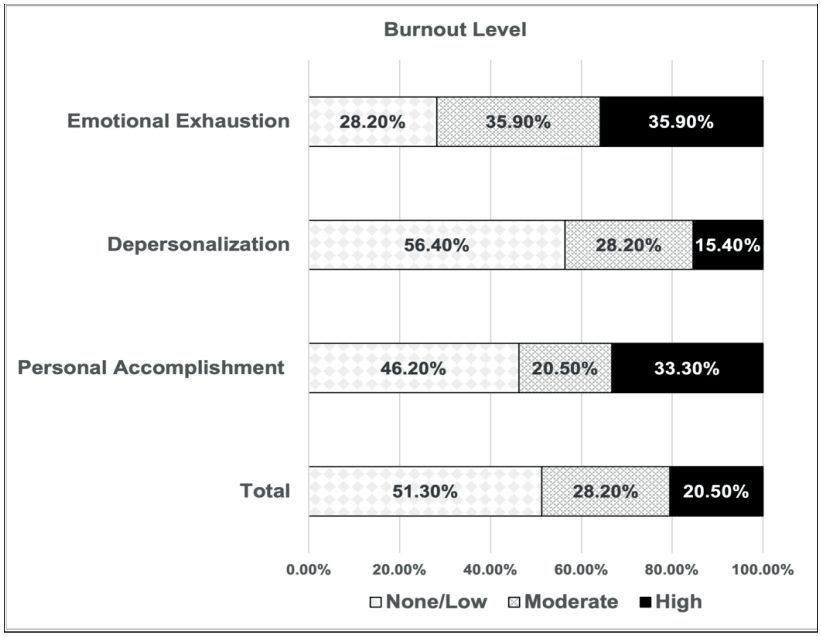

Table 5 shows the mean scores in the MBI-HSS dimensions and statistical significance values of the sociodemographic variables. The female gender presents a higher mean score in all dimensions. The differences observed are statistically significant for emotional exhaustion (p = 0.000) and personal accomplishment (p = 0.022).

No statistically significant differences were found in the three dimensions for the remaining sociodemographic variables. However, based on their mean scores, we found that the nurses aged up to 40 years and the nurses with higher academic qualifications (master's degree) had the highest scores in the emotional exhaustion and depersonalization dimensions; the nurses with children had the highest scores in the emotional exhaustion and personal accomplishment dimensions. Nurses without a spouse (single, divorced, and widowed) and nurse specialists showed the highest scores in all dimensions.

Table 5

Relationship between the sociodemographic variables and the mean scores on the MBI-HSS

Variables	Emotional exhaustion			Depersonalization			Personal accomplisment		
	M	*SD*	*p*-value	*M*	*SD*	*p*-value	*M*	*SD*	*p*-value
Gender									
Female	2.81	1.35	0.000	1.88	1.22	0.068	2.30	1.23	0.022
Male	1.43	0.47		0.90	0.87		1.04	0.74	
Age group									
Up to 40 years	2.66	1.31	0.792	1.80	1.29	0.724	1.84	0.98	0.177*
≥ 40 years	2.54	1.41		1.66	1.16		2.36	1.44	
Marital status									
With a spouse	2.56	1.39	0.723	1.64	1.07	0.557*	2.02	1.21	0.359
Without a spouse	2.76	1.23		2.14	1.78		2.50	1.46	
Children									
No	2.52	1.30	0.848	1.82	1.49	0.933*	1.85	1.03	0.492
Yes	2.62	1.38		1.70	1.14		2.18	1.31	
Academic qualifications									
Bachelor's degree	2.54	1.28	0.737	1.63	1.41	0.208*	2.24	1.26	0.393
Master's degree	2.69	1.48		1.89	0.83		1.88	1.24	
Specialization in nursing									
No (n=17)	2.32	1.27	0.267	1.45	1.40	0.071*	1.85	1.17	0.264
Yes (n=22)	2.81	1.39		1.95	1.03		2.30	1.30	

Note. M = Mean; *SD* = Standard deviation; * Mann-Whitney test; *p*-value = Statistical significance.

Table 6 shows the mean scores in the MBI-HSS dimensions, with statistical significance values related to the professional variables. On average, burnout is higher in all MBI-HSS dimensions in nurses with more than 15 years of experience as nurses, in nurses with more than 10 years of experience as emergency nurses, in nurse specialists, in nurses who do not accumulate jobs, and in nurses who do not work only rotating hours (fixed/mixed). However, no statistically significant differences were found between them. As for the professional relationship, permanent employees have higher scores in the emotional exhaustion and depersonalization dimensions and lower scores in the personal accomplishment dimension, but no statistically significant relationship was found. Regarding working hours per day, individuals with 12 hours a day have higher scores in the emotional exhaustion and depersonalization dimensions, with statistical significance.

Regarding workplace satisfaction, dissatisfied nurses have the highest mean scores in all dimensions, while satisfied nurses have the lowest scores. The one-way ANOVA test and the Kruskal-Wallis test revealed statistically significant differences, and the multiple comparisons tests showed that satisfied nurses are distinguished from the others. The nurses who considered that the pandemic led to increased fatigue/exhaustion had the highest mean scores in all dimensions, with statistically significant differences in the emotional exhaustion and depersonalization dimensions.

Table 6

Relationship between the professional variables and the mean scores in the MBI-HSS dimensions

Variables	Emotional exhaustion			Depersonalization			Personal accomplishment		
	M	*SD*	*p*-value	*M*	*SD*	*p*-value	*M*	*SD*	*p*-value
Length of professional experience as a nurse									
Up to 15 years	2.48	1.38	0.582	1.57	1.35	.215*	1.88	1.14	0.248
≥ 15 years	272	1.33		1.90	1.06		2.34	1.34	
Length of professional experience as an emergency nurse									
Up to 10 years	2.37	1.31	0.236	1.47	1.29	.053*	2.09	1.34	0.948
≥ 10 years	2.89	1.37		2.06	1.05		2,12	1.17	
Professional category									
General nurse	2.55	1.37	0.764	1.73	1.35	.614*	1.92	1.09	0.166
Nurse specialist	2.69	1.34		1.73	0.86		2.52	1.51	
Professional Relationship									
Permanent	2.68	1.33	0.333	1.74	1.10	.926	2.04	1.28	0.378*
Fixed-term contract	2.04	1.49		1.68	2.02		2.53	1.12	
Working hours per day									
8 hours	1.22	0.92	0.029	0.55	0.30	.000	2.94	1.74	0.161
12 hours	2.75	1.30		1.86	1.21		2.01	1.18	
Job accumulation									
No	2.87	1.23	0.107	1.96	1.24	.136	2.27	1.28	0.293
Yes	2.16	1.45		1.36	1.11		1.83	1.19	
Work Schedule									
Rotating	2.53	1.35	0.531	1.66	1.17	.462*	2.06	1.27	0.644
Others (fixed/mixed)	2.89	1.40		2.06	1.45		2.30	1.22	
Workplace satisfaction									
Dissatisfied	3.46	1.43		2.38	1.06		3.31	1.06	
Neither dissatisfied nor satisfied	3.06	1.14	.004	2.05	1.51	.035	2.33	0.94	0.001**
Satisfied	1.88	1.11		1.21	0.81		1.40	1.08	
Increased fatigue/exhaustion with the pandemic									
No	0.94	0.33	0.008	0.35	0.34	.002*	1.66	1.26	0.458
Yes	2.78	1.29		1.89	1.18		2.15	1.26	

Note. M = Mean; *SD* = Standard deviation; * Mann-Whitney test; ** Kruskal-Wallis test; *p*-value = Statistical significance.

Discussion

With regard to the scale's psychometric analysis and considering the classification criteria for Cronbach's alpha by Vilelas (2020), the emotional exhaustion and personal accomplishment subscales showed very good (0.920) and good (0.898) internal consistency, respectively. As regards the depersonalization dimension, the consistency was acceptable (0.731). The reliability coefficients obtained in this study are higher than those obtained in the study conducted by Nogueira (2016) with regard to the three subscales. Compared to the original study, they are higher in the emotional exhaustion and personal accomplishment subscales.

Regarding the first research question, 28.2% of the sample had a moderate burnout level, and 20.5% had a high burnout level. These results are in line with the study by Borges et al. (2021), which used the MBI as a data collection tool to identify and compare the levels of burnout among Portuguese, Spanish, and Brazilian nurses, and found that approximately 42% of the sample of nurses had moderate/high levels of burnout, with very similar results between the three countries: Portugal - 42%, Spain - 43%, and Brazil - 42%. A study conducted by Faria et al. (2019) on a sample of 346 nurses from northern Portugal, which used the MBI, found that only 9.3% were at a high level of burnout. This difference can be explained by the data referring to the pre-pandemic period.

This study found that many nurses (35.9%) had a high burnout level in the emotional exhaustion dimension,

while 56.4% of the sample had a lower burnout level in the depersonalization dimension. Nogueira (2016), using a mostly female and married sample with an average age of 39 years, found that most nurses were at a high burnout level in the emotional exhaustion dimension (54.05%) and at a low burnout level in the personal accomplishment dimension (59.46%).

Regarding the second research question, significant differences related to the sociodemographic variables were only found according to gender; female nurses had higher scores in the emotional exhaustion (p = 0.000) and personal accomplishment (p = 0.022) dimensions. In the study by Oliveira (2021), female nurses also showed higher scores in the emotional exhaustion dimension, although without statistical significance. This study also found a statistical significance in the personal accomplishment dimension, in which mean scores were slightly higher in male nurses, corroborating this study since the data in this dimension were inverted. Kimura et al. (2021) also highlighted the higher prevalence of burnout in female nurses in their study.

As for the professional variables, some dimensions showed a statistically significant relationship according to working hours per day, workplace satisfaction, and the perception of increased fatigue/exhaustion due to the pandemic. Nurses working 12 hours a day (p = 0.029) had the highest mean scores in the emotional exhaustion dimension. Oliveira (2021) found a statistical significance in this dimension according to the type of contract and working hours, in which permanent employees and those who worked 8 to 10 hours a day had the highest scores. In this study, nurses with a schedule of 12 hours a day (p = 0.000) showed the highest mean scores regarding the depersonalization dimension. In the study of Oliveira (2021), as regards depersonalization, the individuals with a fixed-term employment contract, on a rotating schedule, working more than 10 hours a day in hospital emergency services showed the highest scores, with statistical significance.

Workplace satisfaction was the only professional variable statistically significant in the three burnout dimensions, in which satisfied nurses showed lower mean scores. For Correia (2020), burnout has been directly associated with workplace satisfaction. Sousa (2019) conducted a comparative study between health professionals and other professionals in the context of burnout and found that job satisfaction and burnout behave antagonistically. Employers have shown a greater concern with job satisfaction because employees are determinants for increasing productivity and performance quality, a reality that fits hospital settings (Correia, 2020).

The nurses who perceived increased fatigue/exhaustion due to the pandemic had higher mean scores in the three dimensions, with statistical significance for the emotional exhaustion (p = 0.008) and depersonalization (p = 0.002) dimensions. This relationship is expected considering the burnout definition (Maslach et al., 1996) and the main results obtained in studies of the same scope in a pandemic context, such as that of Oliveira (2021).

The small sample size and the sampling technique used make the results non-representative, not allowing for extrapolation; however, they allowed describing the reality of a specific context in a phase of controlled pandemic, with fewer restrictions.

Conclusion

This study aimed to identify the level of burnout perceived by medical-surgical emergency nurses in a region of Portugal, as well as its relationship with the sociodemographic and professional variables, based on the mean scores obtained in each dimension of the MBI-HSS. Burnout levels were calculated according to the total score, in which considerable percentages of moderate and high burnout were found, reflecting a concern, given the consequences that may have repercussions at the individual and organizational levels, as highlighted in the vast scientific literature. The emotional exhaustion dimension had the highest mean score, while depersonalization had the lowest. A statistically significant relationship was also found in some dimensions, according to gender, working hours per day, workplace satisfaction, and perception of increased fatigue/exhaustion due to the pandemic. This study's findings, inherent to a demanding and stressful context, show that specific strategies can be adopted, with subsequent verification, to promote occupational health and the well-being of health professionals based on individual, collective, and organizational actions. Educational sessions led by accredited professionals would empower nurses to face workplace problems, seeking to enhance their energy and decrease the perception of exhaustion; the option for a shorter daily shift (8 hours) would decrease contact time with stressful situations and allow more daily time for the family or oneself (in recreational/recreational, relaxation activities), among others. Burnout should be continuously monitored in all health professionals, involving representative samples and wide geographic areas and including new variables, such as the effective weekly workload, including hours when accumulating jobs; workload and working conditions; selected vacation periods; the number of dependent children, stratified by age groups; the number of cohabiting dependent family members (parents/grandparents); among others. The goal is to identify more precisely the areas of intervention to be invested in, to fight and prevent this occupational disease, aiming to achieve higher percentages of professionals with lower burnout levels to promote satisfaction in employees, employers, and clients. Lower levels of burnout in emergency teams will undoubtedly contribute to improving the provision of safer and higher-quality care. Future studies should be conducted to identify the relationship between nurses' level of burnout and the quality of care provided.

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