

Original article

The effect of socio-demographic characteristics on the burnout syndrome of nurses in Republic of Srpska during the COVID-19 pandemic

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Summary

Introduction. Nursing is a high-risk profession for burnout due to deadlines, workload, close patient and family interactions, and supervisor demands. This study aims to assess the frequency of burnout among nurses in COVID-19 and other departments during the pandemic.

Methods. This cross-sectional study, conducted from November 8 to December 1, 2021, included 246 nurses from COVID-19 and other departments. Two questionnaires were used: a sociodemographic survey and the Maslach Burnout Inventory.

Results. Statistically significant differences were found in emotional exhaustion ($Z=-3.518$; $p\leq 0.001$), depersonalization ($Z=-2.257$; $p=0.024$), and total burnout score ($Z=-4.330$; $p\leq 0.001$) between nurses in COVID-19 wards and those in other departments. Data suggest that nurses with less than 10 years of experience are at higher risk of burnout than those with 10–30 years of experience.

Conclusion. Nurses in COVID-19 wards exhibited higher emotional exhaustion and depersonalization compared to those in other departments.

Key words: burnout syndrome, stress, nursing, SARS-CoV-2

Introduction

Professional burnout syndrome in nurses has gained significant attention in recent decades, defined in various ways by researchers [1]. Christina Maslach contributed greatly to understanding this concept, describing it as a psychological syndrome leading to emotional exhaustion (both physical and mental), dehumanization in interpersonal relationships, and a sense of professional inadequacy in demanding situations. According to Maslach, this syndrome diminishes professional commitment, especially among service providers like healthcare workers, police officers, journalists, teachers, and managers [2]. Nurses face unique challenges, including responsibility for human lives, emotional labor, communication with patients and their families, and often difficult working conditions. The demands of providing care to sick or terminal patients in a stressful environment promote chronic stress, which can contribute to burnout [3, 4]. Additional risk factors for burnout among healthcare workers include sex, marital status, emotional stress, and limited social support [5]. Symptoms often emerge when nurses struggle to adapt to or manage high levels of stress [6]. Studies show that burnout prevalence among healthcare workers ranges from 15.4% to 85.1% [7]. This study aimed to assess the risk level of professional burnout among nurses during the COVID-19 pandemic, considering sociodemographic characteristics and comparing COVID-19 ward nurses with those in other departments.

Methods

The cross-sectional study was conducted in the period from November 8, 2021 until December 1, 2021 in six secondary level public health institutions in Republic of Srpska. The study included 246 nurses employed in the covid and other departments. During the re-

search, a questionnaire of sociodemographic characteristics was used, which was created for the purposes of this research and consisted of 14 questions, the Maslach Burnout Inventory - MBI. The MBI has three structural units and measures the following dimensions: feelings of emotional exhaustion and overwork, depersonalization, i.e. feelings of discomfort caused by effort and feelings of competition and job satisfaction. The test consists of 22 statements scored in seven categories from 0 to 6 (0 - never, 1 - several times a year or less, 2 - once a month or less, 3 - several times a month, 4 - once a week, 5 - several times a week, 6 - every day). The emotional exhaustion subscale (EE) consists of nine items, the depersonalization subscale (DP) consists of five items, and the personal fulfillment subscale (PA) consists of eight items. If the value on the test 51 for EE is greater than 26, there is a risk of developing professional burnout syndrome. A value less than or equal to 18 on the EE subscale represents low risk, and the value from 19 to 26 represents medium risk for the occurrence of occupational burnout syndrome. Regarding the PA subscale, low risk represents a score greater than or equal to 40, medium risk is from 39 to 34, and high risk for professional burnout syndrome is less than or equal to 33, but a general conclusion about the presence of the syndrome cannot be made by looking at the PA subscale in isolation. The PA subscale is relevant only if it is validated with the EE or DP scale. The total score is possible in the range of 0–123 [8]. Statistical analysis of the data was performed using the SPSS statistical software package. Among the statistical tests, the χ^2 -square test was used. As the level of statistical significance of differences, the usual value $p < 0.05$ was taken. Arithmetic means and standard deviations were used to display average values. Correlation was done using Spearman's correlation coefficient. The Mann-Whitney test and the Kruskal-Wallis test were used to compare independent samples.

Results

The study included 246 respondents aged 19 to 64, of which 28.5% were males and 71.5% were females. The average age of the respondents was 34.8 years, and the average work experience was 12.95 years.

The results of the Mann-Whitney test showed statistically significant differences in emotional exhaustion (MBIA) ($Z=-3.518$; $p\leq 0.001$), depersonalization (MBIB) ($Z=-2.257$; $p=0.024$), and the total MBI score ($Z=-4.330$; $p\leq 0.001$) between respondents working in COVID-19 departments and those working in other departments. However, no statistically significant difference was found in terms of personal success (MBIC) ($Z=-1.595$; $p=0.111$) (Table 1).

Male and female respondents differed statistically significantly according to subscore B of the MBI scale ($Z=-2.401$; $p=0.016$), but no differences were found in the total score or other subscores (Table 2).

The respondents were divided into three age groups: ≤ 30 years, 31–49 years, and ≥ 50 years. The Kruskal-Wallis test showed no statistically significant differences in the degree of professional burnout between these age groups (Table 3).

When examining the risk of professional burnout according to work experience, the Mann-Whitney test showed the statistically significant difference between respondents with less than 10 years of experience (median=44) and those with 10 to 30 years of experience

Table 1. Maslach burnout inventory (MBI) among employees in the COVID and other departments

Scale	Do you work in covid or other departments?			P
	Mean	SD	Min-Max	
MBIA	18.325	7.526	2.0–30.0	0.000
MBIB	13.666	8.991	0.00–42.00	0.024
MBIC	43.422	8.341	0.00–54.00	0.111
MBI TOTAL	75.414	16.545	2.00–120.00	0.000

Table 2. Distribution of respondents according to sex and MBI subscale scores

Variables	Average rank score	Median	z	P
MBIA				
Male	134.36	20	-1.511	0.131
Female	119.18	19		
MBIB				
Male	140.73	12	-2.401	0.016
Female	116.65	9.50		
MBIC				
Male	113.87	44	-1.345	0.179
Female	127.33	46		
MBI TOTAL				
Male	133.56	77		0.162
Female	119.50	72.50	-1.399	

Table 3. The presence of professional burnout in relation to the age of the respondents

Variables	Ranks average	SD	Min-Max	Kruskal-Wallis H	P
MBIA					
≤30	94.65				
31–49	90.45	7.49	2.0–30,0	0.686	0.710
≥50	85.19				
MBIB					
≤30	90.94		0.00–42,00	1.205	0.547
31–49	95.17	9.60			
≥50	82.19				
MBIC					
≤30	83.14				
31–49	95.88	8.49	0.00–54,00	3.881	0.144
≥50	103.42				
MBI TOTAL					
≤30	92.29				
31–49	95.37	0.70	1.0–3,0	2.278	0.320
≥50	77.50				

Table 4. The presence of professional burnout in relation to the length of work experience according to subscore C MBI

Variables	Average score rank	SD	Min - Max	z	P
MBIA					
<10	107.20	7.52	2.0–30.0	-1.083	0.279
10–30	116.56				
MBIC					
<10	101.95	8.34	0.00–54.00	-2.413	0.016
10–30	122.74				
MBI TOTAL					
<10					
10–30	105.13	16.54	2.00–120.00	-1.603	0.109
	118.99				

Table 5. The presence of professional burnout in relation to the length of work experience according to subscore C of the MBI and the total score of the MBI scale

Variables	Average score rank	SD	Min - Max	z	P
MBIA					
<10	75.37	7.52	2–30	-1.847	0.065
>30	58.17				
MBIC					
<10	68.28	8.34	0–54	-2.726	0.006
>30	93.58				
MBI TOTAL					
<10	75.70				
>30	56.50	16.54	2–120	-2.060	0.039

(median=46) ($Z=-2.413$, $p=0.016$) according to subscale C of the MBI scale. Respondents with less than 10 years of experience had higher risk of professional burnout compared to those with 10 to 30 years of experience which is shown in table 4.

The Mann-Whitney test also showed the statistically significant difference between respondents with less than 10 years of experience (median=44) and those with more than 30 years of experience (median=48) ($Z=-2.726$, $p=0.006$) according to subscale C and the total MBI score (Median<10 years=73, Median>30 years=66) ($Z=-2.060$, $p=0.039$). Respondents with less than 10 years of work experience had higher risk of professional burnout compared to those with more than 30 years of work experience (Table 5).

Discussion

During the COVID-19 pandemic, nurses played a pivotal role as frontline workers, directly involved in the care of patients. This intense exposure to the virus and the stress of dealing with critically ill patients placed them under immense psychological strain [9]. Studies have shown that nurses working in COVID-19 departments exhibited higher levels of burnout compared to those in other departments. Specifically, higher scores were recorded in the three main components of burnout: emotional exhaustion, depersonalization, and reduced personal accomplishment, as assessed by the Maslach Burnout Inventory. Statistically significant differences were found in emotional exhaustion and depersonalization, with nurses in COVID-19 units showing significantly more emotional exhaustion and depersonalization than their counterparts at other units. In terms of emotional exhaustion, the average score was at a medium level, indicating moderate burnout. However, depersonalization and personal accomplishment levels were high, pointing

to severe emotional disengagement and a diminished sense of professional efficacy. Similar studies conducted globally, such as those in Spain, Shanghai, and Iran, have reported comparable findings. A study in Spain, for instance, highlighted high levels of burnout, especially in emotional exhaustion and depersonalization, although personal accomplishment was moderately affected [10]. The study conducted in Shanghai with nurses working in COVID-19 wards reported moderate emotional exhaustion and depersonalization, with a significant number of respondents also experiencing a marked lack of personal achievement [11]. In Iran, healthcare workers exposed to the virus experienced the significantly higher level of burnout compared to those working in non-COVID departments [12]. These findings collectively suggest that high levels of burnout were due to factors such as increased workload, extended working hours, psychological stress, and the constant threat of disease transmission. Chronic stress, which evolved over time, contributed to the onset of burnout, a condition faced by many nurses throughout the pandemic.

Sex differences in burnout have also been explored in several studies. Women consistently showed higher levels of emotional exhaustion compared to men, which aligns with findings from surveys in Italy, China, and Latin America [13]. Men, on the other hand, exhibited higher levels of depersonalization, suggesting that while both sexes were affected, the nature of their psychological responses to stress might differ. A meta-analysis involving over 3 million participants confirmed that women, younger individuals, and nurses were the most vulnerable to burnout [14]. Women are more likely to experience emotional exhaustion, while men may be more prone to depersonalization. Furthermore, cultural expectations discouraging men from expressing emotions might lead to the increased risk of burnout in this group [15]. Men often perceive emotional expression as

a weakness, which can exacerbate self-criticism, particularly in high-stress situations like the COVID-19 pandemic [16, 17].

The research also revealed that professional burnout was inversely related to years of work experience. Nurses with fewer years of experience were at higher risk of burnout, the finding that has been consistent across multiple international studies, including those from China, West Bengal, Iran, Spain, and the USA. Nurses with less experience tend to report worse mental health outcomes, including higher levels of burnout, anxiety, and depression [18]. In Greece, the study involving 701 nurses found that those with fewer years of experience had higher risk of professional burnout [19]. The rationale behind this could be linked to the developmental stages of professional competence. Nurses with less experience face steep learning curves, especially when adapting to high-pressure environments like those created by the COVID-19 pandemic. Novice nurses or those with limited competencies were thrust into high-stakes situations where they had to quickly acquire new skills, deal with life-threatening situations, and adapt to rapid changes in protocols. Moreover, the emotional toll of dealing with a large number of patient deaths and the constant fear of disease transmission to themselves or their families likely exacerbated the risk of burnout. Additionally, high emotional engagement and the constant exposure to life-threatening conditions, combined with

the stress of handling medical equipment and providing intensive care, led to emotional exhaustion, diminished sense of personal success, and disruption in the nurses' perception of themselves and their environment. This combination of factors, particularly for less experienced nurses, created a perfect storm for burnout during the pandemic.

Conclusion

Nurses working in COVID-19 departments experienced significantly higher levels of emotional exhaustion and depersonalization compared to those in other departments. Nurses with fewer than 10 years of experience were at the highest risk for professional burnout. While male nurses were more prone to depersonalization, there were no statistically significant sex differences in emotional exhaustion or feelings of personal success. These findings emphasize the urgent need for targeted interventions to support nurses, particularly those with less experience, to mitigate the long-term effects of burnout. Interventions would be reflected in the implementation of measures at the individual and system levels. In addition to continuous training, measures at individual level, that would affect the reduction of burnout, are knowledge about stressors and relaxation techniques. When it comes to system level, the most significant things are problem recognition and organisation of employee support program.

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Ethical approval. The Ethics Committee for Research on Humans and Biological Material of the University of Banja Luka, Faculty of Medicine, Republic of Srpska, Bosnia and Herzegovina, approved the study (No. 18/4.42/22)

and informed consent was obtained from all individual respondents. The research was conducted according to the Declaration of Helsinki.

Conflicts of interest. The authors declare no conflict of interest.

References:

- Sullivan D, Sullivan V, Weatherspoon D, Frazer C. Comparison of nurse burnout before and during the COVID-19 pandemic. *Nurs Clin North Am* 2022;57(1):79–99.
- Baić V. Sindrom sagorevanja radnika zaposlenih u gradskom zavodu za hitnu medicinsku pomoć. *NČ Urgent Medic HALO* 2017;23(2):71–8.
- Monsalve-Reyes CS, Luis-Costas CS, Gómez-Urquiza JL, Albendín-García L, Aguayo R, De la Fuente GAC. Burnout syndrome and its prevalence in primary care nursing: a systematic review and meta-analysis. *BMC Fam Pract* 2018;19(1):59.
- Shah MK, Gandrakota N, Cimiotti JP, Ghose N, Moore M, Ali MK. Prevalence of and factors associated with nurse burnout in the US. *JAMA Netw Open* 2021;4(2):e2036469.
- Zhang XJ, Song Y, Jiang T, Ding N, Shi TY. Interventions to reduce burnout of physicians and nurses. *Medicine (Baltimore)* 2020;99(26):e20992.
- Friganović A, Selić P, Ilić B, Sedić B. Stress and burnout syndrome and their associations with coping and job satisfaction in critical care nurses: a literature review. *Psychiatr Danub* 2019;31(Suppl 1):21–31.
- Marić N. Sindrom sagorevanja na poslu. *Medicina danas* 2020;19(1-3):43–50.
- Maslach C, Jackson SJ, Leiter MP. *Maslach Burnout Inventory Manual*. 3th ed. Mountain View, CA: CPP, Inc; 1996.
- Galanis P, Vraha I, Fragkou D, Bilali A, Kaiteidou D. Nurses' burnout and associated risk factors during the COVID-19 pandemic: A systematic review and meta-analysis. *J Adv Nurs* 2021;77(8):3286–302.
- Rivas N, López M, Castro MJ, Luis-Vian S, Fernández-Castro M, Cao MJ, et al. Analysis of burnout syndrome and resilience in nurses throughout the COVID-19 pandemic: A cross-sectional study. *Int J Environ Res Public Health* 2021;18(19):10470.
- Zhang Y, Wang C, Pan W, Zheng J, Gao J, Huang X, et al. Stress, burnout, and coping strategies of frontline nurses during the COVID-19 epidemic in Wuhan and Shanghai, China. *Front Psychiatry* 2020;11:565520.
- Sarboozii Hoseinabadi T, Kakhki S, Teimori GH, Nayyeri S. Burnout and its influencing factors between frontline nurses and nurses from other wards during the outbreak of Coronavirus Disease (COVID-19) in Iran. *Invest Educ Enferm* 2020;38(2):e3.
- Petrović-Stanojević N. COVID-19 može biti nezavisni faktor psihosocijalnog rizika kod zdravstvenih radnika. *Zvezdara Clin Proc* 2020;21(1-2):13–7.
- Chutiyami M, Cheong AMY, Salihu D, Bello UM, Ndwiga D, Maharaj R, et al. COVID-19 pandemic and overall mental health of healthcare professionals globally: A meta-review of systematic reviews. *Front Psychiatry* 2021;12:804525.
- Galeković JM. Povezanost sindroma sagorijevanja medicinskih sestara sa radnim mjestom i privatnim životom. *Diplomski rad*. Univerzitet u Osijeku, 2016.
- Jalili M, Niroomand M, Haddavand F, Zeinali K, Fotouhi A. Burnout among healthcare professionals during the COVID-19 pandemic: a cross-sectional study. *Int Arch Occup Environ Health* 2021;94(6):1345–52.
- Brera AS, Arrigoni C, Dellafiore F, Odone A, Magon A, Nania T, et al. Burnout syndrome and its determinants among healthcare workers during the first wave of the Covid-19 outbreak in Italy: A cross-sectional study to identify sex-related differences. *Med Lav* 2021;112(4):306–19.
- Sanghera J, Pattani N, Hashmi Y, Varley KF, Cheruvu MS, Bradley A, et al. The impact of SARS-CoV-2 on the mental health of healthcare workers in a hospital setting – A systematic review. *J Occup Health* 2020;62(1):e12175.
- Sikiras C, Ilias I, Tselebis A, Pachi A, Zyga S, Tsironi M, et al. Nursing staff fatigue and burnout during the COVID-19 pandemic in Greece. *AIMS Public Health* 2022;9(1):94–105.

Uticaj socio-demografskih karakteristika na sindrom sagorijevanja kod medicinskih tehničara u Republici Srpskoj tokom pandemije COVID-19

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Uvod. Sestrinstvo je profesija sa visokim rizikom od sagorijevanja zbog rokova, obima posla, bliske interakcije sa pacijentima i njihovim porodicama, kao i zahtjeva nadređenih. Ova studija ima za cilj da procijeni učestalost sindroma sagorijevanja kod medicinskih tehničara na COVID-19 i drugim odjeljenjima tokom pandemije.

Metode. Ova studija presjeka, sprovedena u periodu od 8. novembra do 1. decembra 2021. godine, obuhvatila je 246 medicinskih tehničara sa COVID-19 i drugih odjeljenja. Korišćena su dva upitnika, sociodemografski upitnik i Maslachov inventar sagorijevanja.

Rezultati. Statistički značajna razlika pronađena je u emocionalnoj iscrpljenosti ($Z=-3,518$; $p\leq 0,001$), depersonalizaciji ($Z=-2,257$; $p=0,024$) i ukupnom rezultatu sagorijevanja ($Z=-4,330$; $p\leq 0,001$) između medicinskih tehničara na COVID-19 odjeljenjima i onih na drugim odjeljenjima. Podaci sugerišu da su medicinski tehničari sa manje od 10 godina radnog iskustva pod većim rizikom od sagorijevanja u poređenju sa onima sa 10–30 godina iskustva.

Zaključak. Medicinski tehničari na COVID-19 odjeljenjima pokazali su veću emocionalnu iscrpljenost i depersonalizaciju u poređenju sa onima na drugim odjeljenjima.

Ključne riječi: sindrom sagorijevanja, stres, medicinski tehničari, SARS-CoV-19