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LONG-TERM HEALTHCARE PROFESSIONALS' EXPERIENCES OF BURNOUT AND CORRELATION BETWEEN BURNOUT AND FATIGUE: A CROSS-SECTIONAL STUDY

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Abstract
Objectives: The aim of the study was to analyze the long-term burnout levels of healthcare professionals (HCPs) working in Slovenian nursing homes during the fifth wave of the pandemic; to compare the results of similar facilities in 2020 and 2013; and to examine the correlation between demographics and burnout and fatigue among HCPs. **Material and Methods:** The study used a descriptive, correlational cross-sectional method. **Results:** In the fifth wave, HCPs suffered more from emotional exhaustion, depersonalization and lack of personal accomplishment than in the first wave of the pandemic and in the spring of 2013. The HCPs caring for COVID-19 patients and younger women had higher rates of burnout and fatigue than other occupational groups. There is a strong positive correlation between burnout and fatigue. **Conclusions:** There is an urgent need to address the problem of fatigue and burnout with administrative measures. Int J Occup Med Environ Health. 2023;36(3):396–405

Key words:
fatigue, professional burnout, healthcare professionals, nursing homes, COVID-19 pandemic, long-term healthcare

INTRODUCTION

The COVID-19 pandemic has had a major impact on the work and health of healthcare professionals (HCPs). Lluch et al. [1] found that the level of burnout has increased from medium to high, particularly on the subscales of depersonalization (DP) and emotional exhaustion (EE). Most current studies have concluded that nurses working in healthcare settings have higher levels of burnout than other HCPs [1]. The study by Leskovic et al. [2] investigated burnout among HCPs in nursing homes during the COVID-19 pandemic and showed an increase in burnout levels in 2013–2020 among Slovenian HCPs. Blanco-Donoso et al. [3] found high workloads and fear of infection among HCPs in Spanish nursing homes during the pandemic. We must be aware of long-term burnout among HCPs in nursing homes during the pandemic because the disease has disproportionately affected these settings [4]. Nursing homes, which are

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principally social settings, have been converted into hospitals in Slovenia and in most countries around the world, where COVID-19 patients are being cared for [5].

Professional burnout is an individual response to work-related stress over a long period of time that can affect the performance, productivity, turnover and well-being of both HCPs and patients/residents [6]. The academic literature of the last few years has shown that HCPs are particularly exposed to burnout as their professional situation is characterized by risky decision-making relating to people, empathy and responsibility [1,7]. The main dimensions of burnout are: (a) EE of the person; (b) DP or the person's detachment from the patient/resident; and reduced personal accomplishment (PA) [8]. Burnout among nurses is related to lower nursing care, lower patient safety and an increase in medical errors [9–11].

Moreover, many scholars point out that burnout is not sufficient to explain the complex difficulties faced by HCPs in the health sector, especially in nursing homes for the elderly or in palliative care [12–14]. In that context, many authors suggest that several HCPs suffer from physical, mental, and emotional fatigue [1,15–16]. Burnout and fatigue can cause feelings of physical and mental exhaustion; thus, they are often used as synonyms. However, there is a conceptual difference between them; the World Health Organization identifies burnout and fatigue as different diseases [17]. Fatigue is the result of a variety of causes, such as the environment and personal lifestyle, whereas burnout is the outcome of a long period of emotional frustration and stress in the work environment [17]. Fatigue is a multi-layered condition with mental, emotional, cognitive, and sensory elements, resulting from extreme occupational requirements and inadequate recovery of energy, characterized by a reduced ability to work and a reduced willingness to perform after a period of physical or mental work [18]. Fatigue associated with HCPs' work has been recognized as a risk to staff health that negatively impacts patient safety and quality of care [18–20]. Fatigue can be exacerbated by life factors that accelerate its progression to burnout [21,22]. The first wave of the pandemic had a positive correlation with nurses' fatigue [23]. While it was spreading, nurses were exposed to increasing workloads leading to acute and chronic fatigue [23]. A strong positive correlation between fatigue and burnout with high rates was found among nurses in Athens' hospitals in February 2021 [19].

Systematic reviews of studies published in the first year of the pandemic on the extent of burnout among HCPs show that anxiety, depression and insomnia, together with the main socio-demographic characteristics such as gender, the job of a nurse or the care of COVID-19 patients, are the most important risk factors for burnout [1]. In addition to personal characteristics, another systematic review identified other important risk factors associated with burnout such as organizational behaviour, e.g., manager support, problems related to protecting healthcare providers from infections, rapid changes in health policy, lower income and conflicting information from authorities [23]. Organizational behaviour may be particularly important in Slovenian and other European countries where more than a quarter of the population is >65 years old (about 400 000 Slovenians). It was perceived as a heavy burden for HCPs, leading to significantly exacerbated pre-existing burnout [2]. A less developed long-term care system with nursing homes is founded on informal care; such nursing homes became a type of palliative care facilities during the pandemic.

Burnout and fatigue during the 2 years of the COVID-19 pandemic have been studied among HCPs in hospital settings. However, there is a lack of research on the long-term monitoring of burnout levels in nursing homes. Therefore, the aim of the study was to analyze the long-term burnout levels of HCPs working in Slovenian nursing homes during the fifth wave of the pandemic; to com-

pare the results of similar facilities in 2020 and 2013; and to examine the correlation between demographics and burnout and fatigue among HCPs.

It was assumed that burnout levels among HCPs working in Slovenian nursing homes would be elevated in the third year of the pandemic compared to the first wave of the pandemic and to 2013; there is a positive correlation between age, workload, organizational behavior and burnout and fatigue. The results of the study may contribute to the scientific knowledge on the relationship between burnout and fatigue among HCPs in nursing homes.

MATERIAL AND METHODS

Study design and participants

The study was based on the correlational cross-sectional method. A questionnaire was sent by email to private and public nursing homes in Slovenia during the fifth wave of the COVID-19 pandemic in Central and Eastern Europe, which lasted February 15–April 15, 2022. The invitation to participate was sent to all Slovenian nursing homes (59 public institutions and 44 nursing homes with a concession). The managers were asked to provide a link to the online questionnaire to all nurses and nursing assistants. In the introductory section of the online questionnaire, it was indicated that completing and submitting the questionnaire is considered informed consent and voluntary participation. A total of 437 respondents completed the questionnaires in full, which corresponds to a representative sample [2].

Instrument

At the beginning the questionnaire addressed the burnout syndrome using the *Maslach Burnout Inventory* (MBI), consisting of 22 items including all 3 aspects of burnout and rated on a Likert scale [24]. The MBI has high consistency and reliability, ranging 70–95% [25]. Overall burnout is identified as a high score in the EE or DP subscale [26]. The high burnout level of EE is ≥27, DP is ≥10 and PA is ≥40; the moderate level of EE is 19–26, DP is 6–9, PA is 34–39; the low level is 0–18, DP is 0–5 and PA is 0–33 [26].

The second part addressed fatigue using a *Fatigue Assessment Scale* (FAS) validated in Slovenia to assess fatigue with a Likert scale (1 – never, 2 – sometimes, 3 – often, 4 – very often, 5 – always) [20,25]. Five questions relate to physical fatigue and 5 questions relate to mental/emotional fatigue in recent weeks. Total scores range 10–50, with scores ≥22 indicating fatigue [20,27]. The scale has high consistency and reliability (79%).

The third part dealt with subjective workload using the *NASA Task Load Index* (NASA TLX), a multidimensional instrument consisting of 6 items, providing an overall workload score according to a weighted average of the scores on 6 subscales (performance, mental demands, physical demands, time demands, effort and frustration). Each dimension is rated on a 100-point scale divided into 20 levels of 5 pts each. Total workload is represented by a combination of the 6 dimensions [28]. The scale has high consistency and reliability (80%).

The fourth part addressed organizational behaviour, consisting of 3 items (manager support, protection of healthcare providers from infections, information from leadership) with a Likert scale (1 – never, 2 – sometimes, 3 – often, 4 – very often, 5 – always) as part of the *Practice Environment Scale* [29]. The scale has high consistency and reliability (76%). The last section included questions on educational level, age, gender, position, caring for COVID-19 patients, and testing positive at least once for COVID-19.

Although the authors adopted the measures for all study variables from previously published work, interviews were conducted with 5 academics and 5 HCPs who have expertise and professional experience with burnout and fatigue. A pilot study with a sample of 25 health workers was also conducted to rule out contextual issues.

Table 1. Socio-demographic characteristics of the sample (Slovenian Healthcare professionals, spring 2022)

Variable	Participants (N = 437)
Gender [n (%)]	
male	31 (7.1)
female	406 (92.9)
Age [years] (M±SD)	41.81±15.6
Education [n (%)]	
secondary school or less	298 (68.2)
bachelor's degree	128 (29.4)
master's and doctoral degree	11 (2.4)
Position [n (%)]	
nurse	132 (30.2)
nursing assistant	236 (54.0)
nurse aide	69 (15.8)
Working with COVID-19 patients [n (%)]	
yes	319 (72.9)
no	118 (27.1)
Staff positive for COVID-19 [n (%)]	
yes	319 (92.9)
no	28 (7.1)

The study protocol was reviewed and approved by the Ethical Committee of Human Research at the Faculty of Health Sciences, University of Novo mesto, Slovenia, working within the Committee for Research (approval No. 21). The Helsinki Declaration of the World Medical Association on the ethical principles for medical research involving human subjects was respected.

Statistical analysis

Since the authors compared the 2022 data with the 2013 and 2020 data from previous studies, they first determined whether the samples differed in terms of gender, age and educational characteristics. Since no statistically significant difference was found, it can be assumed that the groups are similar.

Since the authors wanted to find out how the burnout level of HCPs in 2022 has changed compared to the scores and levels measured in previous studies (2020 and 2013), the Kruskal-Wallis 1-way analysis of variance by ranks test was used. Independent t-tests were done to evaluate continuous variables by gender, testing positive for COVID-19 and caring for COVID-19 patients. To test the differences between groups in continuous variables, an analysis of variance (ANOVA) with Bonferroni's correction was conducted. To determine correlations between continuous variables, the partial correlation test and Pearson's correlation were performed. The calculated effect size is small (D = 0.2). A linear regression model was created to study the relationship between burnout and fatigue. The data were analyzed using IBM SPSS 24.0.

RESULTS

In total, 437 HCPs completed the questionnaires during the fifth wave of COVID-19. The sample was dominated by women (N = 406, 92.9%). The average age was 41.8 years with a wide dispersion (SD = 15.6). Most respondents had completed secondary education (N = 298, 68.2%), 29.4% (N = 128) had completed undergraduate studies, and 2.4% (N = 11) had postgraduate degrees (Table 1).

The burnout scores of HCPs in 2013, 2020 and 2022 were compared. There are statistically significantly higher burnout scores in all subscales (Table 2). In the fifth wave of the COVID-19 pandemic, HCPs in Slovenian nursing homes suffered more from EE, DP and lack of PA than in the first wave of the COVID-19 pandemic (spring of 2020) and in the spring of 2013.

The burnout levels of HCPs in 2013, 2020 and 2022 were also compared. The study found that there was a statistically significant increase in the proportion of respondents who suffered from EE, DP and being overwhelmed during the COVID-19 pandemic. These proportions increased significantly in all dimensions between 2013 and 2020, as well as between 2020 and 2022. In 2013, the majority of respon-

Table 2. *Maslach Burnout Inventory* (MBI) dimensions' scores among healthcare professionals working in Slovenian nursing homes in 2013 (N = 228), 2020 (N = 281) and 2022 (N = 437)

Burnout subscale	MBI score[a] (M±SD)			p
	2013	2020	2022	
Emotional exhaustion	21.9±9.2	24.8±10.8	27.9±8.3	0.001
Depersonalization	8.1±4.3	8.2±4.9	9.7±3.2	0.001
Personal accomplishment	42.7±9.1	48.7±11.8	50.1±6.2	0.001

[a] Kruskal-Wallis test.

dents had a higher level of EE, and a lower level of DP and PA. In 2020 and 2022, most respondents had higher levels in all burnout dimensions/subscales (Table 3).

The demographic characteristics of the respondents according to gender, work with COVID-19 patients, testing positive for COVID-19, age, and position are shown in Table 4. In general, 77.5% showed a positive score on FAS (≥22), 68.1% on MBI (EE 84.9%, DP 66.6%, PA 52.9%) (≥50). Women had statistically higher average scores than men on both FAS and all dimensions of MBI. Healthcare professionals caring for COVID-19 patients had statistically higher mean scores for EE and FAS than HCPs not caring for COVID-19 patients. Younger professionals had higher mean scores on both FAS and all dimensions/subscales of the MBI than older professionals. There was no statistically significant difference between HCPs who tested positive for COVID-19 and those who did not, nor between different positions (Table 4).

The test of the linear relationship between the variables showed that the FAS score had a strong positive correlation with the MBI score overall and in all its dimensions/subscales. Age and workload showed a weak positive correlation with the MBI score overall and in all its subscales, and with FAS. Organizational behavior showed a weak negative correlation with the MBI score overall and in all its subscales, and with FAS (Table 5).

A linear regression model was conducted to find out the relationships between 1 dependent variable (FAS) and independent variables (dimensions/subscales of burnout in 2022). Table 6 shows that all regression results show positive correlations between the FAS, EE, DP and PA. The regression results also show that 49.6% of the variation in the FAS score is explained by EE, 42.7% by DP and 45.7% by PA (Table 6).

Table 3. *Maslach Burnout Inventory* (MBI) dimensions' levels among healthcare professionals working in Slovenian nursing homes in 2013 (N = 228), 2020 (N = 281) and 2022 (N = 437)

Burnout level	MBI scores [n (%)]		
	emotional exhaustion (p = 0.001)	depersonalization (p = 0.001)	personal accomplishment (p = 0.0133)
2013			
high	109 (47.8)	76 (27.0)	95 (21.7)
moderate	71 (31.1)	93 (33.0)	99 (22.7)
low	48 (21.1)	112 (40.0)	243 (55.6)
2021			
high	149 (65.4)	142 (50.5)	180 (41.2)
moderate	51 (22.4)	70 (24.9)	110 (25.2)
low	28 (12.3)	69 (24.6)	147 (33.6)
2022			
high	176 (77.2)	173 (61.6)	219 (50.1)
moderate	31 (13.6)	77 (27.4)	159 (36.2)
low	21 (9.2)	31 (11.0)	60 (13.7)

[a] Chi-square test.

Table 4. Prevalence of *Maslach Burnout Inventory* (MBI) and *Fatigue Assessment Scale* (FAS) scores among healthcare professionals working in Slovenian nursing homes in 2022 (N = 437)

Variable	MBI[a]							
	emotional exhaustion		depersonalization		personal accomplishment		FAS score	
	M±SD	p	M±SD	p	M±SD	p	M±SD	p
Gender		0.044		0.014		0.015		0.048
male	25.9±6.2		6.7±4.2		35.1±4.2		45.3±17.3	
female	29.9±9.3		12.7±2.2		66.1±8.2		48.8±18.2	
Working with COVID-19 patients		0.001		0.061		0.088		0.048
yes	31.8±11.2		10.1±2.7		50.8±6.4		49.1±15.2	
no	23.9±5.3		9.2±3.8		49.4±6.0		44.7±16.8	
Staff positive for COVID-19		0.729		0.766		0.981		0.241
yes	27.2±8.5		9.9±3.5		50.2±6.3		47.5±16.1	
no	28.6±8.1		9.5±2.1		50.0±6.1		46.3±15.9	
Age		0.017		0.051		0.018		0.028
Position		0.089		0.568		0.181		0.342
nurse	28.8±8.3		10.4±3.8		50.7±6.8		47.5±16.8	
nursing assistant	26.9±8.3		9.5±3.1		49.8±6.1		46.5±16.1	
nurse aide	27.8±8.3		9.2±2.9		49.9±5.9		46.4±15.5	

[a] T-test and ANOVA.

DISCUSSION

Perceptions of burnout by Slovenian HCPs in nursing homes in 2013, 2020 and 2022 were chosen for the study because there is a research gap in the field of determining long-term burnout. It is particularly important to identify long-term burnout during the COVID-19 pandemic in order to understand the situation of HCPs and prepare appropriate measures for improvement.

The results indicate that HCPs in Slovenian nursing homes were already suffering severely from burnout syndromes in the spring of 2013. In the spring of 2020, during the first wave of COVID-19, burnout scores increased significantly, leading to a dramatic increase in all dimensions/subscales in the fifth wave in the winter and spring of 2022. The study has also found that the proportion of respondents who suffered from EE, DP and reduced PA increased considerably during the period of COVID-19. In 2013, the majority of respondents had higher EE, and lower PA and DP. In 2020 and 2022, the majority of respondents scored higher in all dimensions, in particular more than three quarters of respondents had higher EE, and more than half of them had higher levels of DP and PA. This is consistent with the systematic review of the literature [1] and other studies [2–5,15–24] which found that burnout levels increased from medium to high in the first wave of the COVID-19 pandemic. If respondents in 2020 directly linked the causes of burnout to organizational behavior, the work environment, the work of public and government agencies and institutions that clearly influence their work [2], it could be assumed that the main causes of burnout remain the same or have worsened. In addition, the main problem lies in the shortage of caregivers in Slovenian nursing homes.

Table 5. Correlation among age, workload and organisational behaviour, *Maslach Burnout Inventory* (MBI) and *Fatigue Assessment Scale* (FAS) scores among healthcare professionals working in Slovenian nursing homes in 2022 (N = 437)

Variable	Correlation					
	age	workload	organisational behaviour	fatigue assessment score	emotional exhaustion	depersonalisation
Workload	0.24*					
Organizational behavior	0.04	–0.01				
Fatigue assessment score	0.12*	0.21**	–0.22*			
MBI (total)	0.14**	0.20**	–0.24**	0.69**		
Emotional exhaustion	0.21**	0.23**	–0.24**	0.68**		
Depersonalization	0.12**	0.18**	0.21**	0.63**	0.51**	
Personal accomplishment	0.15**	0.19**	0.24**	0.61**	0.52**	0.55**

* $p < 0.05$; ** $p < 0.01$.

Table 6. Regression models for *Fatigue Assessment Scale* (FAS) among healthcare professionals working in Slovenian nursing homes in 2022 (N = 437)

Burnout subscale	Multiple R^2	B	SE	β	p
Emotional exhaustion	0.496	1.037	0.432	0.412	0.001***
Depersonalization	0.427	1.062	0.372	0.368	0.001***
Personal accomplishment	0.457	1.031	0.428	0.388	0.001***

*** $p < 0.001$.

A high incidence of burnout and fatigue among HCPs in nursing homes in the winter and spring of 2022, during the pandemic, was identified by the study. The prevalence of burnout in the dimension of EE and fatigue was higher among HCPs working with COVID-19 patients than other HCPs. According to studies, HCPs were already relatively fatigued before COVID-19. Especially during the first wave, it became clear that night work and changed working hours lead to fatigue [18–20,22,23,30]. The results also showed that younger women scored markedly higher in FAS and MBI than other HCPs. Younger HCPs were the first to be sent to the COVID-19 zones. Younger female nurses with less clinical and other experiences are more vulnerable to adverse mental health effects [20]. Other studies [23] show that workload and organizational behavior correlate with burnout and fatigue, emphasizing that building a well-organized and supportive environment with early recognition of fatigue and burnout, besides providing appropriate support from supervisors, can help retain experienced HCPs.

Although burnout has been researched extensively compared to various diseases [2–5,15–24], its relationship to fatigue is largely unknown, especially among HCPs in nursing homes. As far as is known, no studies have investigated the relationship between these 2 conditions during the pandemic in nursing homes. The hypothesis that burnout and fatigue are correlated among HCPs who worked in Slovenian nursing homes during the fifth wave of the pandemic was confirmed. This is consistent with the results of the Greek study among nurses working in Athens' hospitals, who also showed higher levels of fatigue and burnout, with a positive correlation between these 2 conditions [20]. Since fatigue can be exacerbated by life factors that accelerate its progression to burnout [21,22],

and it takes a long time to treat, it is important to address them at the systemic, organizational and personal levels.

The study shows that Slovenian and other authorities have learned little from the situation in the first wave of the COVID-19 pandemic, and took insufficient or inappropriate measures. Consequently, in the fifth wave there is a much greater shortage of HCPs and organizational behavior has not improved significantly. The fatigue and burnout among HCPs as a result of the COVID-19 pandemic need to be addressed urgently. In Slovenia, it is particularly important to recruit and employ HCPs in nursing homes with adequate organizational and other support (e.g., income and working conditions).

The main limitation of the study is that it compares burnout rates at different points in time and does not compare the same respondents, although they have similar characteristics.

CONCLUSIONS

The study attempted to fill the gap in research on long-term burnout and the relationship between burnout and fatigue in nursing homes during the COVID-19 pandemic. In the fifth wave, HCPs suffered more from EE, DP and lack of PA than in the first wave of the pandemic and in the spring of 2013. Healthcare professionals caring for COVID-19 patients and younger women had higher rates of burnout and fatigue than other occupational groups. There is a strong positive correlation between burnout and fatigue. There is an urgent need to address the problem of fatigue and burnout with administrative measures.

Author contributions

Research concept: Karmen Erjavec, Ljiljana Leskovic
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Collecting material: Ljiljana Leskovic
Statistical analysis: Karmen Erjavec
Interpretation of results: Karmen Erjavec, Ljiljana Leskovic
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