

Burnout in emergency medicine professionals after 2 years of the COVID-19 pandemic: a threat to the healthcare system?

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Background Burnout is a common problem among healthcare professionals (HCPs), in particular young doctors and nurses working in emergency medical services. The coronavirus disease 2019 (COVID-19) pandemic has generated a substantial increase in the workload of those working in front-line services, and there is evidence of physical and mental distress among professionals that may have caused an increase in burnout.

Objective The objective of the study was to evaluate the level of burnout in the different professionals of emergency medical services.

Design and participants In January and February 2022, we conducted an online survey based on the Abbreviate Maslach inventory with the addition of three questions focused on possible modifying factors. The survey was disseminated to HCP via the list of European Society for Emergency Medicine contacts.

Outcome measures The analysis was based on two of the three elements of the Maslach burnout concept, 'depersonalisation', 'emotional exhaustion', and 'personal accomplishment'. Overall burnout was defined when at least one of the two elements 'depersonalisation' or 'emotional exhaustion' reached the level of high burnout.

Results The number of responders was 1925, 84% of which were physicians, 12% nurses, and 2% paramedics. Burnout was present in 62% of all responders. A high burnout level was reported for depersonalisation, emotional exhaustion, and personal accomplishment in 47%, 46%, and 48% of responders, respectively. Females reported a higher proportion of burnout compared with

males 64% vs. 59%, difference -6% [95% confidence interval CI, -8 to -1.9], and nurses higher than physicians, 73% vs. 60%, difference -13 (95% CI, -18.8 to -6). Less experienced professionals reported higher levels of burnout: those with less than 5 years of experience the burnout level was 74% compared with the group with more than 10 years, 60%, difference -26% (95% CI, -32 to -19.5). Reported frequent understaffing situations were associated with a higher risk of burnout: 70% vs. 37%, difference -33% (95% CI, -41 to -25). Burnout was associated with a higher risk of desire to change the workplace: 87% vs. 40%, difference -47% (95% CI, -52 to -42). Survey responders reported having access to support programmes in 41% of cases.

Conclusion In this study, there is a high reported level of burnout among emergency HCPs. Several risk factors were identified such as being understaffed, female, or having less experience. HCPs with burnout thought more frequently about leaving the workplace, posing a threat to healthcare systems. *European Journal of Emergency Medicine* 29: 279–284 Copyright © 2022 Wolters Kluwer Health, Inc. All rights reserved.

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Introduction

Burnout is defined as a work-related syndrome that affects normal life. It is caused by a prolonged response to chronic interpersonal stressors at work [1]. The syndrome has been described widely by several authors as a psychological disturbance that manifests itself through the existence of three typical features: emotional exhaustion (EE), depersonalisation (DP), and reduced personal accomplishment (PA) [2,3].

Exhaustion is defined as loss of energy, fatigue, and debilitation. DP, which may also be defined as cynicism, manifests itself in a negative attitude towards patients, loss of conviction and dedication, and irritability. Reduced PA

reveals itself in a feeling of inadequacy, reduced capability and productivity, and the inability to cope with everyday tasks.

Cristina Maslach is the author who has studied and described burnout syndrome most widely. She outlined a method for measuring it and classifying its severity in 'The Maslach Burnout Inventory' (MBI) [4]. In 1996 she published a 'General Survey' for the evaluation of the different aspects and characteristics of burnout as it relates to different jobs and professions [5]. Another method for assessing engagement with work or burnout is contained in the 'Areas of Worklife Survey' (AWS), which rates its six domains: workload, control, reward, community, fairness,

and value. These affect, to different degrees, wellbeing, performance and efficacy, and social behaviours [6,7]. AWS is complementary to MBI and confirms that cynicism, or DP, has been identified as the most significant factor in the prediction of a negative outcome from burnout [8].

Burnout is a problem that affects many healthcare providers (HPs) and has an important social and personal cost [9]. Several studies show that it is common in doctors in training and that it is more evident among residents in surgical or emergency specialties [10,11]. Early burnout seems to be a risk factor for developing the syndrome later in a professional career, [12] and emergency medicine residents are at particular risk [13,14]. Indeed, among US doctors, emergency physicians are the most affected by work stress, despite great professional satisfaction [15]. This is an intrinsic risk in the type of job where circadian rhythm is not respected, the amount of work is not easy to predict, and the emotional burden is sometimes very heavy [16,17]. Dramatic consequences of burnout are increased mistakes in clinical care, dissatisfaction, depression, alcohol, and drug abuse; these in turn may lead to worsening DP and reduced self-esteem [18]. This vicious circle may culminate in suicide, which is not so uncommon among emergency medicine professionals [19,20]. One possible escape route from burnout is by leaving a medical career or changing job sites in the hope of finding improved working conditions elsewhere [21].

Culturally, physicians are reluctant to seek help for depression [22,23]. Emergency medicine physicians suffer too from a lack of respect and reputation. Emergency medicine is not a recognised specialty everywhere and often suffers because human resources are insufficient and workload and working time may be overwhelming [24,25]. The coronavirus disease 2019 (COVID-19) pandemic has caused a sudden and prolonged increase in workload and stress in HPs [26]. Several studies have shown a high level of burnout in professionals who work in first-line services with COVID-19 patients, with a more severe incidence among nurses and young doctors [27]. There have been calls for action to prevent burnout and reduce the risk of mental health problems [28]. The pandemic has meant that some chronic problems such as understaffing, limited resources, and overcrowding have become more obvious and critical, and this has probably increased the feeling of loss and DP among emergency medical HPs [29,30].

This article aims to evaluate the level of burnout and its characteristics according to the three elements described in the MBI through a survey carried out among emergency medicine professionals and to correlate the results with questions regarding the current working conditions of the respondents.

Study design

The researchers designed an observational study based on a cross-sectional online survey to attain the objectives.

Study participants were healthcare professionals (HCPs) active in emergency medical systems (EMS). The survey was disseminated through the European Society for Emergency Medicine network, with 20000 contacts in the distribution list. The survey was carried out for 4 weeks (17 January–17 February 2022). During the survey period, one reminder was sent. The questionnaire was divided into three sections: 16 closed questions, plus 1 open question. The first section included questions on the demographic characteristics of the professionals including gender, country of residence, workplace, working years, profession, and the area of work responsibilities. Section two included three questions about thoughts of changing the workplace, perception of understaffing, and access to psychological support at work. The third section of the questionnaire covered the abbreviated Maslach Burnout Inventory (aMBI-9). The aMBI-9 is a nine-item scale used to assess burnout. It has three subscales (EE, DP, and PA), and three items for the assessment of each subscale. For each item, there is a seven-point Likert scale, ranging from never (0) to every day (6). The score for each item is aggregated from each responder. For EE and DP, a higher score means greater burnout; the inverse for PA. The score of each subscale ranges from minimum 0 to maximum 18 [31]. The scoring ranking is as follows: PA: >14 low, 13–14 moderate, <13 high burnout; DP: <4 low, 4–6 moderate, >6 high burnout, and EE: <7 low, 7–10 moderate, and >10 high burnout [32]. The validity and reliability of aMBI-9 have already been established [32].

Outcome measures

Burnout is the fundamental outcome of the study; burnout as a dichotomous variable is considered flexible when there is a high score on EE or DP and strict with high scores on EE and DP [33,34].

Frequencies and percentages were calculated for the variables including confidence intervals. Mean and SD were calculated for continuous variables. Differences in the frequency of burnout were calculated using the chi-square test and 95% confidence intervals of the differences. Logistic regression was used to estimate the size of the effect and possible interactions of gender variables with other variables in the survey (e.g. profession, working area). A *P* value <0.05 was used as the level of significance. The test for normal distribution of the continuous variables used was Shapiro–Wilk test. Cases with missing data in aMBI-9 were excluded from the analysis. To determine internal consistency reliability, Cronbach alpha was calculated for each dimension (three items per dimension) of the aMBI-9. The amounts were 0.79, 0.72, and 0.48 for EE, DP, and PA. The estimated marginal error with 2000 responders, with 95% CI, and an estimated burnout proportion of 50% was $\pm 2.19\%$.

The survey was distributed using the Survey Monkey platform. Data analysis was performed using the Statistical Package for Social Sciences version 22. No

financial incentives were offered for responses. All responses were kept anonymous, and incomplete surveys were excluded. None of the authors of this article participated in the survey.

Results

A total of 1925 responses from 89 different countries, from all continents, were received; 87% of responses were from Europe. In 27 countries >20 responses per country were received. The demographic characteristics of the responders and variables are shown in Table 1.

The survey responders estimate that their workplace was understaffed; 'No', 'Yes, sometimes', 'Yes, often', in 7.9%, 34.2%, and 57.8% of cases, respectively. They reported that they were thinking about changing their workplace: 'No', 'Yes, sometimes', and 'Yes, often', in 22.3%, 41.2%, and 25.5%, respectively. The responses on the psychological support available in the centres were 'No support', 'Yes, available by phone', 'Yes, personal support', and 'Unknown', in 43%, 11.2%, 30.2%, and 15.4% of cases, respectively.

The summary of results of the aMBI-9 stratified by the three domains is shown in Table 2. The overall burnout using the DP or EE domains with 'high burnout' in the scale shows a value of 62% in a sample of 1886 responders (95% CI, 59–63.9), and 31.4% (95% CI, 30.1–34.4) when using more restrictive criteria of 'high burnout' (coupling DP and EE).

The analysis of the factors that can be associated with the overall burnout and the size of the effect are presented in Table 3. No interactions were demonstrated between gender and profession with statistical significance in the logistic model.

Discussion

The COVID-19 pandemic has generated a significant strain on health systems, and this has been extensively described [35]. Together with the risk of COVID transmission, adverse effects on mental health in all categories of HPs with a consequent impact on their lives and families have been a major concern. Increased risk of burnout and mood disorders affects those in the first line more significantly (intensive care, emergency medicine, and family doctors) [36,37].

In our survey focusing on EMS HCPs, burnout was reported in 62% of the responders with at least one symptom, and in 31% with both symptoms, burnout at this level needs professional clinical evaluation and psychological support. Our findings in EMS HCPs during the later stages of the COVID-19 pandemic are similar to the levels of burnout reported elsewhere. For example, in the US 2022 National Physician Burnout & Depression Report, published by Medscape, emergency physicians report burnout in 60% of cases. This annual

report demonstrates a progressive increase in burnout in emergency physicians between 2019 and 2021, rising from 47% to 60% [15].

To facilitate comparison of the survey results, the level of mental health consequences in our study was based on Maslach methodology: high burnout scores levels in the survey for DP, EE, and PA were 46%, 47%, and 48%, respectively. These high levels are significantly above those reported by European physicians during the pre-pandemic period, (EE 34.4%, DP 25.8%, and PA 23.5%) [36], and in the global systematic review during the pre-pandemic, with EE, DP, and low levels of PA (40%, 41%, and 35%) [38]. Our results are similar to those reported in other publications relative to HCPs working in EMS during the pandemic period, with DP and EE of 53%, 41%, respectively [39]. These figures underline the deterioration of the wellbeing and happiness of HCPs during the later stages of the pandemic.

The effect of gender on previously reported burnout levels revealed a higher impact in female and non-binary professionals, differences that the pandemic has increased [40,41]. Our survey shows that females have a higher level of overall burnout compared with males, with statistical significance, although with a reduced effect (OR 1.2). The same results are confirmed by other publications [42], and the absence of interaction of gender with profession or working place suggests an independent gender effect.

The different roles of the HPs are a factor of interest. Several authors report a higher impact on nurses, who have a higher level of burnout or mood disorders [41]. In the present survey nurses, compared with physicians,

Table 1 Demographic characteristics

	N	%
Gender		
Male	1007	52.3
Female	915	47.5
Others	3	0.2
Profession		
Doctors	1614	83.8
Nurses	223	11.6
Paramedics	41	2.1
Others	47	2.4
Working area		
Emergency department	1628	84.6
Prehospital	420	21.8
Other settings	180	9.3 ^a
Working responsibilities		
Staff clinical	1427	74.1
Staff administrative	328	17.0
Trainees	170	8.8
Working time		
Over 20 years	477	24.8
11–20 years	562	29.2
5–10 years	483	25.1
Less than 5 years	403	20.9

^aTotal is over 100% due to the possibility of combining with emergency department and prehospital setting.

N, total number of responders; %, Percent of the group in the no missing cases.

have higher risk of burnout (OR 1.7). A more extended direct contact with the patient is probably the fundamental cause. The small number of paramedics in the study compromises the validity of the higher risk.

The workplace is also an important factor. We found that health professionals working in hospital EDs report higher levels of overall burnout compared with professionals working in prehospital services, and with those who share both activities or who spend some of their working time in other non-clinical activities such as education and training. The impact of the COVID-19 pandemic in the different areas of hospital work, as

seen in Lin Y.-Y.'s publication [41], shows that the workplace has a great impact on mental health. Working in an ED appears to be the only independent factor associated with burnout status. Professionals sharing activities in different environments report a better situation, underlining the beneficial effects of diversification and widening of the perspective as a protective measure.

The risk of burnout in professionals in training has been analysed in an extended systematic review including several specialties from different countries [10] where the overall burnout, with less restrictive criteria (just one burnout symptom) during the pre-COVID period is 10% less compared with our results. In the present survey, professionals in training have the highest rates of burnout, 11% higher than the total sample, although this difference has no statistical value. Length of service has a strong inverse association with the risk of burnout: responders with less than 5 years of experience have three times more risk compared with professionals with more than 20 years of experience. These results highlight the increased risk of burnout in young professionals for whom specific interventions are clearly needed. A negative experience during the training period is a risk factor for burnout and depression in future working life [43]. This finding is also confirmed in other studies focusing on young workers in different areas, including systematic reviews [27,44,45].

Table 2 Abbreviated Maslach Burnout Inventory

	<i>N</i>	%	95% CI
Personal accomplishment			
Low burnout	575	30.4	28–32.5
Moderate burnout	398	21.1	19.2–22.9
High burnout	917	48.5	46.2–50.7
Depersonalization			
Low burnout	608	32.3	30.1–34.3
Moderate burnout	401	21.3	19.4–23.1
High burnout	876	46.5	44.2–48.7
Emotional exhaustion			
Low burnout	530	27.9	25.9–29.9
Moderate burnout	468	24.7	22.7–26.6
High burnout	899	47.4	45.1–49.6

N, total number of responders; %, Percent of the group in the no missing cases; (95% CI), 95% confidence interval.

Table 3 Burnout estimation by covariables

	Burnout estimation by covariables			Size effect	
	<i>N</i>	Burnout%	Diff. % (95% CI)	<i>P</i>	OR (95% CI)
Gender					
Male (reference)	986	59			
Female	897	64.9	−5.9 (−8.0 to −1.9)	0.015	1.26 (1.04 to 1.52)
Profession					
Doctor (reference)	1584	60.1			
Nurse	218	72.5	−12.4 (−18.8 to −6)	<0.001	1.75 (1.27 to 2.39)
Paramedic	40	75	−14.9 (−28.5 to −1.2)	0.062	1.99 (0.96 to 4.10)
Others	44	68.2	−8.1 (−22.1 to 5.9)	0.282	1.42 (0.74 to 2.70)
Working place					
Emergency department (ED) (reference)	1337	64.6			
Prehospital	161	55.9	8.9 (0.01 to 16.1)	0.030	0.69 (0.49 to 0.96)
ED + prehospital	202	60.4	4.2 (−3.6 to 10.8)	0.244	0.83 (0.61 to 1.13)
Combination with others	180	51.7	12.9 (4.5 to 20.0)	<0.001	0.58 (0.42 to 0.80)
Working years					
Over 20 years (reference)	468	48.3			
11–20 years	522	60.3	−12 (−18.1 to −5.9)	<0.001	1.63 (1.26 to 2.08)
5–10 years	472	67.6	−19.3 (−25.4 to −13.1)	<0.001	2.23 (1.71 to 2.9)
Less than 5 years	394	74.1	−25.8 (−32.1 to −19.5)	<0.001	3.06 (2.29 to 4.09)
Working responsibilities					
Staff clinical (reference)	1400	64			
Staff administrative	322	49.7	14.3 (8.3 to 20.3)	<0.001	0.56 (0.43 to 0.7)
Trainee	164	69.5	−5.5 (−13 to 1.98)	0.163	1.28 (0.90 to 1.82)
Work change thoughts					
No (reference)	628	40			
Yes sometimes	774	64.3	−24.3 (−29.4 to −19.2)	<0.001	1.94 (1.34 to 2.79)
Yes often	484	87	−47 (−51.9 to −42.1)	<0.001	4 (2.80 to 5.70)
Understaffed centres					
No (reference)	150	37.3			
Yes sometimes	644	53.6	−16.3 (−24.9 to −7.6)	0.000	2.71 (2.18 to 3.36)
Yes often	1092	70.4	−33.1 (−41.3 to −24.9)	0.000	10.04 (7.36 to 13.7)

Burnout %, percent of the group in the no missing cases; (95% CI), 95% confidence interval; Diff., difference between the reference group and the actual group percentages; *N*, total number of responders. Significance establishes at $P < 0.05$. OR, odds ratio; Ratio between the probability of the reference group and the actual group.

Limited resources are an important factor in raising burnout levels, above all limited human resources, which cause an increased workload due to the need to cover extra shifts and is particularly marked in EMS HPs [46] and nurses [47]. This survey shows a clear association between limited human resources and the level of reported burnout. Responders who report 'frequent understaffing in the workplace' had 10 times more risk compared with those with no staffing problems. This situation is likely to worsen as HPs with a high level of burnout consider leaving the workplace to seek better working conditions. The risk of burnout reported is 3.9 times higher in professionals who have frequent thoughts of leaving the workplace. This situation, if not managed, may become a threat to the healthcare system. In this context, the survey shows that psychological support, either on-site or virtual, only reaches 41% of the responders, although evidence has shown its utility in preventing or coping with the mental health impact of burnout on health professionals [48].

Limitations

The study has the potential for response bias; specifically, it is always possible that non-respondents to the survey would answer differently. Due to the dissemination strategy used, the response rate is difficult to estimate. The reduced number of some of the groups limits the statistical power of the applied tests. Interaction between the different factors and the level of burnout has not been analysed. Lastly, the use of cross-sectional data innately precludes causal inference because it is not possible to determine whether burnout was present before exposure to job demands or resources.

Conclusion

The prevalence of burnout in emergency health professionals after 2 years of the pandemic is high. It is similar to that found in previous publications covering the same period and setting, and higher in comparison with the pre-pandemic situation.

In order to be able to draw robust comparisons and evaluate trends, it will be necessary to standardise the methodology.

Previously identified risk factors of burnout, such as gender, direct contact with patients, stressful environment, working years or trainee status, and a clear imbalance between demand and resources are confirmed by the survey, which also highlights a limited existence of plans to mitigate the situation.

The HPs with burnout have a higher tendency to step aside and feed the vicious cycle of lack of human resources, and the loss of educated professionals. This situation, if not addressed correctly and urgently by policymakers, is likely to represent a threat to the healthcare system.

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Conflicts of interest

There are no conflicts of interest.

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