Stress and Burnout in Health Professionals

Alice Gonçalves, Liliana Fontes, Clara Simães and A. Rui Gomes

Abstract Occupational stress and burnout are a global epidemic that can cause severe negative effects on workers' physical and emotional health. Health professionals working in a hospital setting are especially at risk, due to the inherent characteristics of their work. Consequently, this study aimed to analyse the relationships between stress and burnout in health professionals working in a hospital in the North of Portugal. A convenience sample of 221 health professionals participated in this cross-sectional study and answered two instruments to assess stress and burnout at work. Results showed that stress dimensions, such as the precariousness of the contractual status, the intention to change services, work overload, stress from the work-home interface, relationships at work, leading training activities, and dealing with patients predicted the three dimensions of burnout—physical fatigue, cognitive weariness, and emotional exhaustion. Therefore, these findings contribute to increase the knowledge of health professional's mental conditions, and can be used to design and implement interventions to mitigate the effects of stress and burnout on these professionals.

Keywords Occupational stress · Burnout · Health professionals

A. Gonçalves
School of Economics and Management, University of Minho, Braga, Portugal
e-mail: alicegoncalvesm@gmail.com

L. Fontes (✉) · A. R. Gomes
School of Psychology, University of Minho, Braga, Portugal
e-mail: liliana.magalhaes2@gmail.com

A. R. Gomes
e-mail: rgomes@psi.uminho.pt

C. Simães
School of Nursing, University of Minho, Braga, Portugal;
Institute of Health Sciences, Portuguese Catholic University, Porto, Portugal
e-mail: csimaes@ese.uminho.pt

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1 Introduction

Occupational stress and burnout have become such a prevalent issue that the World Health Organization characterizes work-related stress as a global epidemic [1]. Stress can be defined as the relationship between the stress felt by the person and the psychophysical responses it elicits [2]. It is generally accepted that stress occurs when environmental demands overcome the person's capacity to adapt, leading to a negative impact on health and wellbeing.

In order to understand a person's adaptation to stress, Lazarus [3] proposed a model with two processes of cognitive appraisal. Primary cognitive appraisal encompasses the initial evaluation a person makes when confronted with a potential source of stress, in which the individual gives meaning to the situation, classifying it as threatening or challenging. Secondary cognitive appraisal relates to the way a person evaluates what can be done to deal with the situation, which involves considering the coping resources in order to manage the situation's demands. When demands are continuously perceived as exceeding the person's coping resources, especially in a long-term stressful situation, burnout can occur. Burnout can manifest through anxiety, headaches, insomnia, agitation, and sufferance, and physically through higher sensitivity to pain, higher susceptibility to infections, and stomach, cardiac, and vascular problems [4, 5].

Occupational stress is one particular context in which stress and burnout can occur. It results from people's inability to deal with sources of stress at work when they surpass their personal resources. The consequences to their physical and mental health, and to work satisfaction and engagement affect not only the individual but also the organization [6].

One of the most stressful working environments experienced by health professionals is the hospital setting. This experience is mostly due to the high incidence of work overload; shift irregularity and night shifts; high number of patients; ambiguity and role conflict; high responsibility for patients' lives; lack of autonomy; and the need to deal with constant suffering, pain, and death [7, 8]. Ribeiro and colleagues [8], for example, found that nurses working in a hospital presented significantly high levels of work stress related with leading training activities, working with patients, work overload, and with concerns about career progression and salary. Furthermore, focussing on long-term stress conditions experienced by nurses, Gomes et al. [9] concluded that several factors contribute to a higher probability of developing burnout syndrome: high levels of responsibility, low decision-making capacity, lack of career progression opportunities, bureaucratic or deficient management, and lack of support. Thus, health professionals are at a greater risk of experiencing burnout, which can lead to serious consequences in terms of the health care they provide. Additionally, the negative impact of occupational stress and burnout on professionals' health and well-being lead to less job satisfaction, physical and psychological complaints, and higher rates of turnover and absenteeism [10].

Given this panorama, this study aimed to analyse the relationships between stress and burnout. Specifically, we attempted to determine which stress dimensions predict the burnout dimensions of physical fatigue, cognitive weariness, and emotional exhaustion in health professionals working in a hospital in the North of Portugal.

2 Methods

2.1 Design

This was a quantitative and cross sectional study, with an exploratory, descriptive, and correlational nature.

2.2 Participants

The study included a convenience sample of 221 health professionals (20.4% doctors and 79.6% nurses) working in several medical specialties, from a hospital in the northern region of Portugal. Participants' ages varied between 22 and 65 years old (M = 37.73; SD = 9.15) and the majority were female (76.6%). Most were married (59.7%) and with children (62.4%). The vast majority worked full-time exclusively at the hospital (74.2%). Finally, most participants engaged in some form of physical activity (51.2%), as well as having a hobby (47.5%). All participants were informed about the nature and objectives of the study and signed informed consent forms to ensure their voluntary participation. Every procedure followed all ethical principles outlined in the Declaration of Helsinki, and the study was submitted to and approved by the Ethics Committee of the hospital where the data collection took place.

2.3 Measures

The evaluation protocol included a Sociodemographic and Professional Questionnaire, and the following instruments of psychological assessment, both validated for the Portuguese language:

Stress Questionnaire for Health Professionals (SQHP [11]). Evaluates six stress dimensions: (i) working with patients, (ii) relationships at work, (iii) work overload, (iv) career progression and salary, (v) leading training activities, and (vi) work-home interface. The items were measured on a 5-point Likert scale (0 = *No stress at all*; 4 = *Very high stress*). Higher scores indicate higher perception of stress in each domain, thus pointing to potential sources of stress at work.

Shirom-Melamed Burnout Measure (SMBM [12]; Portuguese version [13]), which evaluates burnout at work in three dimensions: (i) physical fatigue, (ii) emotional exhaustion, and (iii) cognitive weariness. The items were measured on a 7-point Likert scale (1 = *Never*; 7 = *Always*). Higher scores indicate higher levels of fatigue, exhaustion, and weariness, thus pointing to higher levels of burnout.

3 Results

Parametric tests were performed after all corollaries were met. Confidence intervals were defined at 95%, with an alpha level of .05 as the threshold for significance. Results were obtained through univariate and multivariate analyses of variance, using IBM SPSS (25). We used hierarchical regression analysis in order to analyse the independent effect of stress dimensions on burnout. To do so, we considered three blocks of variables entered as follows: step 1 included the socio-demographic variables, step 2 the professional variables, and step 3 the stress dimensions (SQHP).

3.1 Predicting Physical Fatigue

To analyse the predictive effect of stress dimensions on physical fatigue, a hierarchical regression model was conducted (Table 1).

The regression model in Table 1 significantly predicts physical fatigue ($F = 8.95$, $p < .001$), explaining 40.7% of the total variance. Specifically, it shows that participants with precarious work status ($\beta = -.145$) and those who intend to change service ($\beta = .149$) present more physical fatigue at work. Additionally, health professionals that report high levels of stress related to work overload ($\beta = .366$) and to the work-home interface ($\beta = .292$) exhibit greater physical fatigue.

3.2 Predicting Cognitive Weariness

The regression model shown in Table 2, testing for the independent effects of stress dimensions on cognitive weariness, was significant ($F = 10.452$, $p < .001$), and explained 32.7% of the total variance. Participants with children reported greater cognitive weariness ($\beta = .125$), which was also predicted by the experience of high levels of stress related to the work-home interface ($\beta = .201$), and to work overload ($\beta = .245$).

Table 1 Regression model for predicting physical fatigue (N = 221)

Predictors for physical fatigue (SMBM)	R^2 ($AdjR^2$)	$F(df)$	β	T	p
Step 1	.028 (.024)	6.183 (1,213)			
Having children[a]			.091	1.546	.124
Step 2	.152 (.131)	7.479 (5,209)			
Contractual status[b]			−.145	−2.393	.018
Place of work[c]			−.031	−.559	.577
Changing hospitals[d]			.017	.245	.807
Changing services[e]			.149	2.153	.033
Step 3	.437 (.407)	14.344 (11,203)			
SQHP-dealing with patients			−.052	−.721	.471
SQHP-relationships at work			.039	.542	.589
SQHP-career progression & salary			−.037	−.474	.636
SQHP-work overload			.366	4.711	<.001
SQHP-home-work interface			.292	3.830	<.001
SQHP-leading training activities			.028	.425	.671

[a]Dichotomous variable: 0 = no, 1 = yes
[b]Dichotomous variable: 0 = precarious, 1 = non-precarious
[c]Dichotomous variable: 0 = hospital only, 1 = hospital and other
[d]Dichotomous variable: 0 = no, 1 = yes
[e]Dichotomous variable: 0 = no, 1 = yes

3.3 Predicting Emotional Exhaustion

Table 3 shows the hierarchical regression model testing the predictive effect of stress dimensions on emotional exhaustion. Stress predicted emotional exhaustion ($F = 8.723$, $p < .001$), explaining 28.4% of the total variance. Having children was related to increased emotional exhaustion ($\beta = .166$). Likewise, higher levels of stress concerning relationships at work ($\beta = .212$), work overload ($\beta = .210$), work-home interface ($\beta = .178$), and leading training activities ($\beta = .166$) predicted more emotional exhaustion in health professionals. Yet, increased levels of stress related to dealing with patients, predicted less negative feelings of emotional exhaustion ($\beta = -.235$).

Table 2 Regression model for predicting cognitive weariness (N = 221)

Predictors for cognitive weariness (SMBM)	$R^2(AdjR^2)$	$F(df)$	β	t	p
Step 1	.023 (.019)	5.064 (1,213)			
Having children[a]			.125	1.993	.048
Step 2	.100 (.079)	4.656 (5,209)			
Contractual status[b]			−.023	−.352	.726
Place of work[c]			−.014	−.232	.817
Changing hospitals[d]			.036	.488	.626
Changing services[e]			.132	1.791	.075
Step 3	.362 (.327)	10.452 (11,203)			
SQHP-dealing with patients			.066	.860	.391
SQHP-relationships at work			.031	.397	.692
SQHP-career progression & salary			.049	.591	.555
SQHP-work overload			.245	2.961	.003
SQHP-home-work interface			.201	2.466	.014
SQHP-leading training activities			.087	1.256	.210

[a]Dichotomous variable: 0 = no, 1 = yes
[b]Dichotomous variable: 0 = precarious, 1 = non-precarious
[c]Dichotomous variable: 0 = hospital only, 1 = hospital and other
[d]Dichotomous variable: 0 = no, 1 = yes
[e]Dichotomous variable: 0 = no, 1 = yes

4 Discussion

Stress and burnout are increasingly common nowadays, especially in work environments. Hospital health professionals, given the inherent characteristics of their work, are at an especially high risk of suffering from the debilitating effects of stress and burnout, both of which can have a negative impact on their health. Therefore, this study aimed to explore sources of stress related to work that could predict burnout in hospital health professionals, in order to increase the knowledge of these individuals' mental conditions. These findings can be used to design and implement interventions to mitigate the effects of stress and burnout on these professionals.

Results showed that the dimension of burnout, namely physical fatigue, was significantly predicted by work stress, with higher levels of occupational stress being associated with increased physical fatigue. The main predictors of physical fatigue were the precariousness of the contractual status, the intention to change services, work overload, and stress from the work-home interface.

The dimension of burnout, namely cognitive weariness, was predicted by work stress, with increased levels of stress being related to greater cognitive fatigue. The main sources of occupational stress that become relevant predictors of cognitive

Table 3 Regression model for predicting emotional exhaustion (N = 221)

Predictors for emotional exhaustion (SMBM)	$R^2(AdjR^2)$	$F(df)$	β	t	p
Step 1	.039 (.034)	8.595 (1,213)			
Having children[a]			.166	2.564	.11
Step 2	.130 (.109)	6.258 (5,209)			
Contractual status[b]			−.017	−.262	.793
Place of work[c]			.036	.582	.561
Changing hospitals[d]			.094	1.241	.216
Changing services[e]			.119	1.571	.118
Step 3	.321 (.284)	8.723 (11,203)			
SQHP-dealing with patients			−.235	−2.962	.003
SQHP-relationships at work			.212	2.663	.008
SQHP-career progression & salary			−.014	−.160	.873
SQHP-work overload			.210	2.466	.014
SQHP-home-work interface			.178	2.116	.036
SQHP-leading training activities			.166	2.330	.021

[a]Dichotomous variable: 0 = no, 1 ± yes
[b]Dichotomous variable: 0 = precarious, 1 = non-precarious
[c]Dichotomous variable: 0 = hospital only, 1 = hospital and other
[d]Dichotomous variable: 0 = no, 1 = yes
[e]Dichotomous variable: 0 = no, 1 = yes

weariness were work overload and stress from the work-home interface. Those with higher cognitive weariness were more likely to experience higher levels of stress.

Finally, regarding emotional exhaustion, findings revealed that work stress exerted an independent effect on this dimension of burnout. The sources of occupational stress that become predictors of emotional exhaustion in hospital health professionals were relationships at work, work overload, work-home interface, leading training activities, and dealing with patients. Although, while for the majority of those predictors, increased stress experience was related to improved emotional exhaustion, high levels of stress in dealing with patients predicted reduced negative feelings of exhaustion in health professionals.

The majority of these results are in line with previous studies [5, 14], who point to overwork, work status, work with patients, and relationships at work as the variables that contribute the most to stress. However, it is interesting to note that, in this study, working with patients presented itself as a protective factor against emotional exhaustion and, consequently, stress, which contradicts most studies (e.g., [5, 9]). It could be that the emotional and social rewards of working with patients surpass the possible negative effects of stress. In fact, hospital health professionals tend to be highly engaged in their work, drawing personal satisfaction

from contact with patients and from being able to care for and provide them with comfort. Still, it is an issue that merits further research in order to fully understand its process and consequences.

The burnout dimensions of physical fatigue, cognitive weariness, and emotional exhaustion were all significantly predicted by occupational stress factors. Taken together, these results underscore the importance of designing and implementing interventions that target these variables to promote better adaptation of health professionals to their stressful work environments. Consequently, such interventions, along with hospital management and ministry offices, should aim to reduce physical fatigue by ensuring health professionals have a secure work status and are not overloaded in the amount of work required. The latter would also contribute to lower individuals' emotional exhaustion. More support should also be allocated to health professionals who intend to change service, both logistically and psychologically. Lastly, given the influence of the work-home interface, with respect to physical fatigue, cognitive weariness, and emotional exhaustion, hospital managers should strive to provide adequate support to their professionals, by offering more flexibility and psychology services that teach strategies to make the demands at home and work more compatible.

To target the cognitive weariness dimension, public decision makers must ensure that health professionals are not overloaded. Although recognizing the financial implications for hospitals in hiring more staff, it is imperative that hospital staff are given adequate workloads, since overload is implicated in cognitive weariness and, consequently, stress levels, both of which have a negative impact on hospital staff's psychological and physical health. Moreover, overloaded professionals are more prone to errors, thus endangering their patients. Results also showed that nurses without children showed less cognitive weariness. Therefore, health professionals who do have children should have institutional support to facilitate juggling their professional and personal lives, namely by arranging to have day-cares within their facilities and staff dedicated to teach techniques to deal with these personal/work life demands.

Finally, professionals with no children and who work more with patients report less emotional exhaustion. Again, the same techniques mentioned above should be used for professionals with children with the aim of reducing their emotional exhaustion. Moreover, given the apparent protective quality of working more with patients, it could be argued that hospitals should ensure a balanced distribution of patients per professional, guaranteeing that all health professionals have the opportunity of working with patients and thus benefit from their protective quality. On the other hand, professionals with more stress in their relationships at work and those who design and implement public presentations in leading training activities present with higher emotional exhaustion. In order to target these variables, teams of psychologists should be available to deliver interventions that focus on work relationships and how to ensure healthy work environments. Concomitantly, the same teams could implement training sessions to teach health professionals how to design and implement public presentations, how to deal with the stress they cause, and to teach leadership skills invaluable not only to these presentations, but also to

their work lives and relations, along with their private and personal lives. Future research should include other health professionals in their samples, in order to increase professional representativeness and thus increase the perspective on stress and burnout in health professionals.

In sum, health professionals are at high risk of suffering from physical fatigue, cognitive weariness, and emotional exhaustion stemming from the presence of high levels of occupational stress. Interventions should be implemented in hospitals with the aim of targeting occupational stress variables that have an impact on physical fatigue, cognitive weariness, and emotional exhaustion.

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