Compassion fatigue, burnout, compassion satisfaction, and perceived stress in healthcare professionals during the COVID-19 health crisis in Spain

Short running title: Compassion in professionals during COVID-19

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Acknowledgements

The authors would like to thank all the healthcare professionals who participated in this study for making it possible.

Funding

This research has been funded by a grant from the Ministry of Health of the Regional Government of Andalusia, Spain (AP-0100-2016).

Compliance with ethical standards

This study was approved by the Ethics Committee of the Public Health System of Andalusia, Spain (ref. no. CEI-27/9/2017). Informed consent was obtained from all participants. The authors have full control of all primary data and agree to allow the journal to review their data if requested.

Author contributions statement

All the authors of this manuscript have contributed to its preparation through data collection, writing, and critical reading until its final approval. MDRF, AMOG and JDRP contributed to conceptualization, formal analysis, methodologhy and writing. OIM, MICR and JCT contributed to manuscript review and editing. All authors approved the final version to be submitted.

Conflict of interest

The authors declare no conflict of interest.

The final, definitive version of this paper has been published in *Journal of Clinical Nursing, 29*(21-22), 4321-4330 (2020) DOI: 10.1111/jocn.15469 published by John WILEY & Sons, Inc.

Abstract

Aims and objectives: To evaluate compassion fatigue, burnout, compassion satisfaction, and perceived stress in healthcare professionals during the COVID-19 health crisis in Spain.

Background: Spain has been one of the countries hardest hit by the health crisis caused by the COVID-19 pandemic. Healthcare professionals have had to deal with traumatic and complex situations in the work context. In these particularly stressful situations, many professionals may develop compassion fatigue or burnout, which puts them at risk for mental health problems.

Design: Cross-sectional online survey.

Methods: A total of 506 healthcare professionals (physicians and nurses) who were working in healthcare centres during the COVID-19 pandemic participated. Compassion fatigue, compassion satisfaction, and burnout were assessed with the Professional Quality of Life Questionnaire (ProQoL), and perceived stress was measured with the Perceived Stress Scale (PSS-14). Socio-demographic and occupational variables were also analysed. Data were collected during the period of the highest incidence of cases and highest mortality rates due to COVID-19 in Spain. This article adheres to the STROBE guidelines for the reporting of observational studies.

Results: Physicians had higher compassion fatigue and burnout scores, while nurses had higher compassion satisfaction scores. Perceived stress scores were similar in both occupations. Professionals working in specific COVID-19 units and in emergency departments had higher compassion fatigue and burnout scores, while levels of compassion satisfaction and perceived stress were similar regardless of the workplace.

Relevance to Clinical Practice: Despite the health crisis situation and its implications for healthcare professionals, the levels of compassion fatigue and burnout have remained moderate/high. However, compassion satisfaction seems to be increasing, especially among nurses, possibly due to their motivation to relieve suffering and due to their perceived social recognition. It is necessary to implement interventions that help improve compassion satisfaction and prevent burnout and compassion fatigue among professionals in the long term.

Keywords: Compassion Fatigue; Compassion Satisfaction; Burnout; Healthcare Professionals; COVID-19.

What does this paper contribute to the wider global clinical community?

- In a health crisis situation, the levels of compassion fatigue and burnout remain similar to those reported in studies prior to the crisis. The levels of compassion satisfaction improve, especially among nurses.
- Regardless of this crisis situation, long-term interventions are needed to improve compassion skills among healthcare professionals.
- The greater visibility of nurses, their motivation to relieve suffering, and social recognition may influence nurses' levels of compassion satisfaction.

1. Introduction

The coronavirus disease 2019 (COVID-19) pandemic has become the world's most significant health crisis of the present era (Rothan & Byrareddy, 2020). This new viral infection makes no distinction between countries, socio-economic status, or races, and has spread to most countries in the world (Bulut & Kato, 2020; C.-C. Lai et al., 2020)

Spain has been one of the hardest hit countries in the world, with a very high number of people affected and a very high proportion of deaths from the coronavirus in barely two months (Ceylan, 2020). The mortality rate during the pandemic has exceeded the expected mortality rate for the same period of time by almost 70% (Ministry of Health, Consumption and Social Welfare, 2020). The severity of the complications of the disease and its high mortality rates cause great suffering and result in patients having to be hospitalised and receive specialised care (Baud et al., 2020; Li et al., 2020).

2. Background

In these circumstances, healthcare professionals may be one of the major groups affected by the pandemic. They have to experience one of the great paradoxes of the current pandemic: while the general population must stay at home and avoid social contact, healthcare professionals have to continue to perform their care work in direct contact with the virus and continually exposed to it (The Lancet, 2019). This, together with the scarcity of personal protective equipment, has made them one of the most infected groups. As a result, healthcare professionals are managing particularly limited resources, while making their physical and mental integrity vulnerable and having to balance the needs of patients with their own needs and those of their families (Greenberg, Docherty, Gnanapragasam, & Wessely, 2020). Furthermore, healthcare professionals are in an exceptional situation, as they have to provide healthcare while making far-reaching ethical and moral decisions (Xiang et al., 2020). They are thus exposed to a high level of suffering from the patients they care for in an overwhelmed healthcare system (Brooks et al., 2020), which is compounded by uncertainty about the disease, the severity of the symptoms, and the fear of death of the sick as a real possibility (Bonanad et al., 2020; González-Silva, Bahíllo Marcos, Martín Gutiérrez, &

Merino, 2020). This whole situation may generate a series of symptoms in healthcare professionals, such as fear, insecurity, and anxiety (Shanafelt, Ripp, & Trockel, 2020; Xiang et al., 2020), which manifest themselves in the form of excitability, irritability, unwillingness to rest, and signs of psychological distress (Chen et al., 2020).

A syndrome closely related to traumatic and complex situations in the work context of healthcare professionals is that of compassion fatigue (CF). Stamm (2005) included it within a broader concept, professional quality of life, along with burnout (BO) and compassion satisfaction (CS). CF or secondary traumatic stress is the cost of caring for others or their emotional pain, resulting from the desire to relieve the suffering of others (Ruiz-Fernández, Pérez-García, & Ortega-Galán, 2020). Closely related to CF is BO, which involves emotional exhaustion, depersonalisation, and lack of personal fulfilment at work as a result of continuous exposure to occupational stressors (Rodrigues et al., 2018). In contrast, CS acts as a protective factor. Healthcare professionals may experience CS when doing their job well, when they are satisfied with their relationships with co-workers, or when feeling that their work has social value (Roney & Acri, 2018).

In certain healthcare settings, such as critical care services, emergency departments, or in health crises such as the present one, professionals may suffer high levels of CF, and their professional quality of life may become impaired (Alharbi, Jackson, & Usher, 2020; Hunsaker, Chen, Maughan, & Heaston, 2015). The healthcare workers' desire to act to alleviate the suffering of others may exceed their ability to deliver in certain situations, which may cause them to experience emotional distress (Nolte, Downing, Temane, & Hastings-Tolsma, 2017). Healthcare professionals suffering from CF may

experience feelings of fear or dread when interacting with the patients they care for, which may lead to avoidance behaviours in their professional-patient relationships (Sabo, 2011), thereby diminishing the quality of the care they provide.

Therefore, health professionals on the front line being exposed to COVID-19 are at high risk of developing poor mental health and may need psychological support or interventions to help them manage their situation (J. Lai et al., 2020). Continuous contingency plans are required to respond to the emerging distress of this situation and to improve or maintain professional quality of life in healthcare professionals (Berlinger et al., 2020; Ruiz-Fernandez et al., 2020). This is why it is particularly important to be aware of the situation of professionals in this respect. The aim of this research was therefore to analyse professional quality of life and perceived stress (PS) in healthcare professionals in the face of the COVID-19 health crisis in Spain.

2. Methods

2.1 Research Design, Study Participants, and Setting

This study used a descriptive cross-sectional design, with a sample of professionals who voluntarily answered the online questionnaire during the period in which it was active, and who met the following inclusion criteria: working as professionals in care services that facilitated direct contact with patients. Professionals working in healthcare administration management or in services where there was no direct contact with patients (sterilisation, laboratories, etc.) were excluded. A total of 587 professionals answered the questionnaire, of which 506 were eligible.

2.2 Instruments

Professional quality of life was assessed with the Professional Quality of Life Scale (ProQoL) (Stamm, 2005), which was translated into Spanish by Morante-Benadero, Moreno-Jiménez; Rodríguez-Muñoz (2006) and has been used in healthcare professionals in Spain who were exposed to suffering and traumatic situations (Galiana, Arena, Oliver, Sansó, & Benito, 2017; Ruiz-Fernández et al., 2020). This is a self-report questionnaire consisting of 30 items rated on a 6-point Likert scale (ranging from 0 = "never" to 5 = "always"). The scale is divided into three subscales: CF (10 items), CS (10 items), and BO (10 items). Higher scores in each of the dimensions indicate higher levels of CF, CS, and BO respectively. Scores can be categorized as low, medium and high in each of the three subscales: CF ($\leq$ 8 low; 9 - 17 medium; $\geq$ 17 high); CS ($\leq$ 33 low; 34 - 41 medium; $\geq$ 42 high) and BO ($\leq$ 18 low; 19 - 26 medium; $\geq$ 27 high). The Spanish version of ProQoL has a Cronbach's alpha of 0.782 for CF, 0.774 for CS, and 0.537 for BO, respectively (Galiana et al., 2017).

PS was assessed with the Perceived Stress Scale (PSS-14) (Cohen, Kamarck, & Mermelstein, 1983). This questionnaire measures the level of PS experienced in the last month under certain life circumstances, and consists of 14 items rated on a Likert scale ranging from 0 ("never) to 4 ("very often"). Higher scores indicate higher levels of PS. The PSS-14 has been proven to have an adequate reliability when used in the Spanish population, with a Cronbach's alpha of 0.81 (Remor, 2006).

Socio-demographic and work-related data were also collected, including the following: age; sex; marital status (single, married or in civil partnership, and separated or widow/er); work setting (primary care, ICU, emergency departments, regular hospital care, specific COVID-19 unit, health and social care centre); employment status

(unstable, stable/permanent); work shift (fixed morning shift, rotating without night shifts, rotating with night shifts, or fixed night shift).

2.3 Data Collection Procedures

Data collection began on 30 March 2020, during the days of the highest incidence of cases and highest mortality rates due to COVID-19 in Spain, and lasted until 16 April 2020. Given the social distancing measures in place during that period under lockdown, the questionnaire was administered online, consisting of the instruments described above. The link to answer the questionnaire was distributed among professionals through social networks and the research group's website (http://cuidadoscompasion.es/). The estimated completion time was 15 minutes. Participation was voluntary and anonymous.

2.4 Ethical Considerations

This study was approved by the research ethics committee. Participants were informed about the objective of the study and signed an informed consent form. The ethical principles enshrined in the Declaration of Helsinki were observed at all times. The confidentiality of the data and the anonymity of the patients were preserved in compliance with the Spanish Organic Law 3/2018, of the 5th of December, on Personal Data Protection and Guarantee of Digital Rights.

2.5 Data analysis

Means, standard deviations, ranges, and medians were calculated for quantitative variables. Absolute values and percentages were calculated for qualitative variables. Kolmogorov-Smirnov test was used to evaluate the normal distribution of the main

variables (CF, CS, BO and PS). Due to the non-normal distribution of these variables, nonparametric tests (Mann - Whitney U, Kruskal - Wallis H) were used to compare means by participants' socio-demographic and work-related characteristics. Spearman's rank correlation was used for the analysis of correlations between main variables. There were no correlation coefficients greater than 0.70, so none of the variables had to be excluded from the multiple regression models due to collinearity (Dormann et al., 2013). A stepwise multiple linear regression analysis was performed for each of the ProQoL components (dependent variables). The statistical program SPSS Statistics v.25 (IBM Corp, Armonk, NY, USA) was used for data processing.

We have adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines throughout the research process (Vandenbroucke et al., 2007) (see supplementary file 1).

Results

A total of 506 healthcare professionals participated, with an average age of 46.7 (SD = 10.2) years, of which 78.7% (*n* = 398) were nurses. 76.7% of the participants were female, the majority married or partnered (73.9%). 36.8% of the participants (*n* = 186) were working at primary care centres, whereas 61.4% (*n* = 311) were working in other services, including emergency departments (15%; *n* = 76), ICU (12.8%; *n* = 65), and specific COVID-19 units (5.9%; *n* = 30). 72.1% of the participants had a stable or permanent employment status, with the majority of shifts being rotating with night shifts (44.3%; *n* = 224) or fixed morning shifts (41.5%; *n* = 210). Regarding professional quality of life, the scores indicated that the majority of the sample had high

levels of CF (60.5%; *n* = 306) and medium-to-high levels of CS and BO. The average score on the PS scale was 29.3 (SD = 5.8) (Table 1).

Table 2 shows the differences in mean scores for each of the ProQoL components and for PS, according to the rest of the socio-demographic and occupational variables. There were significant differences by profession for all three components of ProQoL, with physicians scoring higher on CF and BO, while nurses scored higher on CS. PS scores were similar for both nurses and physicians. Sex-based differences were found regarding CF and PS, with women scoring higher on both. CS and PS scores did not differ based on workplace during the COVID-19 health crisis; however, differences in CF and BO scores were found, with both being higher among professionals working in specific COVID-19 units and in emergency departments.

Table 3 shows the correlations between the three ProQoL components and the rest of the variables. All three components of ProQoL were significantly correlated with each other and with PS, while CS was negatively correlated with the rest. This means that higher levels of satisfaction indicate lower levels of CF, BO, and PS. The correlations between fatigue, BO, and PS were all positive.

In the multiple linear regression analysis for CF, neither socio-demographic variables nor satisfaction had a significant influence on CF. Only BO and PS had significant weights on CF (Table 4). In the multiple linear regression model for BO, the variables with significant weights were CF and CS. Neither occupation nor PS had significant weights on BO (Table 5). In the multiple linear regression model for CS, age, occupation, BO, and PS showed significant weights, with BO standing out (t = - 11.856;

$p < 0.0001$) (Table 6), although the variance explained by this model (34.9 %) was lower than in the regression models for CF and BO (61.2 % and 59.8 % respectively).

Discussion

The aim of this study was to describe professional quality of life and PS in healthcare professionals during the COVID-19 health crisis in Spain. The results revealed that healthcare professionals have suffered medium to high levels of CF and BO during the COVID-19 health crisis in Spain. This is not a new phenomenon that has emerged during this global pandemic, since several previous studies have already reported the adverse effects that the usual work activity of healthcare professionals has on them (Borneo, Helm, & Russell, 2017; Hooper, Craig, Janvrin, Wetsel, & Reimels, 2010; Ruiz-Fernández et al., 2020; B. H. Stamm, 2005). In recent years, BO has been considered to be a serious problem that negatively affects between 40% and 75% of healthcare professionals (Powell, 2020), and its relationship with CF has been ascertained (Crawford, Brown, Kvangarsnes, & Gilbert, 2014).

One of the findings of this study is that professionals who are caring for patients with COVID-19 have higher levels of CF, BO, and PS than those in other healthcare settings. These results are consistent with those found in a study conducted in Asia (J. Lai et al., 2020) on the emotional health of healthcare workers, including anxiety, depression, and stress. Their results revealed higher levels of stress among healthcare workers in Wuhan, the origin and epicentre of the epidemic in China, compared to other provinces. The reasons for this may include the risk of infection for themselves or their loved ones, as well as the increased demand for care and a possible shortage of basic personal protection resources (Chan-Yeung, 2004; Tzeng & Yin, 2006). However, another study has reported lower levels of BO in healthcare workers working on the front line

compared to usual wards during the COVID-19 epidemic in Wuhan (Wu et al., 2020). According to these authors, a possible explanation for this may be that these professionals, being on the front line, had had a greater sense of control and more information regarding the evolution of the pandemic process. In our setting, it is possible that the feeling of control and the information available among professionals were more limited, although it should be noted that our data were collected during the hardest weeks of the epidemic in Spain, while the data provided by Wu et al. (2020) were collected in March 2020, when the situation in the province of Hubei was not so dire.

Another unusual issue present in our results is the difference found between different groups of professionals. Physicians had higher levels of CF and BO, while nurses had lower scores on these two dimensions and showed higher CS scores. Physicians are facing major ethical and moral decisions during this pandemic. These are unprecedented challenges for which they were most likely unprepared. These decisions may include caring for seriously ill patients with limited or inadequate resources and having to prioritise some cases over others due to a widespread lack of resources, such as ventilators. In our setting, the final decision regarding the administration of treatment, despite the possibility of it being addressed within the healthcare teams, rests with the physician responsible for the case, which may result in some physicians experiencing moral injury and/or mental health problems (Greenberg et al., 2020). Moral injury may be defined as the psychological distress that stems from making or failing to make interventions, thus acting against one's own ethical and moral code, and may trigger intense feelings of shame, guilt, or disgust (Litz et al., 2009) while contributing to the development of CF and BO (Winner & Knight, 2019). In addition, the COVID-19 pandemic has made breaking bad news more difficult than ever (Rimmer, 2020),

because of their nature and frequency and because of the isolation measures in place. This may also lead to situations of fatigue and secondary trauma among physicians facing the suffering of patients and among the families that physicians have to inform.

Our results reveal that nurses, despite having similar PS levels to physicians and working in equally difficult situations in terms of both fear and availability of resources, have significantly higher CS scores. These CS scores are also higher than those shown by nurses in studies conducted in the same Spanish setting prior to the pandemic (Galiana et al., 2017; Ruiz-Fernández et al., 2020). While this may seem counterintuitive, this is consistent with studies that point out that some individuals may feel good when working hard and seeing how others benefit from their own efforts (Schwartz, Meisenhelder, Ma, & Reed, 2003). During the COVID-19 crisis, patients and families are experiencing a very high level of suffering due to physical symptoms, but also due to isolation, fear, and uncertainty. We believe that the great effort that nurses make to care for patients in a close and unconditional way has resulted in them experiencing deep satisfaction for the good they have done to their patients. In situations like this, where suffering is conspicuous and palpable, compassion, understood as sensitivity to one's own and others' suffering, along with a commitment to prevent and alleviate it, may emerge (Brito-Pons & Librada-Flores, 2018). Compassion involves sensitivity, recognition, understanding, emotional resonance, empathic concern, and tolerance for the suffering of others, along with motivation and relational action to ease it (Gilbert, 2014; Jinpa, 2015). Somehow, in the face of the unique circumstances brought about by this pandemic, nurses have been able to connect strongly with their own intrinsic motivation for caregiving, and have gained satisfaction from compassion through actively committing to patients. Furthermore, during the hardest weeks of the pandemic in Spain, as data were being collected for this study, a

social movement of support and recognition for the work and effort of health professionals in general and nurses in particular was taking place, which was not the case prior to the pandemic. Thus, this health crisis has given nurses the opportunity to show society the implications of and need for specialised and professional care, especially in situations of great difficulty and suffering, which had already been identified as necessary to improve the visibility and image of nursing in society (Hoeve, Jansen, & Roodbol, 2014). Society has reacted to the work of nurses with widespread expressions of genuine gratitude, which could serve to reinforce compassion in professionals who put their lives at risk to help individuals suffering from COVID-19 (Alharbi et al., 2020). Their motivation to alleviate suffering, together with the social recognition perceived, may have been the reviving elements of CS in nurses.

In any case, both our results and those of other studies suggest moderate or high levels of CF and BO in healthcare professionals, irrespective of the health crisis caused by the COVID-19 pandemic, which represents a major factor in the potential worsening of professional quality of life. It is thus necessary to implement interventions that help prevent these problems among professionals in the long term. BO is a complex problem that must be addressed by combining interventions based on communication, teamwork, meditation, and/or mindfulness that have been proven to be effective (Aryankhesal et al., 2019). Additionally, in order to reduce CF, compassion skills programmes aimed at improving both CS and quality of life among professionals should be implemented, as this would result in improved quality of care, patient experience, and patient safety (Kim & Lee, 2020). However, this phenomenon should not be observed from the point of view of individuals, but from the wider perspective of institutions. In this respect, it is important not to focus only on professionals as individuals, as if they themselves were solely responsible for their mental health status, their capacity for compassion, or

their resilience to BO. It is also important to incorporate resolutely the responsibility of institutions in this regard (Crawford et al., 2014). Therefore, it will be necessary to establish evidence-based services for health professionals. Furthermore, institutions must be involved to provide the necessary resources to protect them, ensure sufficient staffing for patient care, promote psychological care and ethical advice for health care teams, and ultimately to strengthen a public health system that is safe for both patients and health workers.

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Table 1. Descriptive data on socio-demographics, employment, and quality of life (*n* = 506)

Characteristics	%	Mean ± SD	Range	Median	Z (p)
Age		46.7 ± 10.2	23-67	47	
Occupation					
Nurse	78.7				
Physician	21.3				
Sex					
Male	23.3				
Female	76.7				
Marital status					
Single	15.6				
Married or in civil partnership	73.9				
Separated or widow/er	10.5				
Work setting during the crisis					
Primary care centre	36.8				
ICU	12.8				
Emergency department	15.0				
Regular hospital care	27.7				
Specific COVID-19 unit	5.9				
Health and social care centre	1.8				
Employment status					
Temporary / replacement / unstable	27.9				
Stable / permanent	72.1				
Work shift					
Fixed morning shift	41.5				
Rotating without night shifts (mornings/evenings)	13.0				
Rotating with night shifts	44.3				
Fixed night shift	1.2				
Compassion fatigue (ProQoL)		19.9 ± 7.6	3 - 46	20	0.066 (<0.0001)
Low	5.9				
Medium	33.6				
High	60.5				
Compassion satisfaction (ProQoL)		39.3 ± 6.4	5 - 50	40	0.122 (<0.0001)
Low	15.6				
Medium	43.3				
High	41.1				
Burnout (ProQoL)		24.7 ± 5.9	11 - 42	24	0.072 (<0.0001)
Low	16.0				
Medium	48.0				
High	36.0				
Perceived stress (PSS-14)		29.3 ± 5.8	12 – 42	29	0.064 (<0.0001)

SD = Standard deviation; Z = Kolmogorov-Smirnov test

Table 2. Mean differences in ProQoL and PSS-14 scores by socio-demographic and occupational variables

	Compassion fatigue		Compassion satisfaction		Burnout		Perceived stress	
	Mean (SD)	**U/H (*p*)**	**Mean (SD)**	**U/H (*p*)**	**Mean (SD)**	**U/H (*p*)**	**Mean (SD)**	**U/H (*p*)**
Occupation								
Nurse	19.4(7.3)	18196.5 (0.014)	39.9(5.9)	16506.5 (<0.0001)	24.3(5.7)	17671.5 (0.005)	29.1(5.7)	19204 (0.089)
Physician	21.6(8.6)		37.1(7.6)		26.2(6.6)		30.1(6.4)	
Sex								
Male	18.5(7.4)	19916 (0.032)	39.1(7.0)	22843 (0.972)	23.9(6.1)	20460,5 (0.08)	27.3(6.3)	17179 (< 0.0001)
Female	20.3(7.7)		39.4(6.2)		25.0(5.9)		29.9(5.6)	
Marital status								
Single	19.2(7.8)	1.150 (0.563)	39.1(7.3)	0.338 (0.845)	25.4+6.5	1.312 (0.519)	29.2(6.0)	0.281 (0.869)
Married or in civil partnership	20.0(7.6)		39.4(6.1)		24.7(5.8)		29.3(5.8)	
Separated or widow/er	19.9(7.8)		39.3(6.4)		24.1(6.3)		29.6(6.3)	
Work setting								
Primary care centre	20.0(7.8)	12.103 (0.033)	38.7(6.6)	7.445 (0.190)	24.5(6.1)	12.569 (0.028)	29.3(5.8)	5.896 (0.317)
ICU	20.3(7.4)		39.7(5.6)		25.1(5.4)		28.8(6.0)	
Emergency department	18.9(6.8)		38.9(7.2)		24.6(5.9)		29.5(6.1)	
Regular hospital care	19.4(7.4)		40.4(5.6)		24.2(5.6)		29.2(5.8)	
Specific COVID-19 unit	24.3(8.1)		37.7(7.3)		28.9(7.2)		31.6(4.7)	
Health and social care centre	15.3(8.9)		41.5(6.4)		21.8(5.3)		28.2(7.0)	
Employment status								
Unstable	19.5(7.2)	25098 (0.667)	39.5(6.4)	25231.5 (0.734)	25.4(5.8)	23151.5 (0.08)	29.9(5.8)	23377 (0.11)
Stable / permanent	20.0(7.8)		39.3(6.4)		24.5(6.0)		29.1(5.9)	
Work shift								
Fixed morning shift	19.8(8.0)	3.229 (0.358)	39.2(6.4)	2.031 (0.566)	24.6(5.9)	2.724 (0.436)	29.4(6.2)	1.615 (0.656)
Rotating without night shifts	21.2(7.2)		38.8(6.1)		25.3(6.1)		30.1(5.1)	
Rotating with night shifts	19.5(7.4)		39.7(6.5)		24.6(5.0)		29.0(5.7)	
Fixed night shift	21.7(7.4)		38.2(7.4)		28.8(7.2)		29.2(4.9)	

SD = Standard deviation; U = Mann-Whitney test; H = Kruskal-Wallis test; *p* = significance level.

Table 3. Bivariate correlations between ProQoL components and perceived stress

	Compassion fatigue	Compassion satisfaction	Burnout	Perceived stress
Compassion fatigue		- 0.383 $p < 0.0001$	0.696 $p < 0.0001$	0.665 $p < 0.0001$
Compassion satisfaction	- 0.383 $p < 0.0001$		- 0.574 $p < 0.0001$	- 0.386 $p < 0.0001$
Burnout	0.696 $p < 0.0001$	- 0.574 $p < 0.0001$		0.547 $p < 0.0001$
Perceived stress	0.665 $p < 0.0001$	- 0.386 $p < 0.0001$	0.547 $p < 0.0001$	

p = significance level

Table 4. Stepwise multiple linear regression for compassion fatigue

	B	**Error t.**	***β***	***t***	***p***	**R^2 change**
Constant	- 10.856	1.139		-9.530	< 0.0001	
Burnout	0.642	0.042	0.502	15.217	< 0.0001	0.507
Perceived stress	0.506	0.043	0.388	11.756	< 0.0001	0.106

Adjusted $R^2 = 0.612$

Table 5. Stepwise multiple linear regression for burnout

	B	**Error t.**	***β***	***t***	***p***	**R^2 change**
Constant	27.902	1.405		19.859	< 0.0001	
Compassion fatigue	0.451	0.024	0.576	18.643	< 0.0001	0.507
Compassion satisfaction	- 0.308	0.029	- 0.332	- 10.746	< 0.0001	0.092

Adjusted $R^2 = 0.598$

Table 6. Stepwise multiple linear regression for compassion satisfaction

	B	**Error t.**	***β***	***t***	***p***	**R^2 change**
Constant	61.249	1.724		35.526	< 0.0001	
Burnout	- 0.550	0.046	- 0.510	- 11.856	< 0.0001	0.322
Age	- 0.074	0.023	- 0.117	- 3.213	0.001	0.017
Occupation	- 1.477	0.574	- 0.094	- 2.575	0.01	0.009
Perceived stress	- 0.106	0.047	- 0.096	- 2.247	0.025	0.007

Adjusted $R^2 = 0.349$