

Title

Protecting Emergency Room Nurses from Burnout: The Role of Dispositional Mindfulness, Emotion Regulation, and Empathy

Abstract

Aim: To verify the role of dispositional mindfulness, difficulties in emotion regulation and empathy in explaining burnout levels of Emergency Room (ER) nurses. **Background:** Many studies have examined the variables that can affect burnout among ER nurses, but little is known about factors that can protect ER nurses against work-related stress. **Method:** A multi-center cross-sectional design was used. Burnout level intensity, dispositional mindfulness facets, difficulties in emotion regulation, and empathy dimensions were assessed using valid and reliable self-report questionnaires in a sample of ER nurses (N = 97) from three different hospitals. **Results:** Higher dispositional mindfulness and cognitive empathy levels, and lower difficulties in emotion regulation, were negatively associated with emotional exhaustion levels. **Conclusion:** ER nurses with more mindful, emotion regulation, and empathy skills are more able to manage work-related distress. **Implications for Nursing Management:** Experiential interventions to promote mindfulness skills, emotion regulation variability and flexibility in a clinical context, and the cognitive side of empathy are recommended for ER nurses to reduce professional distress, and to enhance personal and work satisfaction. Future research should assess the effectiveness of new multi-factorial interventions which combine the development of mindfulness, emotion regulation, and empathy skills in ER nurses.

Key Words

ER nurses; nursing burnout; dispositional mindfulness; emotion regulation; empathy.

Background

The continued emotional and psychological stress on the job, characterized by a reduction of individual and/or social resources, could induce to a personal state named “burnout” (Maslach *et al.* 2001; Maslach & Leiter 2016). This psychological condition underlines three dimensions: (1) emotional exhaustion, (2) depersonalization and (3) professional accomplishment, where emotional exhaustion is the principal dimension of burnout (Sonnentag *et al.* 2010). Healthcare professionals are highly prone to burnout (Potter 2006; van Mol *et al.* 2015). At the beginning of their professional activity, nurses have high expectations about their realization and their efficacy in patient’s caring, but while their professional life evolves, they are often exposed to feelings of professional de-idealization and loss of effectiveness on patient’s health and wellbeing (Leiter & Maslach 2005). However, the various clinical contexts differently affect the nurses’ susceptibility to burnout (Bogat *et al.* 2005). Nurses working in emergency rooms (ER) are more exposed to burnout than nurses working in other specialties (Hooper *et al.* 2010; Schooley *et al.* 2016). The emergency departments are unforeseeable, restless, often overcrowded and characterized by a broad range of traumatic events (Ross-Adjie *et al.*

2007; Adriaenssens *et al.* 2015). Acknowledging the high risk of ER nurses burnout, the researchers have explored the variables that can affect it. A recent literature review (Adriaenssens *et al.* 2015) pointed out that both individual factors and work factors were predictive of ER nurses' burnout levels. Two main dimensions are playing a key role in ER nurses' levels of burnout: external factors (e.g., demographic and environmental characteristics) and internal factors (e.g., personality or dispositional variables), but findings from the literature are not always clear and, in some case, contradictory.

Regarding the demographic characteristics, researchers (Hooper *et al.* 2010; Harkin & Melbey 2014; Schooley *et al.* 2016) have found a significant association between gender, seniority, age, and levels of ER nurses' burnout. Nevertheless, in some case the findings are incongruous (Alexander & Klein 2001; Adali & Priami 2002). In the Italian context, Cicchiti and colleagues (2014) have analyzed the levels of burnout of nurses working in a hospital and pre-hospital emergency service, but the influence of sociodemographic characteristics was not considered. Considering the dispositional characteristics, Swider and Zimmerman (2010) found that the ER nurses' personality traits are associated with the burnout levels. However, it is not yet clear what dispositional variables influence burnout in ER nurses since personal characteristics are not frequently considered as predictors of burnout levels. Nevertheless, considering the general literature about the healthcare professions, several psychological variables have been associated with burnout.

Taylor and Millear (2016) have recently highlighted that dispositional mindfulness could be considered as an additional and new personal trait that predicts the levels of burnout. The capacity to "paying attention on purpose, in the present moment, and nonjudgmentally, to the unfolding of experience moment by moment" (Kabat-Zinn 2003) moves along a continuum that goes from a low level (mindlessness) to a state of deep awareness (mindfulness). The personal tendency to place oneself in a point of this continuum defines ones' level of dispositional mindfulness (Brown & Ryan 2003). It was found that the mindful-based interventions showed an inverse correlation with emotional exhaustion and a direct relationship with job satisfaction (Hülshager *et al.* 2013). The same pattern is confirmed for nurses (Zeller & Levin 2013; Westphal *et al.* 2015). A recent Italian study (Voci *et al.* 2016) has found that the levels of general healthcare professionals' dispositional mindfulness were negatively associated with their levels of burnout.

The ability of emotion regulation (Gray 2010) includes all the individual strategies used to manage self and others' emotions (Gross 2015). Nurses' abilities to regulate their emotion influence their psychological health, interaction with patients, and clinical performance (Quoidbach & Hansenne 2009). Donoso and colleagues (2015) found that good competence in emotion regulation is related to high nurses' motivation at work and felicity at home. A large body of literature (e.g., Arnold *et al.* 2015; del Carmen Pérez-Fuentes *et al.* 2019; Fornés-Vives *et al.* 2019) has explored the relationship between burnout and emotional characteristics like emotional intelligence, emotional labor and emotion

regulation. A recent Italian study (Masiero *et al.* 2018) have highlighted that the ER healthcare professionals who had difficulties to verbalize and manage their feelings were more prone to burnout.

The empathic attitude has been strongly associated with burnout levels (Decety & Icknes 2011). While several studies have been reported a negative correlation between burnout and empathy (Brazeau *et al.* 2010; Hojat *et al.* 2015), other studies have found a positive relationship (Bellini *et al.* 2002; Rosen *et al.* 2006). Davis (2018) defined empathy as a multidimensional concept, involving cognitive as well as emotional domains. Two different theories have tried to explain the association between empathy and burnout in healthcare professionals: (1) compassion fatigue theory (Figley 2002) and (2) emotional dissonance theory (Bakker & Heuven 2006). The first theory proposes that burnout is related to the extreme emotional domain of empathy and healthcare providers become emotionally over-involved with their patients. Instead, the second one supports the hypothesis that burnout is related to a lower level of empathy due to a reduction in emotion regulation, causing a gap between felt and expressed emotions.

Aim

Given that, it is not so clear what are the dispositional factors affecting burnout in ER nurses. Therefore, in this study, we focused on dispositional mindfulness, difficulties in emotion regulation, empathy, and their role in predicting ER nurses burnout. This information may be relevant for identifying effective strategies to protect ER nurses from burnout. The aims of the study were: (1) to assess the levels of burnout in ER nurses; (2) to assess the influence of sociodemographic variables on burnout in ER nurses; (3) to explore the role of dispositional mindfulness, emotion regulation difficulties, and empathy in explaining burnout levels of ER nurses.

Method

Study design

This cross-sectional research examined predictors burnout levels amongst ER nurses in three north Italian public hospitals. The institutional review boards of centers that took part in the research approved the study. All the participants were volunteers and indicated their informed consent with signatures. Confidentiality and anonymity were guaranteed for all participants, and all ethical standards were observed.

Participants

Participants were a convenience sample of ER nurses from three hospitals in northern Italy. Two of the hospitals are situated in a metropolitan geographical area and are considered to be high specialization trauma centers because they have the resources to assess and treat any clinical situation seven days a week, 24 hours a day. The third hospital is a network of small hospitals in the countryside; this network has the resources to treat the major cardio-circulatory diseases before transferring the patients to a higher specialization structure.

Measures

The socio-demographic characteristics (gender, age, general working/ER experience, qualification, marital, and parental status) were investigated using a self-report questionnaire.

Maslach Burnout Inventory (MBI; Maslach *et al.* 1996; Italian version: Sirigatti *et al.* 1988). Self-report questionnaire (22 items) used to evaluate the risk of burnout. This instrument explores the three components of burnout: (1) the Emotional Exhaustion (EE) scale assesses the emotional overexposure and fatigue in the workplace; (2) the Depersonalization (D) scale evaluates the lack of recognition of self and recipients of one's service as persons; (3) the Professional Accomplishment (PA) scale underlines the feelings of capability and self-efficacy in one's work. In our study, overall reliability coefficients for each MBI subscale were 0.91 for EE, 0.83 for D and 0.74 for PA.

Five-Facet Mindfulness Questionnaire (FFMQ; Baer *et al.* 2006; Italian version: Giovannini *et al.* 2014). Self-report questionnaire (39 items) which assesses the five components of dispositional mindfulness: (1) the Nonreactivity to inner experience facet is the ability to pay attention to thoughts and emotions without the need to compulsively respond to them; (2) the Observing facet is the tendency to note personal experiences such as physical sensations, perceptions, thoughts, and emotions; (3) the Describing facet is the capability to label personal experience by using words; (4) the Acting with Awareness facet is the capability of focusing and not being distracted; (5) the Nonjudging of experience underlines the acceptance of thoughts and feelings experienced. In the present study, the five facets demonstrated good internal consistency (Observing, $\alpha = 0.79$; Describing, $\alpha = 0.82$; Acting with Awareness, $\alpha = 0.87$; Nonjudging, $\alpha = 0.81$; Nonreactivity, $\alpha = 0.70$).

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roamer 2004; Italian version: Giromini *et al.* 2012). Self-report questionnaire (36 items) which yields six subscales: (1) non-acceptance of emotional responses; (2) difficulties engaging in goal-directed behaviour; (3) impulse control difficulties; (4) lack of emotional awareness; (5) limited access to emotion regulation strategies; (6) lack of emotional clarity. In this study, the DERS subscales demonstrated good Cronbach's alpha values, ranging from 0.76 for "impulse control difficulties" scale to 0.81 for "lack of emotional awareness" scale.

Interpersonal Reactivity Index (IRI; Davis 1980; Italian version: Albiero *et al.* 2006). Self-report measure (28-item) which assesses empathy and comprises four factors: (1) Empathic Concern (EC) assesses feelings of compassion for others; (2) Fantasy (F) measures the tendency to live imaginatively into the fictitious stories in books, movies, and plays; (3) Personal Distress (PD) measures feelings of personal worry and anxiety in stressed interpersonal situations; (4) Perspective Taking (PT) is the tendency to spontaneously take into consideration the psychological point of view of other people. The four IRI dimensions' total scores demonstrated good internal consistency in our sample (Empathic Concern, $\alpha = 0.75$; Fantasy, $\alpha = 0.76$; Personal Distress, $\alpha = 0.81$; Perspective Taking, $\alpha = 0.73$).

Statistical analysis

The data were analyzed using SPSS 24 for Mac, and only aggregate data were used. A normality test was conducted to determine the normality distribution, and parametric tests were used to analyze the data.

Pearson's correlations were carried out to preliminarily evaluate the strength, the direction, and the statistical significance of the relationships between study measures. Then, we conducted an analysis of covariance (ANCOVA) to determine a statistically significant difference regarding MBI subscales score between groups of ER nurses with different socio-demographic characteristics, controlling for age. Finally, we tested the research hypothesis, adopting hierarchical multiple regressions (following a two-block strategy with enter method), adjusting for the effect of gender and age of the participants. The variations in the coefficient of determination (ΔR^2) were assessed at Step 2. In addition to the variation of R^2 , all variables were evaluated considering their non-standardized beta weights (B).

An online calculator (Soper 2018) was used to estimate the a-priori sample size for the hierarchical multiple regressions of this study. Given the number of predictors in each regression model (from 6 to 8), and to achieve a power of 95% (with a significance level of $\alpha = 0.05$), and a medium effect size ($d = 0.15$), the minimum required sample size ranged from 97 to 108. Analyses were considered significant when the p-value was less than 0.05. Effect sizes, as measured by Cohen's d and Cohen's f^2 (Cohen 1988), were computed using online calculators (Soper 2018) for, respectively, ANCOVA and multiple regression models.

Results

A total of 120 ER nurses working in the emergency departments of three northern Italian public hospitals were enrolled in the study, but 23 did not complete the assessment. The final sample included 97 ER nurses (see Table 1 for demographics).

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Prevalence of level of burnout and descriptive statistics for dispositional mindfulness, emotion regulation, and empathy

Based on the scores of the Maslach Burnout Inventory (MBI) and according to the cut-off values as indicated on the MBI test manual, we classified the ER nurses into low/medium/high burnout levels, as per the three dimensions of the questionnaire (Table 2) (Maslach *et al.* 2001).

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As shown in Table 3, the variables' scores were highly and significantly correlated in the expected direction.

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Associations between socio-demographics, dispositional mindfulness, difficulties in emotion regulation, empathy, and ER nursing burnout

The ANCOVA showed that there were not any significant socio-demographic differences regarding MBI variables in our study, controlling for age. Furthermore, for the overall sample, zero-order correlations did not show a significant relationship between MBI dimensions and general working/ER experience.

Results of the regression analyses for MBI subscales are reported in Tables 4, 5 and 6. Regression models explained a significant portion of the variance in MBI subscales. The entry of FFMQ subscales in step 2 of the regression model (Table 4) explained the 23.6% of the EE variance, the 26.0% of the D variance and the 13.9% of the PA variance. Higher levels of Acting with Awareness were associated with lower levels of EE and D, but higher levels of PA. ER nurses that showed higher levels of Nonjudging had lower levels of EE, while participants who scored higher in Nonreactivity scale had lower levels of EE and D scales.

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The entry of DERS subscales in step 2 of the regression model (Table 5) explained the 28.5% of the EE variance, the 21.5% of the D variance and the 13.8% of the PA variance.

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At last, the entry of the IRI subscales in step 2 of the regression model (Table 6) explained the 12.5% of EE variance, the 11.4% of the D variance, while regarding the PA scale the regression did not show a relevant contribution. The EC and EE levels in ER nurses had a positive relationship, while participants with higher scores on the PT dimension had lower levels in EE and D.

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Discussion

As far as we know, this is one of the few studies which has explored the individual factors that can potentially protect ER nurses from burnout. We have specifically investigated the role of demographic and dispositional

characteristics in explaining burnout levels in ER nurses. We found that emotion regulation was the most important predictor of burnout in ER nurses. Furthermore, dispositional mindfulness and perspective taking dimension of empathy played a key role in modulating burnout levels in this population. This is relevant because these three psychological factors can be targeted by administrators to develop effective interventions aimed to prevent burnout in this group. Our study has also confirmed that nurses working in emergency departments are prone to develop burnout (Li *et al.* 2018). These results are coherent with those described in another Italian study (Cicchitti *et al.* 2014) which reported a similar prevalence of medium-high levels of burnout amongst ER nurses.

This study aimed to enrich the description of the burnout levels of Italian ER nurses by investigating the relationship between personal and socio-demographic characteristics and burnout. Our findings are in line with the review of Bria *et al.* (2012) which found a small impact of socio-demographic characteristics on burnout levels among healthcare professionals. However, our results are incongruous with the specific ER nursing literature (Adriaenssens *et al.* 2015; Tarcan *et al.* 2017). Up to now the studies along this relationship are inconclusive, so future research is needed in the Italian as well as in the international contexts. Regarding the core aim of our study, each regression model was able to predict a relevant portion of the variance of all the components of burnout: emotional exhaustion, depersonalization and personal accomplishment (Maslach *et al.* 2001).

Dispositional mindfulness facets showed a negative correlation with emotional exhaustion, depersonalization, and reduced personal accomplishment. Thus, dispositional mindfulness is confirmed as a significant personal trait in modulating burnout levels in the workplace (Taylor and Millier 2016). This study confirms that the relationship between dispositional mindfulness and burnout, found in the general healthcare context (Voci *et al.* 2016), is also applied to the specific ER nursing area. An opposite pattern has been found between emotional dysregulation and burnout levels amongst our sample of ER nurses.

Difficulties in emotional regulation exposed ER nurses to high levels of emotional exhaustion, depersonalization and lack of personal accomplishment. This is consistent with findings from international literature (Donoso *et al.* 2015) and with a recent Italian study (Masiero *et al.* 2018) which found a positive correlation between ER nurses' burnout and their difficulties to verbalize and manage own feelings (alexithymia).

Contrary to dispositional mindfulness and emotional dysregulation, not all dimensions of burnout had a significant relationship with ER nurses' levels of empathy. Personal accomplishment was not influenced by any of the four dimensions of empathy. Instead, the emotional domain of empathy (empathic concern) was positively correlated with emotional exhaustion levels, while the cognitive dimension (perspective taking) was negatively associated with emotional exhaustion and depersonalization scores. These results are consistent with the theoretical framework of compassion fatigue theory (Figley 2002), which states that the positive relationship between burnout and empathy is

explained by the excessive emotional involvement of the healthcare worker in the relationship with patients. Therefore, our results suggest that the healthcare professional's empathic disposition should be characterized by the tendency to understand the cognitive and the emotional state of oneself and others (Baron-Cohen 1997), avoiding confusion between one's own and others' emotions (Nightingale 1991).

Limitations and Recommendation for Future Research

This study has several limitations. The sample is sufficient for the aims of this study, but it is quite limited, and the generalizability of results is limited to the ER field. To confirm the same patterns, the replication of our study design is recommended taking into consideration larger samples and other nursing inpatient specialties prone to high levels of burnout (e.g., intensive care, nephrology, oncology, mental health).

Moreover, although they were valid and reliable, we used self-report measures for assessing study constructs. However, this study provides evidence about the relationship between burnout, dispositional mindfulness, emotion dysregulation, and empathy, and is one of a few which focuses more on protective rather than risk factors. A future interventional study should verify if training aimed at developing emotion regulation strategies, dispositional mindfulness, and the cognitive component of empathic attitude could reduce work-related stress in ER nurses.

Conclusions and Implications for Nursing Management

An adequate comprehension of the psychological variables that modulate the levels of burnout among ER nurses is crucial for the improvement of future practical interventions.

Our results confirm that ER nurses experience high levels of work-related distress and are at risk of burnout. Taken together, our findings suggest that burnout has a negative relationship with dispositional mindfulness, emotion regulation abilities, and cognitive empathic attitude. As these three factors modulate burnout levels, they should be systematically assessed amongst nurses working in emergency departments. Furthermore, if future studies will confirm our results, interventions aimed at improving mindfulness levels, emotion regulation strategies, and cognitive empathy should be developed for ER nurses. Particularly, administrators should provide ER nurses with the opportunities to (1) participate in tailored psycho-educational programs, such as Mindfulness-Based Stress Reduction (MBSR), to promote a non-judgmentally and moment-by-moment awareness (Irving *et al.* 2009); (2) learn and use narrative approaches during clinical practice in order to enhance self-awareness of one's own emotion regulation strategies and of the ways in which the professionals react to demanding and problematic work-related situations (Artioli *et al.* 2016); and, (3) participate in interventions, such as role-playing and self-awareness exercises, which may improve significantly the cognitive empathic attitude (Kiosses *et al.* 2016).

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Table 1 – Demographics of study sample

	Total sample (N = 97)
	N (%) / M (SD)
Gender	
Female	60 (61.86%)
Male	37 (38.14%)
Age (years)	38 (9.48)
Working experience (years)	
General	14.5 (9.74)
ER	9.5 (7.46)
Graduation	
Yes	62 (63.9%)
No	35 (36.1%)
Marital Status	
Unmarried	41 (42.3%)
Live with a spouse	48 (49.5%)
Separated/Divorced	8 (8.2%)
Parental status	
With children	40 (41.2%)
Without children	57 (58.8%)

Table 2 – Burnout levels for the three dimensions of MBI

Level	EE		D		PA	
	N	%	N	%	N	%
Low	34	35%	26	27%	46	47%
Medium	26	27%	25	26%	31	32%
High	37	38%	46	47%	20	21%

Note. *EE* Emotional Exhaustion; *D* Depersonalization; *PA* Professional Accomplishment

Table 3 – Correlations between study variables

	1	2	3	4	5	6	7	8	9	10	11
EE	1										
D	.650**	1									
PA	-.237*	-.389**	1								
Obs				1							
Descr			.244*	.372**	1						
ActAwa	-.316**	-.442**	.312**	.372**	.344**	1					
Nonjud	-.386**	-.322**		-.314**		.480**	1				
Nonrea	-.233*		.210*	.373**	.494**			1			
NonAcc	.479**	.312**				-.464**	-.705**		1		
Goals	.416**	.350**	-.260*			-.508**	-.358**		.620**	1	
Imp	.462**	.306**	-.316**			-.515**	-.463**		.690**	.800**	1
Awa				-.417**	-.433**					-.311**	
Strat	.479**	.420**	-.227*			-.448*	-.543**		.733**	.705**	.753**
Cla						-.315**			.222*	.249*	.282**
F				.441**			-.247*		.250*		
EC		-.203*		.232*							
PT		-.331**	.293**	.215*	.261**			.217*			
PD	.221*				-.307**	-.304**	-.230*	-.280**	.273**	.335**	.291**

Table 4 – Hierarchical multiple regression analysis summary for dispositional mindfulness variables predicting burnout levels

Steps	Variables	EE		D		PA	
		R ² =0.01 B	R ² =0.24*** B	R ² =0.02 B	R ² =0.28*** B	R ² =0.02 B	R ² =0.16* B
1	Gender	1.570		-0.963		-1.646	
	Age	0.046		-0.096		0.066	
2	Gender		-0.399		-2.131		-1.181
	Age		0.026		-0.125		0.065
	Obs		-0.012		0.129		0.043
	Descr		0.465		0.223		0.037
	ActAwa		-0.535*		-0.617***		0.410*
	Nonjud		-0.585*		-0.089		-0.047
	Nonrea		-0.926*		-0.530*		0.274
	ΔR^2		0.24		0.26		0.14
	F for change in R ²		4.031		4.919		2.349
	Effect size (f ²)		0.32		0.39		0.18

Note. *EE* Emotional Exhaustion, *D* Depersonalization, *PA* Professional Accomplishment; *Obs* Observing, *Descr* Describing, *ActAwa* Acting with Awareness, *Nonjud* Nonjudging, *Nonrea* Nonreactivity; *p < 0.05, **p < 0.01, ***p < 0.001

Table 5 – Hierarchical multiple regression analysis summary for emotion dysregulation variables predicting burnout levels

Steps	Variables	EE		D		PA	
		R ² =0.01 B	R ² =0.29*** B	R ² =0.02 B	R ² =0.23** B	R ² =0.02 B	R ² =0.16* B
1	Gender	1.570		-0.963		-1.646	
	Age	0.046		-0.096		0.066	
2	Gender		0.506		-1.104		-1.759
	Age		0.019		-0.104		0.105
	NonAcc		0.561		0.561		0.344
	Goals		0.134		0.134		-0.106
	Imp		0.535		0.535		-0.686
	Awa		-0.033		-0.033		-0.096
	Strat		0.433		0.433		-0.137
	Cla		-0.989		-0.989		-0.131
	ΔR^2		0.28		0.21		0.14
	F for change in R ²		4.502		3.348		2.019
	Effect size (f ²)		0.41		0.29		0.18

Note. *EE* Emotional Exhaustion, *D* Depersonalization, *PA* Professional Accomplishment; *NonAcc* Non Acceptance, *Goals* Goal-directed behavior, *Imp* Impulse Control, *Awa* Emotional Awareness, *Strat* Emotion Regulation Strategies, *Cla* Clarity; *p < 0.05, **p < 0.01, ***p < 0.001

Table 6 – Hierarchical multiple regression analysis summary for empathy variables predicting burnout levels

Steps	Variables	EE		D		PA	
		R ² =0.01	R ² =0.13*	R ² =0.02	R ² =0.13*	R ² =0.02	R ² =0.11
		B	B	B	B	B	B
1	Gender	1.570		-0.963		-1.646	
	Age	0.046		-0.096		0.066	
2	Gender		-0.672		-0.886		-1.638
	Age		0.021		-0.098		0.080
	F		0.207		0.002		0.084
	EC		0.656*		-0.065		-0.082
	PT		-0.807*		-0.492*		0.444
	PD		0.316		0.089		-0.071
	ΔR^2		0.12		0.11		0.09
F for change in R ²		2.244		2.295		n.s.	
Effect size (<i>f</i> ²)		0.15		0.15		n.s.	

Note. *EE* Emotional Exhaustion, *D* Depersonalization, *PA* Professional Accomplishment; *F* Fantasy, *EC* Empathic Concern, *PT* Perspective Taking, *PD* Personal Distress; **p* < 0.05, ***p* < 0.01, ****p* < 0.001; *n.s.* not significant