HHS Public Access

Author manuscript

Psychooncology. Author manuscript; available in PMC 2017 February 01.

Published in final edited form as:

Psychooncology. 2016 February ; 25(2): 194–202. doi:10.1002/pon.3902.

Burnout among psychosocial oncologists: an application and extension of the effort–reward imbalance model

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Abstract

Objectives—Burnout is a significant problem among healthcare professionals working within the oncology setting. This study aimed to investigate predictors of emotional exhaustion (EE) and depersonalisation (DP) in psychosocial oncologists, through the application of the effort–reward imbalance (ERI) model with an additional focus on the role of meaningful work in the burnout process.

Methods—Psychosocial oncology clinicians (n = 417) in direct patient contact who were proficient in English were recruited from 10 international psychosocial oncology societies. Participants completed an online questionnaire, which included measures of demographic and work characteristics, EE and DP subscales of the Maslach Burnout Inventory-Human Services Survey, the Short Version ERI Questionnaire and the Work and Meaning Inventory.

Results—Higher effort and lower reward were both significantly associated with greater EE, although not DP. The interaction of higher effort and lower reward did not predict greater EE or DP. Overcommitment predicted both EE and DP but did not moderate the impact of effort and reward on burnout. Overall, the ERI model accounted for 33% of the variance in EE. Meaningful work significantly predicted both EE and DP but accounted for only 2% more of the variance in EE above and beyond the ERI model.

Conclusions—The ERI was only partially supported as a useful framework for investigating burnout in psychosocial oncology professionals. Meaningful work may be a viable extension of

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the ERI model. Burnout among health professionals may be reduced by interventions aimed at increasing self-efficacy and changes to the supportive work environment.

Introduction

Psychologists, psychiatrists, social workers and counsellors, collectively known as psychosocial oncologists, are members of multi-disciplinary cancer care teams whose role is to address the psychological and emotional needs of cancer patients and their families [1]. This work can be meaningful and provide a high level of career satisfaction; however, factors such as heavy workload and exposure to suffering may increase risk of burnout [2].

Burnout was originally defined as a psychological syndrome encompassing emotional exhaustion (EE), depersonalisation (DP) and (reduced) personal accomplishment [3]. However, personal accomplishment has been excluded from later definitions as empirical research suggests it overlaps with individual characteristics, such as self-efficacy [4]. While EE refers to the draining of emotional resources, DP is characterised by negative, cynical attitudes towards one's patients or clients [4]. Burnout is associated with severe health risks, such as cardiovascular disease [5], depression [6] and heightened mortality rates [7]. Prolonged burnout can compromise the functionality and efficacy of organisations [8] and have a detrimental impact on patient care and satisfaction [2].

Elevated rates of burnout have been found among oncology healthcare professionals around the world but vary substantially across professional groups [9]. To date, oncology stress and burnout research has focused primarily on doctors, nurses, support group leaders and general medical staff [2]. However, burnout risk may be particularly high for psychosocial oncologists, a group working to improve the emotional impact of cancer.

Only two studies have explored the work experiences of psychosocial oncologists to date, revealing a susceptibility to workplace stress due to perceived inadequacy of resources, large workload and lack of cohesion among the multi-disciplinary cancer care team [10,11]. However, many rewarding aspects of oncology were also described, including positive relationships with co-workers, deriving meaning from one's work and personal growth [10,11]. Neither study reported prevalence rates of burnout nor applied a theoretical framework to this issue. In a companion study to this one [12], we found that approximately 20.2% of our sample of psychosocial oncologists ($n = 361$) reported high EE and 6.6% reported high DP. Contrary to expectations, psychosocial oncologists' ($n = 361$) mean levels of EE and DP were not significantly greater than norms for mental health professionals ($n = 730$), reported in the Maslach Burnout Inventory (MBI) manual [3].

The current study employed the effort–reward imbalance (ERI) model [13] to better understand the underlying mechanism of stress in this population. The ERI explains stress as arising from an individual's interactions with the psychosocial work environment [13]. The model has three core components: efforts, rewards and overcommitment. Efforts represent demands and/or obligations imposed on the employee, such as time pressure to complete tasks. Occupational rewards consist of money, esteem (respect and support provided by one's colleagues and superiors) and job security/career opportunities, distributed by the

employer or derived from work relations [13]. The rewards are therefore ‘extrinsic’, relating to external outcomes of one’s work or workplace interactions [14]. Overcommitment is defined as a personality characteristic comprising ‘a set of attitudes, behaviours and emotions reflecting excessive striving in combination with a strong desire to be approved and esteemed’ ([15], p. 129). Bakker, Killmer, Siegrist and Schaufeli [16] explained that overcommitted individuals, driven by a higher need for control and approval, are likely to expend high efforts, even under low-gain conditions, and thus are more vulnerable to burnout.

The inclusion of intrinsic rewards, such as obtaining meaning from work, may explain additional variance in burnout beyond that explained by the ERI [17,18]. Burnout intervention studies suggest that failure to find meaning and growth in life may underlie the burnout process [19]. Meaningful work is defined as ‘work that is both significant and positive in valence (meaningfulness) and has an eudaimonic (growth- and purpose-orientated) rather than hedonic (pleasure-orientated) focus’ ([20], p. 323). Research suggests that meaningful work may be particularly important for workers’ well-being in an oncology setting [17,18,20]. For example, nurses working in paediatric palliative care have described the importance of making meaning from their empathetic interactions with cancer patients [18]. Furthermore, qualitative research identified intrinsic rewards as being more valued by psychosocial oncologists than extrinsic gains [10,11].

Thus, the present study aimed to explore and extend the ERI model by including meaningful work, and testing its ability to predict burnout in psychosocial oncologists. Specifically, the impact of effort, extrinsic/intrinsic rewards (e.g. pay and meaningful work) and overcommitment on burnout was investigated, controlling for objective work characteristics, such as hours spent in direct patient contact. Based on the ERI model [13], the following hypotheses were made:

1. Higher effort, lower reward and greater overcommitment will each be associated with higher burnout.
2. There will be a significant interaction effect between effort and reward on burnout, with high effort and low reward work situations predicting greater burnout.
3. Overcommitment will moderate the combined effect of effort and reward on burnout, such that individuals with high overcommitment, high effort and low reward will report the greatest levels of burnout.
4. Higher self-reported meaningful work will be associated with lower burnout, with scores on this measure explaining variance in burnout above and beyond the current ERI model.

Method

Design

A cross-sectional survey design was implemented. Participating psychosocial oncology clinicians completed an anonymous web-based questionnaire. Approval for the study was granted by The University of Sydney Human Research Ethics Committee.

Participants

Eligibility criteria included having a psychosocial oncology clinical position as a psychologist, psychiatrist, counsellor or social worker and currently seeing patients in that role. Exclusion criteria included not being proficient in English or not being qualified to practise independently (e.g. students).

Procedure

Participants were recruited from 10 international and national psychosocial oncology societies: the International Psycho-Oncology Society, International Society of Paediatric Oncology, American Psychosocial Oncology Society, Australian Psycho-Oncology Co-operative Research Group, Australian Psychosocial Oncology Society, British Faculty for Oncology and Palliative Care, British Psychosocial Oncology Society, Canadian Association of Psychosocial Oncology, Dutch Society for Psychosocial Oncology and Oncology Social Work Australia.

Participating oncology societies distributed an introductory email to all their members inviting eligible individuals to take part in the study by clicking on an embedded link (distributed June 2013). To maximise the response rate across the three-month data collection period, all members were sent an additional reminder email.

Measures

Personal and work-related characteristics, found to be relevant to burnout in previous studies [2,21–23], were elicited, including the following: age, gender, country of residence, profession (omitted in early questionnaires and, therefore, only answered by half the sample), years of experience, work setting (public or private), work location (urban or regional/rural), patient characteristics variables (e.g. typical age of patients), hours of supervision received per month, perceived satisfaction with supervision, professional isolation (e.g. how many psychosocial oncologists in the multi-disciplinary team), perceptions of psychosocial oncology in current work environment (e.g. how valued the discipline is), hours worked per week and hours per week spent in direct patient contact.

Burnout was assessed using the MBI-Human Services Survey [3]. The MBI-Human Services Survey has sound psychometric properties and is frequently used in human service populations. Higher scores on EE (nine items) and DP (five items) subscales indicate greater burnout. Cut-offs for high EE (21–54) and DP (8–30) among mental health professionals are provided in the MBI manual [3].

Effort, rewards and overcommitment were measured using the Short Version ERI Questionnaire (ERI-S) [24], which assesses effort (three items), rewards (seven items) and overcommitment (six items). The ERI-S has sound psychometric properties and increased relevance to psychosocial professional populations (e.g. items pertaining to physical exertion are omitted in this version) [24].

Meaningful work was assessed by the Work and Meaning Inventory (WAMI) [20], which incorporates three subscales: positive meaning in work (four items), meaning-making through work (three items) and greater good motivation (three items). Higher scores indicate greater meaning. Steger and colleagues [20] reported data supporting the scale's validity and demonstrated a high level of subscale internal consistency in a sample of university employees (n = 370), with α coefficients of 0.89, 0.82 and 0.83 for positive meaning, meaning-making and greater good, respectively.

Analyses

A multiple linear regression analysis was used to assess predictors of EE. However, an observed floor effect of DP (M = 2.43, SD = 3.15) meant that a logistic regression analysis was necessary to predict DP. DP was dichotomised into low DP and average/high DP following the method of Girgis and colleagues [2], employing the clinical cut-offs provided in the MBI manual [3].

Variables associated with burnout in the literature [2,23] and which were correlated with at least one component of burnout in the current data set were included as potential covariates, including age, gender and direct patient contact.

Results

Participating societies emailed 3445 study invitations to members. Many recipients were ineligible (e.g. their work involved an insufficient amount of direct patient contact) and/or were affiliated with multiple societies; therefore, an overall response rate could not be determined. Of the 454 individuals who initially expressed interest, 17 were excluded because of failure to satisfy the occupational status criterion, eight did not provide consent and 12 consented but did not complete the questionnaire, leaving 417 participants. Demographic and work characteristics of the sample are shown in Table 1.

Participants were predominately female (84.2%), and over half of the sample (58%) was aged 40–59 years. Almost half of all participants was residing in Australia and New Zealand (45.9%), with The Netherlands (13.2%), USA (9.6%) and Canada (7.4%) being the next most represented countries. Psychologists were the most represented profession (44.9%), followed by social workers (31.9%), psychiatrists (7.1%), counsellors (3.9%) and other allied health professionals (12.2%). Because of the large number of countries (n = 40) in the sample, the country variable was recoded into regions (Table 1).

Participants predominately practised in a public setting (81.7%) in an urban location (74.2%) and more commonly worked with adult (over 26 years old) patient populations (76.8%). The majority of participants received formal supervision (89.4%), and 53.4% of

participants were satisfied with this resource. Participants typically worked in teams with 3–10 other psychosocial oncologists (62.2%), and 83.5% reported psychosocial oncology as being valued/highly valued within these teams. On average, psychosocial oncologists worked 34.9 hours per week (SD = 12.9), with about half (51.8%) of this weekly workload spent in direct patient contact (M = 18.1, SD = 9.4).

Degree of burnout

Mean levels and prevalence rates for EE and DP from the same sample, as reported in our companion paper [12], are replicated here in Table 2.

Predictors of burnout

Emotional exhaustion: multiple linear regression—The final model for EE accounted for 32.8% of the variance in EE (F(7, 339) = 23.48, $p < 0.001$) (Table 3). Effort and overcommitment were positively related to EE, with those reporting greater effort (β=0.20, $p < 0.001$) and higher overcommitment (β=0.26, $p < 0.001$) also experiencing greater EE. Conversely, greater reward was found to be negatively associated with EE (β= −0.25, $p < 0.001$). The main effect of meaningful work was significant, showing that at higher levels of meaningful work, lower levels of EE were reported (β = −0.15, $p < 0.05$). Older participants were significantly less likely to report higher EE scores β = −0.17, $p < 0.001$). The remaining control variables (gender and hours in direct patient contact) were not significant predictors of EE. The interactions between effort, reward and overcommitment were not significantly related to EE.

Depersonalisation: logistic regression—Logistic regression was performed to assess the predictors of DP (Table 4). The increment test for the final Model 5 was statistically significant, suggesting that meaningful work is a significant predictor of DP (χ^2(1, n = 347) = 6.75, $p < 0.05$). The significant odds ratios will be interpreted as per Model 5.

Effort and reward were not associated with DP. However, for every additional point in meaningful work, the odds of experiencing moderate–high DP slightly decreased by 9% (95% CI = 0.84, 0.98, $p < 0.05$). For every additional point in overcommitment, the odds of experiencing average–high DP increased by 20.4% (95% CI= 1.07, 1.36, $p < 0.05$). Gender was also found to be a significant predictor of DP; the odds of experiencing average–high DP for women were only 36.4% that of men (95% CI =1.27, 5.90, p <0.05). The interactions between effort, reward and overcommitment were not significantly related to DP.[1]

[1]Following the lack of interaction effects, *post hoc* regression analyses were conducted to test the predictive power of the effort–reward ratio for burnout. The ratio term is an alternative measure of the combined influence of effort and reward on health outcomes, believed to provide unique information compared with the interaction term [24]. The effort–reward ratio was calculated in accordance with Siegrist and Montano's [24] recommendations and entered into hierarchical regression analysis for emotional exhaustion and logistic regression for depersonalisation. The ratio was found to be a non-significant predictor of emotional exhaustion (β = 0.04, t (337) = 0.24, p = 0.81) and depersonalisation (OR = 0.36, 95% CI = 0.01, 10.04, p = 0.55). Thus, there appears to be no unique influence of effort and reward together on psychosocial oncologists' burnout for either ratio or interaction term analyses.

Discussion

This is the first study to investigate the antecedents of burnout among psychosocial oncologists using an extension of the ERI model to assess the influence of individual (overcommitment) and work-related (effort, reward and meaningful work) factors on this health outcome. The present study's additional focus on the role of meaningful work in burnout addressed the important gaps in the literature relating to the salience of intrinsic rewards, above material gains, for burnout in psychosocial oncologists.

Demographic predictors of burnout

Consistent with previous research [22], older psychosocial oncologists reported significantly less burnout than their younger counterparts. Older individuals are believed to have better stress management strategies [21] and diminished work–family conflict [25], but it is also possible that by the later career stages, individuals experiencing burnout have already left the profession. The finding that men were significantly more likely to experience DP than women supports earlier studies reporting men's increased risk of DP [26]. Maslach and colleagues [26] suggested that men's susceptibility to experiencing DP might be attributed to gender role stereotypes or is a function of the confounding of sex with occupation type. Overall, gender has yielded mostly inconsistent findings in the burnout literature with some studies reporting no gender differences [21] and others detecting an increased risk of EE for women [22,23]. The amount of direct patient contact participants had was unrelated to either EE or DP, consistent with Girgis and colleagues' [2] findings that objective workload is less relevant for understanding burnout in oncology health professionals than individual's perceptions of being overworked.

Effect of effort and reward on burnout

Partial support was obtained for the predicted effects of effort and reward on burnout; higher effort and lower reward were both found to be significantly associated with greater EE, though not DP. Comparison of these main-effect findings with previous literature is limited, as many researchers have not included effort and reward main-effect variables in analyses. This practice is justified by the ERI model, which posits that the combined effect of effort and reward explains more variation in health than individual effects [13] and a small body of literature, demonstrating more powerful effects of the ERI ratio on health than its individual components [27–29]. However, previous research testing effort and reward main effects has often dichotomised variables [27,29] or created categories, such as tertiles [28]. These methods are associated with a considerable loss of information and power, which may explain the lack of evidence for effort and reward main effects.

Contradicting the ERI model [13], the hypothesis that the interaction of higher effort and lower reward would predict greater burnout was not supported. The combined influence of effort and reward did not contribute to explaining variation in EE above and beyond individual effects, whereas DP was not significantly predicted by the individual or combined effects of effort and reward. Other studies, which also included both effort and reward main-effect variables (not categorised) and combined effects, reported similar results [30–32]. Overall, it appears that the precedence placed on the combined influence of effort and

reward on health outcomes [16,33,34] is derived from research with flawed methodologies that have limited the power of analyses by categorising the main-effect variables [35]. This is a crucial limitation of ERI research that has largely not been acknowledged in the literature. Further research is needed to assess the entire ERI model, including main effects. Notably, reward ($\beta = -0.25$) was a stronger predictor of burnout than effort ($\beta = 0.20$), suggesting that positive aspects of the workplace may be particularly critical to address in interventions.

Overcommitment

The hypothesis that overcommitment would have a significant effect on burnout was supported; higher scores on overcommitment were associated with greater EE and DP. However, support was not obtained for the moderating effect of overcommitment on the influence of effort and reward on burnout. Existing literature reveals inconsistent three-way interaction results, and many studies have similar methodological issues to those described earlier, in that they did not include main effects in analyses [36,37].

The present findings may instead be attributed to a response bias, pertaining to the lack of highly overcommitted individuals represented in the sample. The association between increased overcommitment and susceptibility to workplace stress is supported in the mental health professional literature [21,25]. In the present study, participants' average level of overcommitment was moderate ($M = 13.08$, $SD = 2.82$); while there are no prescribed overcommitment thresholds, the majority (70.3%) of scores were at or below the median. Highly overcommitted individuals experiencing a stressful imbalance are found to have the greatest burnout levels [35] and may have removed themselves from their work role or were unwillingly to participate in the study. Therefore, there may have been a reduced opportunity to assess the influence of a high effort–reward imbalance on this subgroup of psychosocial professionals.

The effect of meaningful work on burnout

Full support was obtained for the hypothesis that meaningful work would be negatively related to burnout (both EE and DP), accounting for a significant proportion of the variance above and beyond the ERI model (albeit only 2% more for EE). Existing research has increasingly identified work-related meaning as being important to oncology health professionals [10,11,17,18], supporting its inclusion in the ERI model.

The limited power of meaningful work to predict burnout in this study may have been due to limitations of the WAMI measure, a novel measure assessing meaning derived from work that impacts either the self (e.g. 'My work helps me better understand myself') or the world (e.g. I know my work makes a positive difference in the world') [20]. The absence of a clear interpersonal aspect of this measure may have limited its appropriateness for this group, who have described the impact of their work as resonating in the lives of patients [10,11]. Further research is needed to determine the appropriateness of the WAMI for use in psychosocial oncologist populations and elucidate the important mechanisms through which this group experiences meaningful work.

The temporal relationships between burnout constructs and meaningful work may further explain the present findings. Leiter and Harvie [38] theorised that excessive demands (e.g. workload) and a lack of support from management place strain on employees, which manifests as EE. Exhausted individuals are unable to maintain a standard of work that previously provided meaning in their work; this experience is associated with a diminished sense of self-efficacy. For fatigued individuals, work that was once pleasurable and fulfilling may become a source of frustration and disappointment. Thus, EE is conceptualised as the antecedent to a loss of meaningfulness in one's work. Causal inferences cannot be drawn from this cross-sectional study; further longitudinal research is needed to clearly elucidate the causal relationships between meaningful work and burnout constructs.

Methodological limitations and recommendations for future research

Although this study aimed to contribute to cross-cultural burnout research, such comparisons were not possible as recruitment yielded a sample dominated by Australian/New Zealanders (45.8%). Further research is needed to determine the impact of cross-cultural factors; in particular, differences in undeveloped/developing countries should be explored to provide valuable insight into the impact of disparate healthcare systems and work-related resources (e.g. supervision) on burnout.

The representativeness of the entire sample in terms of professional status is unknown because of the omission of this question for early responders; thus, this variable was not included in analyses. Almost 50% of respondents, who were asked their profession, were psychologists whose unique work environments may pose a reduced risk of burnout. Specifically, this group may be less affected by the needs and stressors commonly reported by oncology professionals, such as desire for better communication skills training and a sense of failure to fulfil treatment objectives following patient death [39]. Furthermore, working with patients experiencing both negative and positive trauma effects and helping them to navigate major life changes are likely unique and meaningful experiences, which may heighten job rewards, leading to reduced levels of burnout. Future research is needed to explore the impact of profession on burnout.

Furthermore, it was not possible to determine the response rate or to collect data from eligible individuals who chose not to participate; therefore, generalisability of findings is unknown.

Lastly, as specific measures for psycho-oncology are not currently available the measures used were, by necessity, generic. Development of more specific measures may yield greater sensitivity and specificity.

Conclusion

This study was the first to employ the ERI to predict burnout among psychosocial oncology professionals, revealing the importance of the interplay of individual and work-related factors. Partial support was obtained for the ERI model, but the expected association between low reward and high effort was not found, raising questions about the utility of the ERI model for oncology professionals. While meaningful work was found to contribute to

explanations of burnout above and beyond the ERI, this contribution was surprisingly modest, given the precedence that psychosocial oncologists placed on intrinsic rewards in qualitative research [10,11]. Further longitudinal research is needed to determine the antecedents of burnout and provide a temporal account of their relationship with burnout.

Future burnout research may be aided by the development and validation of profession-specific measures of effort, reward and meaningful work. The present study supports the inclusion of both extrinsic and intrinsic rewards in such scales designed for psychosocial oncologist populations.

The present findings suggest that burnout interventions aimed at increasing professionals' sense of self-efficacy may be most effective when implemented in conjunction with organisational reforms targeting workplace stressors and increasing rewarding opportunities. Participants' perceptions of efforts expended at work were found to be stronger predictors of work than estimates of hours spent in direct patient contact. Additionally, consistent with conservation of resources theory [40], reward was found to be a stronger predictor of EE than effort, suggesting that individuals' appraisal of their work situation and its rewarding and meaningful opportunities were most significant for reducing burnout. Opportunities to derive meaning from one's work and experience it to be rewarding are likely to be increased by reducing workplace stressors (e.g. perceptions of being overworked).

Furthermore, the present findings suggest that increasing the amount of positive feedback that professionals receive may be a viable approach to reducing burnout, which is more immediate and less costly than other organisational changes (e.g. creating opportunities for job advancement). Future ERI research is needed to explore the unique effects of specific rewards (i.e. money, praise and career opportunities) among psychosocial oncologists, including factors influencing the effectiveness of rewards (e.g. predictability).

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Table 1

Demographic and work characteristics of psychosocial oncology professionals ($n = 417$)

Variable	*n**	%
Age (years)		
20–29	30	7.19
30–39	93	22.30
40–49	110	26.38
50–59	132	31.65
60–69	52	12.47
Gender		
Female	351	84.2
Male	66	15.8
Country Regions		
Africa	5	1.20
Americas	76	18.27
Asia	35	8.41
Australia	191	45.91
Europe	109	26.20
Profession **		
Psychologist	114	44.88
Psychiatrist	18	7.09
Social Worker	81	31.89
Counsellor	10	3.94
Other	31	12.20
Variable	*n*	%
Years of experience		
1–5	138	33.66
6–10	94	22.93
11–15	72	17.56
16–20	44	10.73
21+	62	15.12

Variable	n^*	%
Type of practice		
Public	334	81.66
Private	75	18.34
Workplace setting		
Urban	304	74.15
Regional/rural	106	25.85
Patient characteristics:		
Age (years)		
0–15	68	17.17
16–25	24	6.06
26+	304	76.77
Number of meetings with supervisor per month		
0	158	42.82
1	137	37.12
2	37	10.03
3	14	3.79
4	23	6.23
Perceived satisfaction with supervision		
Very dissatisfied	16	5.18
Dissatisfied	36	11.65
Neutral	92	29.77
Satisfied	109	35.28
Very satisfied	56	18.12
Perceived value of psychosocial oncology		
Highly undervalued	0	0
Undervalued	36	10.23
Neutral	22	6.25
Valued	184	52.27
Highly valued	110	31.25

Variable	*M*	*SD*	Range	*n*
Hours worked per week	34.9	12.9	0–120	396

Variable		n^*		%
Hours per week spent in direct patient contact	18.1	9.4	0–60	375

* *n*'s vary because of some missing data.

** The first half of the sample did not report occupation because of an omission in the questionnaire; thus, numbers are low for this variable.

Table 2

Prevalence rates for emotional exhaustion and depersonalisation, grouped according to clinical cut-offs reported in the Maslach Burnout Inventory manual

Variable		Range group	
EE (range = 0–54)	Low ≤13	Average 14–20	High ≥21
n (%)	196 (54.3)	92 (25.5)	73 (20.2)
DP (range = 0–30)	Low ≤4	Average 5–7	High ≥8
n (%)	303 (83.9)	34 (9.5)	24 (6.6)

EE, emotional exhaustion. DP, depersonalisation.

Table 3

Multiple linear regression analysis predicting emotional exhaustion

Dependent variable: EE	**Model 1** (R^2 = 0.06, ΔR^2 = 0.06)**		**Model 2** (R^2 = 0.31, ΔR^2 = 0.25)**		**Model 3** (R^2 = 0.31, ΔR^2 = 0.00)		**Model 4** (R^2 = 0.31, ΔR^2 = 0.00)		**Model 5** (R^2 = 0.33, ΔR^2 = 0.02)*	
Independent variables	**B(β)**	**t(*SE*)**	**B(β)**	**t(*SE*)**	**B(β)**	**t(*SE*)**	**B(β)**	**t(*SE*)**	**B(β)**	**t(*SE*)**
Age	−1.74(−0.22)**	−4.26(0.41)	−1.32(−0.17)**	−3.72(0.36)	−1.33(−0.17)**	−3.72(0.36)	−1.34(−0.17)**	−3.72(0.36)	−1.28(−0.17)**	−3.63(0.35)
Gender	1.19(0.05)	0.94(126)	2.03(0.08)	1.84(1.10)	2.01(0.08)	1.82(1.10)	2.01 (0.08)	1.82(1.1 1)	1.81 (0.08)	1.66(1.09)
DPC	0.08(0.08)	1.60(0.05)	0.06(0.06)	1.33(0.04)	0.06(0.06)	1.28(0.04)	0.06(0.06)	1.27(0.04)	0.05(0.06)	1.20(0.04)
Effort			0.82(0.18)**	3.60(0.23)	0.83(0.18)**	3.62(0.23)	0.82(0.18)**	3.59(0.23)	0.95(0.20)**	4.13(0.23)
Reward			−0.74(−0.30)**	−6.27(0.12)	−0.73 (−0.29)**	−6.04(0.12)	−0.71 (−0.29)**	−5.59(0.13)	−0.64(−0.25)**	−4.97(0.13)
OC			0.87(0.28)**	5.73(0.15)	0.87(0.28)**	5.75(0.15)	0.87(0.28)**	5.71(0.15)	0.80(0.26)**	5.25(0.15)
ERJ					−0.04(0.03)	0.60(0.06)	−0.03(−0.03)	−0.60(0.06)	−0.04(−0.03)	−0.70(0.06)
ERJ x OC							−0.01 (−0.02)	−0.31 (0.02)	−0.002(−0.00)	−0.10(0.02)
Meaningful work									−0.30(−0.15)*	−3.16(0.09)

Regression coefficients B, betas, *t*-test statistics and standard error are shown.

EE, emotional exhaustion; DPC, direct patient contact; OC, overcommitment; ERJ, effort X reward.

*Significant at the 0.05 level.

**Significant at the 0.001 level.

Table 4

Logistic regression analysis predicting depersonalization

Dependent variable: DP	**Model 1** ($\chi^2 = 12.13$)*		**Model 2** ($\Delta\chi^2 = 30.96$)**		**Model 3** ($\Delta\chi^2 = 32.19$)**		**Model 4** ($\Delta\chi^2 = 32.19$)**		**Model 5** ($\Delta\chi^2 = 38.94$)**	
Increment test			($\chi^2 = 18.82$)**		($\chi^2 = 1.23$)		($\chi^2 = 0.00$)		($\chi^2 = 6.75$)*	
Independent variables	**OR (95% CI)**	**p**	**OR (95% CI)**	**p**	**OR (95% CI)**	**p**	**OR (95% CI)**	**p**	**OR (95% CI)**	**p**
Age	0.78 (0.60, 1.01)	0.06	0.80 (0.61, 1.04)	0.10	0.79 (0.60, 1.05)	0.10	0.79 (0.59, 1.04)	0.10	0.78 (0.60, 1.06)	0.12
Gender	2.67 (1.33, 5.36)	0.01	3.16 (1.54, 6.49)	0.002	2.92 (1.38, 6.17)	0.01	2.92 (1.38, 6.17)	0.01	2.74 (1.27, 5.90)	0.01
DPC	1.02 (0.99, 1.05)	0.20	1.02 (0.98, 1.05)	0.31	1.02 (0.99, 1.06)	0.17	1.02 (0.99. 1.06)	0.17	1.02 (0.99, 1.06)	0.18
Effort			1.15 (0.97, 1.36)	0.10	1.06 (0.88, 1.28)	0.54	1.06 (0.88, 1.28)	0.54	1.11 (0.91, 1.34)	0.30
Reward			0.92 (0.84, 1.01)	0.07	0.92 (0.83, 1.01)	0.08	0.92 (0.83, 1.01)	0.09	0.93 (0.84, 1.04)	0.19
OC			1.23 (1.09, 1.39)	0.001	1.22 (1.8, 1.38)	0.001	1.22 (1.08, 1.38)	0.001	1.20 (1.07, 1.36)	0.003
ERI					1.03 (0.98, 1.08)	0.26	1.03 (0.98, 1.08)	0.33	1.03 (0.97, 1.08)	0.33
ERI x OC							1.00 (0.98, 1.02)	0.95	1.00 (0.99, 1.02)	0.81
Meaningful work									0.91 (0.84, 0.98)	0.01

Chi-square test statistics, odds ratios and 95% confidence intervals are shown.

DP, depersonalisation; OR, odds ratio; 95% CI, confidence interval at 95%; DPC, direct patient contact; ERI, effort x reward; OC, overcommitment.

*Significant at the 0.05 level.

**Significant at the 0.001 level.