RESEARCH ARTICLE

Antecedents to Burnout among Hospital Doctors: Can they cope?

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Abstract

Increasing stress and burnout appear to contribute highly towards the depreciation of the physical and mental health of medical practitioners in hospital settings which, in turn, trigger a concomitant reduction in the level of their job performance. Within that context, this paper reports on an attempt to tease out possible antecedents that give rise to burnout among 185 doctors practicing in a major hospital in the center of Israel. Based on the literature related to job performance and Hobfoll's (2001) model of stress management – indicating that individuals cope with stress by replenishing both personal and work-related resources – we investigated the relationship between six possible input variables and burnout. The results indicated that all six antecedents associated with at least one of the three facets of burnout described by Maslach and Leiter (1997), namely, emotional exhaustion, depersonalization and reduced personal efficacy, with workload notably associating with all three criteria. The results are discussed with particular attention to their practical application in hospitals, specifically with respect to the easing of the burden on medical staff.

Antecedents to Burnout among Hospital Doctors: Can they cope?

It is probably axiomatic to observe that we live in a world of stress and that in the increasingly competitive marketplace a person's job is probably one of the greatest sources of pressure. In this respect, it is useful to consider the Conservation of Resources Theory (COR), a general stress theory based on the premise that individuals seek to preserve, renew, and enhance their resources – and that when they cannot do so, they experience stress. In other words, stress occurs when resources are perceived as unstable, threatened, or lost or when individuals are unable to attain or

preserve resources with available means (Hobfoll, 2001). Resources are defined as objective personal characteristics, conditions, or energies that are valued in themselves or that specifically contribute to the achievement or the preservation of valued resources. COR Theory can be regarded as an integrative stress theory that incorporates (a) workers' *subjective* processes, such as locus of control and flexibility that possibly influence the perception of stress at work and (b) *objective or external* sources of stress, such as productivity deadlines or inherent noxious stimuli. Based on this theory, it may be claimed that as work demands exceed the bounds of the official job, they rob the worker of the many resources required to fulfill the formal requirements, thus leaving the worker with less resources to devote to regular tasks. This depletion of resources, in turn, enhances the sense of stress and leads, over time, to burnout (Crawford, LePine & Rich, 2010).

The Outcome – Burnout

Employee burnout is a common psychological syndrome or response to chronic work stress. From the subjective stance of the worker, burnout is characterized by (i) emotional exhaustion, (ii) experienced distance from others (depersonalization), and (iii) feelings of reduced personal accomplishment/efficacy (Maslach & Leiter, 1997). Generally speaking, burnout has been demonstrated to develop over time (see: Hobfoll, 1989; Maslach, 2003). With respect to adverse outcomes that have been associated with burnout, we may indicate overall inferior job performance (Maslach, 2011; Taris, 2006) absenteeism (Ahola, Kivimäki, Honkonen, Virtanen, Koskinen, Vahtera, & Lönnqvist, 2008), turnover (Shimizu, Feng, & Nagata, 2005), carelessness over matters of safety (Nahrgang, Morgeson, & Hofmann, 2011), reduced work engagement (Anthony-McMann, Ellinger, Astakhova, & Halbesleben, 2017), and symptoms of depression and increased life dissatisfaction (Hakanen & Schaufeli, 2012). Notably, both propensity to burnout and the nature of the responses to the malady have been associated with individual differences (e.g., Chernyak-Hai & Tziner, 2016; Nahrgang et al., 2011; Sharoni, Shkoler, & Tziner, 2015). Finally, Nahrgang et al. (2011) and Shkoler and Tziner (2017) further proposed that, *inter alia*, the individual responses to burnout could be associated with the nature of particular job experiences and/or specific work stressors. For further reading see Marek, Maslach, and Schaufeli's (2017) extensive work.

With particular attention to medical practitioners in hospital settings – the subject of the current investigation – recent studies have revealed that burnout is a particularly frequent reaction to work stress among physicians (Amanullah, McNally, Zelin, Cole, & Cernovsky, 2017; Imo, 2017). Indeed, burnout is considered by the medical profession to be an occupational hazard (or ailment) that impairs both physicians' health and the quality of healthcare. Notably, within the profession, burnout has been associated with emotional distress, absenteeism, reduced personal effectiveness, increased risk of illness (Kushnir & Cohen, 2006), medical errors (Williams, Manwell, Konrad, & Linzer, 2007) and medical malpractice (Chen et al, 2013). Relatedly, these negative outcomes also impinge on the clients served by the medical practitioners with respect to patient satisfaction, compliance, and recovery time (Halbesleben & Rathert, 2008; Williams, Savage, & Linzer, 2006).

Of particular interest is the cumulative nature of the emerging feelings of burnout. By way of illustration, in a comprehensive, long-term and continuing study of burnout among physicians in Israel (from 1994-2001), Kushnir, Levhar, and Cohen (2004) revealed that many of the doctors suffered high levels of burnout and that their burnout levels rose significantly throughout the

years of the study. This latter finding was corroborated in a consequent study of burnout among American doctors who specialized in various medical fields (Shanafelt et al., 2012). Of particular interest was the conclusion that in the United States burnout is more common among physicians than among other U.S. workers. This was indicated, for instance, by the fact that 45.8% of the physicians studied reported at least one symptom of burnout compared to 23% of the general population who so reported. Furthermore, physicians in specialties at the front line of care access (e.g., family medicine, general internal medicine, and emergency medicine) seem to be at greatest risk.   By way of comparison, lower levels of burnout were found among dermatologists, pediatricians, and pathologists.

Notwithstanding the data extracted from these investigations, it appears, nevertheless, that there are insufficient findings of a conclusive nature regarding which *specific* antecedents of burnout differentially account for, and thus generate, burnout among medical physicians. Consequently, in an attempt to bridge over this lacuna, we set as a major objective of the current study to investigate whether and how some of these antecedent factors correlate with burnout.

To that end, and with regard to our discussion on COR theory, we selected several individual attributes indicated as input factors mitigating burnout at the job through the replenishment of resources. These were three possible antecedents (a) at the level of *personal investment in the job*, namely, excessive working, compulsive working, and workload and (b) three input factors at the *subjective level* – whereby one could be said to be assessing to what extent the employees were working in their comfort-zone, namely, P-O fit, recognition, and subjective well-being (see below). In all, these six input measures were examined in order to assess their respective associations with the three principal measures of burnout (the output variable) described by Maslach and Leiter (1997), namely, emotional exhaustion, depersonalization and reduced personal efficacy.

The Input Variables

Heavy-Work Investment (HWI)

The three selected factors or input variables relating to the level of personal investment – excessive working, compulsive working, and workload – can possibly be circumscribed collectively under the heading of Heavy-work Investment, HWI (after Snir & Harpaz, 2012). As a group of factors, they are included among the various individual and organizational elements that influence the degree of satisfaction and productivity of employees in the workplace setting. In essence, HWI revolves around two core dimensions, namely, (i) Time Commitment (HWI-TC) that reflects the investment of the worker's *time* at work and (ii) Work Intensity (HWI-WI) that reflects the employee's *investment of effort* in the job or "the intensity of mental and/or physical exertion during working time" (after Green, 2008, p. 116).

While there are many studies dealing with the implications of working overtime (e.g., Caruso 2014; Stimpfel, Sloane, & Aiken, 2012), to the best of our knowledge, there have been relatively few empirical studies treating the investment of *effort* in work (e.g., Tziner et al., under review). Accordingly, in the present research paradigm we chose to incorporate both 'time' and 'effort' among the input variables studied in the current investigation. Sharpening up the definition of these constructs, Shkoler, Rabenu and Tziner (2017) proposed that Time Commitment (HWI-TC) can be identified and assessed in terms of individuals working *excessively,* while Work Intensity (HWI-WI) can be described in terms individuals working *compulsively.* So, following Snir and

Harpaz's (2015) proposition that HWI predicts various work outcomes, in the current study we chose to investigate (among the various other input variables), the association between these two dimensions of HWI and burnout, employing the revised constructs '*working excessively*' and '*working compulsively*' as expressions (or measures) of these two dimensions of HWI.

(1) HWI-TC (or HWI-working excessively) and burnout

Long working hours – or working excessively – may account for a plethora of negative consequences such as health issues and injuries in work, reduced productivity and work burnout (see: Caruso, 2006, 2014; Snir & Harpaz, 2013; Tziner et al., under review). As indicated, the literature indicates that this is due to the exhaustion of employees' resources (see: Hobfoll, 1989, 2001), which is commonly coincident with shortened time for recovery from work stress (Van Der Hulst & Geurts, 2001). These findings, however, are not necessarily conclusive. Notably, there are also indications that employees who work exceedingly long hours (i.e., more than 50 hours per week) may even experience higher life satisfaction (Shamai, Harpaz & Snir, 2012) and may report higher positive affect than those who worked 36-50 hours (Shamai, 2015). Moreover, the literature has displayed consistent discrepancies in the associations between overtime and burnout, including non-significant relationships between them (e.g., Richter, Kostova, Baur, & Wegner, 2014; Schaufeli, Taris, & van Rhenen, 2008; Shirom, Nirel, & Vinokur, 2010). In the face of this inconclusiveness, we assumed that there exists a correlation between HWI-working excessively and burnout, albeit that we could not commit to the direction of that association. Consequently, we were left with the hypothesis -

H1: HWI-TC (Working excessively) is correlated with burnout.

(2) HWI-WI (or HWI-working compulsively) and burnout

As recorded above, working compulsively refers to "the intensity of mental and/or physical exertion during working time, thus distinguishing the concept from working time itself" (Green, 2008, p. 116). Significantly, however, due to the dearth of empirical studies regarding the investment of efforts (i.e., working compulsively) in work (e.g.: Tziner et al., under review), the present research left us with yet another generalized hypothesis, namely -

H2: HWI-WI (Working compulsively) is correlated with burnout.

(3) Person-organization fit and burnout

In addition to the two aspects of HWI described above, the next additional input variable tested in the current investigation was P-O Fit, a construct that indicates that a person and an organization are compatible (see: Oh, Guay, Kim, Harold, Lee, Heo, & Shin, 2014; Tziner & Meir, 2002). This paradigm indicates that the individual employee is characterized by facets such as personality, values, and interests, while the organization is rendered in terms such as challenge, autonomy and leadership, values and pay structure. More specifically, PO-Fit may be defined as the "compatibility between people and organizations that occurs when (a) at least one entity provides what the other needs or (b) the entities share similar fundamental characteristics or (c) both conditions are prevalent" (after Kristof, 1996, pp. 4-5). Perhaps a more widely accepted defining operationalization for P-O Fit is the actual P-O congruence in values between the two independent parties – the person and the organization (Kristof-Brown, Zimmerman, & Johnson, 2005). The fit, in this case, may be seen as a singular phenomenon that stems from the [quality of

the] relationship between the person and the organization, rather than being viewed as a phenomenon accruing from two independent entities (after Westerman & Vanka, 2005).

In the literature, fit is related to many positive indicators, one of which is reduction in level of burnout (Maslach, 2003). A clear mismatch between employees and their workplace, however, can definitely lead to burnout (Leiter & Maslach, 2003). Thus, when individuals find themselves incompatible with their workplace (i.e., with respect to these workers there is extant a low P-O fit), it is reasonable to propose that the ensuing result might be enhanced burnout. Thus, we hypothesized that -

H3: *P-O fit is related to burnout.*

(4) *Work recognition and burnout*

An additional input expected to impinge on burnout is what has been labeled work recognition (Ventrice, 2003). By way of illustration, there is an indication that rewarding nurses for excellent performance with bonuses and promotions might effectively reduce exhaustion, one of the three dimensions of burnout described above (Nguyen, Kazuyo, Masure &Thai, 2018). In a study with 410 nurses in ten hospitals, Kelly and Lefton (2018) affirmed that meaningful recognition of the sacrifices that nurses (and other healthcare workers) make can boost resilience and mitigate burnout. Notably, recognition of excellent performance reportedly also reduces burnout among athletes (Goodman, Mazerolle, & Eason, 2017). Conversely, insufficient recognition of work tends to increase burnout in the workplace (Schilling, Randolph, & Boan-Lenzo, 2017). Additionally, work recognition has been found to be a potent predictor of mental health that, in turn, correlates negatively with burnout (Marchand, Durand, Haines & Harvey, 2015). A tentative explanation for these finding might be that work recognition replenishes the employee's psychological resources with energy and vitality, positive attributes that counteract burnout. We thus hypothesized that -

H4: Work recognition links negatively to burnout.

(5) *Workload and burnout*

Workload was the next input variable studied in this investigation. Clearly, high work demands are taxing and deplete personal resources. Recent research findings have revealed the clear connections between high workload and the above mentioned three dimensions of burnout (e.g., Aronson et al., 2017; Trepanier, Fernet, Austin, Forest & Valland, 2014), upholding the contention that high job demands/increased workload is likely to relate to increased burnout. Thus, we hypothesized that -

H5: Workload correlates positively with burnout

(6) *Subjective well-being and burnout*

Finally, we included subjective well-being in the list of investigated input variables, based on the findings of Olafsen (2017) who demonstrated that subjective well-being links negatively to work burnout. Olafsen asserts that work that satisfies employees' needs leads them to a state of mindfulness which, in the long run, impinges on work outcomes positively. One of these outcomes could be a reduction in the incidence of burnout, a finding borne out by a study conducted by Singh, Suar and Leiter (2012). Likewise, Hansen, Buitendach, and Kanengoni

(2015) found that subjective well-being was a statistically significant predictor of burnout (accounting for 13.7% of burnout explained variance). In tandem with the reasoning behind the positive effects of work recognition, Hansen et al, explained the positive outcome of subjective well-being as a somewhat replenishment of psychological capital that lowers the chances of burnout. Indeed, it might be possible to suggest that work recognition acts as a moderator between subjective well-being and burnout. In any event, we were left with the following hypothesis:

H6: Subjective well-being links negatively with burnout

Method

Participants

The sample consisted of 185 Israeli doctors (M.D.) from a large hospital in the center of the country, of which 60% were men and 40% women, between the ages of 24-74 (M = 41.68, SD = 11.25), with education ranging from 1-29 years (M = 19.01, SD = 3.06). 66% were married with range 1-47 years (M = 15.44, SD = 12.02) and number of children ranging between 0-4 (M = 2.06, SD = 1.00). 29% were single and 4.9% divorced. Tenure in years ranged between 1-40 years (M = 10.87, SD = 10.81). 11.5% were interns; 32.4% residents; 8.8% junior doctors; 36.8% senior doctors; 3.3% vice department managers; and 7.1% department managers.

Measures

Burnout was gauged by the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981) consisting of 22 Likert-type items ranging between 1 ("a few times a year") and 7 ("every day"), distributed along 3 subscales: (i) Emotional Exhaustion (alpha = .89, M = 3.16, SD = 1.35), (ii) De-Personalization (alpha = .74, M = 2.35, SD = 0.97), and (iii) Reduced Personal Achievement (alpha = .67, M = 2.86, SD = 0.82).

Subjective Well-Being was computed by averaging the z-scores of several single-purpose items in the demographics part of the survey, such as health condition, satisfaction from work, perceived meaning in work, subjective economic status, and a few stressful events such as death, divorce, disease, and money issues. Higher scores on the scale indicated higher Subjective Well-Being. The scale had a reliability of alpha = .65 (M = -0.01, SD = 0.38).

Working Excessively and Working Compulsively were gauged by the Dutch Work Addiction Scale (DUWAS; Schaufeli, Shimazu, & Taris, 2009) consisting of 10 Likert-type items ranging between 1 ("strongly disagree") and 4 ("strongly agree"). The measure is divided into two subscales of five items each, namely, Working Excessively (alpha = .69, M = 2.94, SD = 0.57) and Working Compulsively (alpha = .68, M = 2.53, SD = 0.61).

Person-Organization Fit, Workload and Work Recognition were gauged by the Areas of Worklife Survey (AWS; Leiter & Maslach, 2002) consisting of 38 Likert-type items ranging between 1 ("strongly disagree") and 6 ("strongly agree"). Person-Organization Fit had a reliability of alpha = .72 (M = 4.36, SD = 0.74). Workload had a reliability of alpha = .71 (M = 4.05, SD = 0.85). Work Recognition had a reliability of alpha = .82 (M = 4.33, SD = 1.03).

Procedure

Common-method bias (CMB). Harman's single-factor test (Podsakoff, MacKenzie, Lee & Podsakoff, 2003) was used to assess the extent to which inter-correlations among the variables might be an artifact of common method variance (CMV). The first general factor that emerged from the analysis accounted for only 21.33% of the explained variance. While this result does not rule out completely the possibility of same-source bias (i.e., CMV), according to Podsakoff et al. (2003) less than 50% ($R^2 < .50$) of the explained variance accounted for by the first emerging factor indicates that CMB is an unlikely explanation of our investigation's findings.

Results

In order to test the hypotheses presented above, we first displayed the correlations among the different variables in a matrix, as presented in Table 1.

Table 1: Pearson correlation matrix ($n = 185$)

	1	2	3	4	5	6	7	8
1. WE								
2. WC	.56***							
3. SWB	.18**	.03						
4. Fit	.08	.01	.32***					
5. W. Load	.51***	.38***	-.01	-.23***				
6. W. Rec	-.04	-.11	.37***	.47***	-.34***			
7. B_EE	.26***	.21***	-.26***	-.37***	.53***	-.42***		
8. B_DP	.01	.19**	-.15*	-.34***	.26***	-.25****	.48***	
9. B_PA	.10	.16*	.22***	.38***	-.26***	.33***	-.36***	-.35**

Notes: $^*p < .05$, $^{**}p < .01$, $^{***}p < .001$. WE = Working Excessively. WC = Working Compulsively. SWB = Subjective Well-Being. Fit = Person-Organization Fit. W. Load = Workload. W. Rec = Work Recognition. B_EE = Emotional Exhaustion (Burnout dimension). B_DP = De-Personalization (Burnout dimension). B_PA = Reduced Personal Achievement (Burnout dimension).

However, in order to analyze the hypotheses in a multivariate fashion (considering that we had in hand six predictors and three outcome variables), we employed SEM analysis using AMOS software (v. 23). First, the fit of the model was assessed in order to test its validity and viability. The fit of the model, based on the SEM analysis, is in the *absolute* sense (see: Byrne, 2010):

χ^2(df) = 5.48 (6), p = .484, χ^2/df = 0.91, SRMR = .02, CFI = 1.00, GFI = .98, NFI = .97, RMSEA (90% CI) = .01 (.00-.09), p-close = .726. The model of the analysis is depicted in Figure 1, with paths' standardized coefficients.

Figure 1: Path diagram for the research model with standardized coefficients
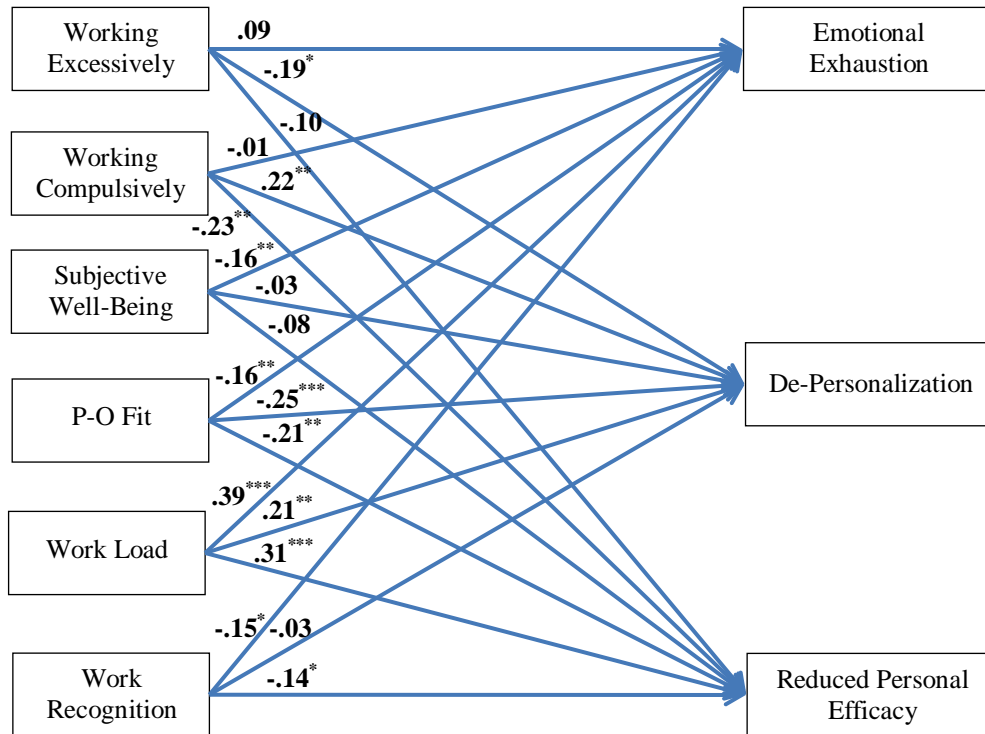
Notes: $^*p$ < .05, $^{**}p$ < .01, $^{***}p$ < .001. Coefficients are depicted *above* the regression arrows. P-O Fit = Person-Organization Fit.

From Figure 1 we can deduce that:

1) *Working Excessively* is neither associated with Emotional Exhaustion (β = .09, n.s.) nor with Reduced Personal Efficacy/Achievement (β = -.10, n.s.). However, it is *negatively* associated with De-Personalization (β = -.19*), indicating that greater excessive working correlates with reduced De-Personalization.

2) *Working Compulsively* is not associated with Emotional Exhaustion (β = -.01, n.s.). However, it is *negatively* associated with Reduced Personal Efficacy/Achievement (β = -.23**), indicating that more abundant compulsive working correlates with an increased sense of Personal Efficacy. In addition, Working Compulsively is *positively* associated with De-Personalization (β = .22**), indicating that greater compulsive working correlates with increased De-Personalization.

3) *Subjective Well-Being* is neither associated with De-Personalization (β = -.03, n.s.), nor with Reduced Personal Efficacy (β = -.08, n.s.). However, Subjective Well-Being is *negatively* associated with Emotional Exhaustion (β = -.16**), indicating that higher Subjective Well-Being correlates with reduced Emotional Exhaustion.

4) *P-O Fit* is *negatively* associated with Emotional Exhaustion ($\beta = -.16^{**}$), indicating that the higher the P-O Fit, the better it correlates with reduced Emotional Exhaustion. Also, P-O Fit is *negatively* associated with Reduced Personal Efficacy/Achievement ($\beta = -.21^{**}$), indicating that a more substantive P-O Fit correlates with increased felt Personal Efficacy. In addition, P-O Fit is *negatively* associated with De-Personalization ($\beta = -.25^{***}$), indicating that a stronger P-O Fit correlates with reduced De-Personalization.

5) *Work Load* is *positively* associated with Emotional Exhaustion ($\beta = .39^{***}$), that is to say that the higher the work load the greater the level of emotional exhaustion. Also, Work Load is *positively* associated with Reduced Personal Efficacy/Achievement ($\beta = .31^{***}$), indicating that higher Work Load correlates with reduced felt Personal Efficacy. In addition, Work Load is *positively* associated with De-Personalization ($\beta = .21^{**}$), indicating that higher Work Load correlates with increased De-Personalization.

6) *Work Recognition* is not associated with De-Personalization ($\beta = -.03$, n.s.); however, it is *negatively* associated with Reduced Personal Efficacy ($\beta = -.14^{*}$), indicating that greater Work Recognition correlates with increased felt Personal Efficacy. In addition, Work Recognition is *negatively* associated with Emotional Exhaustion ($\beta = -.15^{*}$), indicating that greater Work Recognition correlates with reduced Emotional Exhaustion.

Discussion

In the current study we sought to explore the relationships between (a) three factors – P-O fit, recognition, and subjective well-being – likely to *mitigate* burnout on the job by replenishing personal resources in the workplace and (b) three factors – excessive working, compulsive working, and workload – likely to *contribute* to burnout by depleting resources on the job. Our findings indicate that *excessive* working (*HWI-TC)* relates negatively to depersonalization (but does not relate to emotional exhaustion or personal efficacy). Even though, at first glance, this finding is counterintuitive, this outcome still receives support in the literature. Shamai (2015), for example, found that heavy work investors report higher levels of affective happiness than common workers. Furthermore, our investigation demonstrates that working compulsively (HWI-WI) positively relates to de-personalization, but at the same time also leads to increased feelings of personal achievement. It appears, then, that when individuals devote themselves to "doing" (see Shkoler, Rabenu, Vasiliu, Sharoni, & Tziner, 2017), then everything "done" may increase perceived efficacy and competence.

Another interesting result emanating from this study was that subjective well-being relates negatively to emotional exhaustion (but does not relate to de-personalization or personal achievement). Presumably, based on the Flow and Activity theories (e.g. Csikszentmihalyi, & LeFevre, 1989; Diener, Suh, & Oishi, 1997), heavy work investors who spend long hours at work experience more flow and consequently attain high subjective well-being, constituting the opposite of emotional exhaustion.

We also notice, in tandem with the recent research findings cited (Aronson et al., 2017; Trepanier, Fernet, Austin, Forest & Valland, 2014), that heavier workload positively relates to emotional exhaustion, de-personalization, and reduced personal achievement. We could posit that a heavy workload in the medical setting might lead to the generation of negative feelings such as disgust or repulsion towards the source responsible for the uncomfortable imposition (i.e., the patients). Thus, an accessible psychological mechanism by which to avoid this discomfort is to

disengage from the patients mentally and emotionally through de-personalization. These feelings can be well exacerbated by those many occasions when patients siphon too much energy from their doctors, events that contribute to the physicians' emotional exhaustion and consequent disengagement from the patients. Administrative duties clearly add to the physician's workload with similar results.

Not surprisingly, following the research on the subject that indicates how significant employee recognition is as a resource that individuals can derive from their work (Hobfoll, 1989, 2001), recognition of employees' work displayed a negative relationship to emotional exhaustion and a positive association with personal achievement (although it did not relate to de-personalization). As noted, recognition is a resource which mitigates the negative impact burnout might have on an employee's pool of resources.

Finally, and also as expected, P-O fit negatively related to emotional exhaustion, de-personalization and reduced personal efficacy, the three designated concomitants of burnout. In that context, when we consider the cumulative development of burnout (as discussed above), we better understand how the relevance of P-O Fit becomes more pronounced, the longer employees are tenured to their organizations (see Dunford, Shipp, Boss, Angemeier & Boss, 2012). Onversely, it stands to reason that the more that we work in a setting that fits our values and that yields flow and personal engagement, the more meaning and significance attaches to our endeavors – for our benefit and for the benefit of our employers and society as a whole.

Limitations of this Research

One possible limitation of the research model relates to the fact, indicated above, that many medical specialists and physicians work in more than one setting (Nirel, Shirom & Ismail, 2003). This has implications for doctors' overall sense of overload and consequent burnout characterized by physical fatigue, cognitive exhaustion, low satisfaction and, notably, lower commitment to the primary place of work. Stress and burnout accumulate from numerous workplaces, not only as a function of increased work hours per day but also in terms of the physical re-location and adjustment to various settings and their respective demands in the course of a week or even a day. This study did not examine the number (or type) of work settings where the respondents worked within a given time period. Such information when fed into the bigger picture might also contribute towards a better understanding of how levels of job satisfaction and burnout interface with particular medical settings.

In addition, the study did not control for individual differences that might affect the level of subjective stress. One such example relates to Negative Affectivity (NA, after Watson, 1988; Watson & Clark, 1984). For example, individuals high in NA are more likely to experience discomfort and view their life as a series of stressors – even in the absence of overt stress. From that perspective, it may well be that NA is driving the obtained relationships among the variables, as shown in Table 1.

The research variables in this study were collected from single-source data, namely self-report questionnaires filled out by the respondents. We believed that due to the nature of the variables (such as subjective stress, burnout, work satisfaction, and turnover intentions), subjective reports would be the most appropriate. However, there is a risk that the correlations do not reflect a valid relationship between the theoretic structures that we examined. Rather, the correlations may stem from the fact that a joint-rules sytem, or schematic structure, was used to evaluate items or measures that represent separate structures (Avolio, Yammarino & Bass, 1991), such that the

observed relationships among variables were "inflated" artificially (Lim & Yuen, 1998). Thus regarding this study, it is possible that the respondents "colored" their answers in gloomier shades because of negative feelings rooted in stress. Hence, correlations between variables could suggest the emotional state in which the answers were given rather than an actual link between the variables themselves.

Finally, the numbers of respondents in the study constitute a relatively small sample. Following Salgado's (1998) research, in which he reviews and compares sample sizes across three peer-reviewed journals, it is clearly advisable to follow the reported trend of increased sample sizes in research in this field. Clearly, similar studies on a larger scale would help to support both the reliability and validity of the current findings, and better serve the goals of reaching an all-encompassing model concerning the relationships between the investigated variables.

Notwithstanding this last remark, it is imperative to note that although the sample size might appear insufficiently large, we nevertheless employed two independent methods in order to test the stability of the findings and to control for the possibility of artifactual sample size effect on the results. Thus, based on both cross-validation coefficients (Browne, 1975) and disattenuated correlation coefficients (Spearman, 1904, 1910), we concluded that the sample size of the current research did not appear to have significantly impacted on the results in terms of either measurement errors or the strength of the findings.

Recommended Future Research

As indicated above, future investigations of this nature should take into account the number of varied work-settings where the physicians are employed within a specified time, such as an average given week. This data would enable researchers to arrive at clearer definitions of workload and the various sources of stress that excessive workloads induce.

As important as social and professional recognition are to employees, the source of that recognition might make a critical difference to an employee's abilities to recover resources. Future studies might well benefit by discriminating between recognition that emerges from, say, management as opposed to recognition that stems from colleagues on the team or from the patients they serve.

Having arrived at some general findings with the current body of responders in our investigation, the next step would be to replicate the study among physicians in various medical fields, in a number of hospitals, and even in selected departments within and across hospitals, in order to tease out which medical personnel are more likely to burnout faster and within which medical settings.

As a refinement to any further replication, a distinction could and should be made that reflects the position (status) and age of the subjects. Clearly, given what has been learned about individual differences and job satisfaction, we might expect that maturity and experience contribute to an individual's ability to cope with a high workload, lack of recognition, and so forth. This is especially germane in the medical field where, objectively, and from a practical stance, the degree of workload differs from one level of advancement along the medical career path to the next.

Reflecting on the discussion in this paper, it is clear that long-term (and cross-cultural) studies of this nature will add significantly to this body of knowledge and to an understanding of the antecedents to burnout in the medical profession.

Organizational and Managerial Implications

The findings of research investigations of this nature, and especially those studies that consistently demonstrate the effects of stress on burnout (as well as other negative outcomes), must surely make their mark on the workplace. That is to say that research findings should no longer be the province of academic journals; the conclusions drawn need to be applied by hospital management, health-care providers, and by any authorities that have the welfare of the medical practioners and their patients at heart.

From a structural perspective, in practice, policy makers should be aiming at the reduction of objective stress upon physicians by, no less, changing the actual structure of health services. Hospital doctors suffer from an overload of massive responsibility and endless tasks – and they work exceedingly long hours, often without a break. Thus, we believe, for instance, that a considerable number of tasks that are presently performed by hospital doctors should be transferred to other medical branches. In that case, hospital physicians would deal with the life-threatening emergencies, intensive care, and other such complex medical procedures, while other concerns, not related to infective diseases (which cause epidemics), can be supported by community clinics and home care. This approach would result in the development of new professions (in Israel) such as doctors' and nurse's assistants who would actively perform simple, routine medical procedures that were so far performed by hospital doctors and nurses, thus freeing the latter for the core roles of their profession.

First examples of such steps already exist and are successful. We suggest expanding them to form a general, rather than specific, perception change, primarily due to developing medical technologies that enable this to happen. By way of illustration, whereas in the past, treatment of diabetes was performed in hospitals, today family members inject sick children with insulin and supervise sugar levels by simple technological means. Other medical procedures, such as changing bandages of bedsores, could be performed by family members or caretakers after short training. The benefits of these suggested structural changes could have far-reaching consequences, including reduced hospital costs, decrease of doctors' overload, improved service and the creation of new jobs. Furthermore, eliminating routine tasks and the grinding bureaucracy from the physicians' overload will enable more meaningful relationships to be built with patients (see (Hobfoll, 1989, 2001).

These and other moves will restore doctors' sense of significance and job satisfaction, and reduce the crippling tendencies and subjective emotions that spur the negative outcomes that we have explored, such as exhaustion, depersonalisation and reduced personal efficacy. One can imagine the benefits to the doctors of the extra time garnered in finding time for reading and research in the field, rest and recreation, and even family time. Clearly, all will benefit from fewer medical errors and their devastating consequences. Moreover, more patients would be protected from hospital-related infections, their autonomy would be preserved (home care), and their connection to the social networks that provide them with emotional support would not be severed.

From an organizational perspective, we note the long work hours and chronic stress that deplete the physician's resources and increase burnout. We propose that organizations increase physicians' resources wherever possible to a reasonable level that allows them to recover from

stress. For instance: Opening a gym for doctors in the hospital; setting time for yoga/meditation; augmenting psychological resources (optimism, hope, resilience, etc.); increasing recognition from both mangement and patients; enhancing the P.O. fit; and reducing the number of service points where the doctors operate – all procedures that serve as a basis of quality coping.

A recent meta-analysis has substantiated the claim that cognitive, behavioral, and mindfulness-based approaches are effective in reducing stress in medical students and practicing physicians, and that these approaches may also contribute to lower levels of burnout in physicians (Regehr, Glancy, Pitts, & LeBlanc, 2014). Indeed, a controlled experiment concerning primary healthcare professionals has significantly shown that the use of mindfulness-based programs, as part of a continuing professional educational project designed to reduce and prevent burnout, promotes positive attitudes among health professionals, strengthens patient-provider relationships, and enhances well-being (Asuero, Queraltó, Pujol-Ribera, Berenguera, Rodriguez-Blanco, & Epstein, 2014). Notably, optimal coping with stress at work at one point in time will, to a certain degree, reduce future stress. That is because stress reactions represent a cycle that feeds itself. Clearly, the benefits of such programs will not only serve the physicians but also they will better serve the patients who will benefit from the doctors' increased energy and gusto.

Finally, there are several organizational concommitents to be put into place by those who manage doctors' time and career patterns. They are adjuncts to the meat of this paper but no less critical in preserving physicians' self-image and efficacy. They include management (with the help of dedicated work-stress managers and counselors) better structuring doctors' work-schedules in order to diffuse the workload and enforce rest, and to provide on-premises gym and recreational facilities in line with high-tech companies.

Moreover, management would do well to create a reasonable and acceptable balance of fit between doctors' subjective self-esteem and sense of worth and the indications of their worth as projected by that management. Furthermore, it appears that doctors serving public medical agencies and programs need to be increasingly involved in the policy decisions of these health services, not only because the doctors meet the needs of the patients on a daily basis but also because their very involvement in planning enhances their self-image and commitment to their health institutions (with all the attendant benefits of reduced burnout). To this end, hospitals and public health agencies would benefit by investing in workshops wherein respectful dialogues take place with the doctors to establish shared values and goals and where the doctors are involved in the development and attainment of the mangement's favored medical programs and projects.

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