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Work stress and turnover intentions among hospital physicians: The mediating role of burnout and work satisfaction



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ABSTRACT

Work stress has extremely significant consequences to the individual and to the organization (Barling, Kelloway, & Frone, 2005). This study examined the relationship between perceived work stress, burnout, satisfaction at work, and turnover intentions. We hypothesized that a positive relationship would be found between work stress and burnout, and negative relationships would be found between burnout and satisfaction, and between satisfaction and turnover intentions. The sample included 124 hospital physicians. As expected, all our hypotheses were corroborated. Structural Equation Modeling (SEM) found that beyond the assumed direct relationships, burnout partially mediated between work stress and work satisfaction, and work satisfaction partially mediated the relationship between burnout and turnover intentions. The paper reviews the theoretical consequences and suggests ideas for future research.

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Estrés laboral e intención de abandono en médicos hospitalarios: el papel mediador del agotamiento y la satisfacción laboral

RESUMEN

El estrés laboral tiene consecuencias muy importantes para la persona y para la organización (Barling, Kelloway y Frone, 2005). Este estudio analiza la relación entre estrés laboral percibido, agotamiento (*burnout*), satisfacción laboral e intención de abandono. Planteamos las hipótesis de que habría una relación positiva entre estrés laboral y agotamiento y negativa entre este último y satisfacción y entre esta y la intención de abandono. La muestra estaba compuesta por 124 médicos de hospital. Según lo esperado, se corroboraron todas las hipótesis. El modelo de ecuaciones estructurales demostró que más allá de las supuestas relaciones directas, el agotamiento mediaba parcialmente entre el estrés laboral y la satisfacción laboral y esta mediaba parcialmente la relación entre agotamiento e intención de abandono. El trabajo revisa las consecuencias teóricas y propone ideas para la futura investigación.

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Palabras clave:

Estrés laboral

Agotamiento

Satisfacción laboral

Intención de abandono

Modelo de ecuaciones estructurales

Mediación

Work stress

Job stress has received extensive theoretical and research attention. Work stress occurs when a person appraises external demands

from work as taxing or exceeding his or her resources (Lazarus, 1999). Once employees perceive any work situation as presenting demands that threaten to exceed their capabilities and resources for meeting them – or as being too costly if not met – they are expected to assess the situation as stressful. These perceptions are, of course, very subjective; stress is in “the eye of the beholder”.

Physicians, specifically, deal with numerous and varied stressors: long work hours, unreasonable work conditions, and work environment (many patients and too little time for each patient), sleep disorders because of night shifts, loss of autonomy (the

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physician is forced to cope with the economic, social, and legal implications of his/her decisions; patients are better informed due to exposure to the internet), lack of balance between work and personal life, isolation (a physician cannot discuss patients with colleagues because of confidentiality issues), relatively low pay in comparison to what is expected in return for the long years of training and long work hours, low promotion options, professional responsibility, dealing with illness and death on a daily basis, a sense of failure (when a patient is not cured), fear of lawsuits for medical malpractice, and more (Burbeck, Coomber, Robinson, & Todd, 2002; Klein, Frie, Blum, & Von dem Knesebeck, 2011). It is, therefore, not surprising that physicians experience work stress.

Work stress, burnout, work dissatisfaction, and turnover intentions

Stress at the workplace has become an important issue because its consequences can take a heavy toll on organizations and their employees (Barling, Kelloway, & Frone, 2005). High levels of stress can impair workers' performance and result in negative behavioral and attitudinal work outcomes (Barling et al., 2005; Gilboa, Shirom, Fried, & Cooper, 2008). Of interest, recent studies have shown that chronic work pressure conduces a feeling of overconsumption of energy that undermines wellbeing. It occurs when job-relevant personal resources are constantly exceeded by work demands (Urien Angulo, & Osca, 2012).

The Conservation of Resources Theory (COR) is a general stress theory that is based on the premise that individuals seek to preserve, renew, and enhance their resources – and 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 because they contribute to achieving or preserving valued resources. COR theory has been suggested as an integrative stress theory, which includes both the worker's subjective processes (i.e., personality attributes such as locus of control and flexibility, which might exert influence on the perception of stress at work) and objective or external environmental sources of stress (e.g., inherent extreme or noxious stimuli such as risk of physical harm or extreme temperature work conditions). Based on this theory, it may be claimed that as work demands exceed the bounds of the official job, they rob the worker of many resources that are required to fulfill the formal job, thus leaving the worker with fewer resources to devote to regular tasks, which, in turn, increases the sense of stress. This depletion of resources leads over time to burnout (Crawford, LePine, & Rich, 2010). Employee burnout is a progressive psychological response to chronic work stress involving emotional exhaustion, depersonalization, and feelings of reduced personal accomplishment (Maslach & Jackson, 1981). For doctors, burnout is an occupational disease that impairs both quality of healthcare and physicians' health. It is associated with medical malpractice (Chen et al., 2013), emotional distress, absenteeism, reduction in personal effectiveness, and increased risk of health problems (Kushnir & Cohen, 2006). A comprehensive study examining burnout among physicians in Israel (in the years 1994–2001) indicated that many suffered high levels of burnout, with burnout levels rising significantly throughout the years of the study (Kushnir, Levhar, & Cohen, 2004). These findings coincide with a study that examined burnout among American doctors in various specialties (Shanafelt et al., 2012), and found that burnout is more common among physicians than among other US workers. Of the physicians, 45.8% reported at least one symptom of

burnout compared to 23% of the general population. Furthermore, physicians in specialties at the front line of care access (family medicine, general internal medicine, and emergency medicine) seem to be at the greatest risk. Lower levels of burnout were found among dermatologists, pediatricians, and pathologists¹. Burnout, as it increases, has been shown to result in lower work satisfaction and subsequently increased levels of turnover intentions (Cropanzano, Rupp, & Byrne, 2003; Moreno-Jiménez, Hernández, Carvajal, Gamarra, Ramón, 2009; Smith & Tziner, 1998; Urien Angulo, & Osca, 2012). Job satisfaction refers to one's cognitive (evaluative), affective (or emotional), and behavioral responses to one's job, as assessed by one's evaluation of job features or characteristics, emotional responses to events that occur on the job, and job-related behavioral intentions (Locke, 1976). Individuals suffering from unrelenting depletion of resources perceive little or no chances to change this reality. Thus, understandably, they experience dissatisfaction with their work, a state that is psychologically taxing. Moreover, the avenue to extract themselves from this unpleasant situation is by considering leaving their present work, the source of their pain (i.e., they develop turnover intentions) (Moreno-Jiménez et al., 2009).

The following hypotheses are based on the above literature review and derived from it.

Hypothesis 1: Work stress will positively relate to burnout.

Hypothesis 2: Burnout will negatively associate with work satisfaction.

Hypothesis 3: Work satisfaction will negatively relate to turnover intentions.

In the present study, we intended to examine so-far insufficiently investigated links between work stress, burnout, work satisfaction, and turnover intentions of physicians, whose work is allegedly strenuous. Although previous studies have examined the stress-burnout-turnover relationship, we believe that replication of these studies in a different culture (Israel) and among doctors employed in a specific framework (hospitals) can contribute to better understanding physicians' burnout and turnover processes. The literature certainly indicates a need to continue research in this area (Zhang & Feng, 2011). This recommendation is consistent with the contention of eminent scholars that the ultimate test for validity of findings is their recurrence in numerous replications (James, Mulaik, & Brett, 1982).

Method

Participants

The data were collected from 124 hospital-employed physicians as respondents, of whom 50% were men and 50% women. Their mean age was 39.86 years. Their tenure in the present organization was 53.22% in the range of 1–10 years, 24.19% in the range of 11–20 years, 15.32% in the range of 21–30 years and 7.25% in the range of 30 years and above; 68.3% were married, 22% were single, 8.9% were divorced, and 0.8% widowed; 32.8% of the physicians that participated in the study were dermatologists, 32.8% internists, 33.6% pediatricians, and 0.8% interns. About half of the respondents (47.5%) were senior physicians, 42.5% were interns, 9.2% were chief physicians, and 0.8% were deputy chief physicians. Most of the respondents (58.5%) were specialists, 33% were level-one residents, and 8.5% were level-two residents. The study was conducted in six hospitals in Israel. One-hundred seventy questionnaires were handed out, of which 124 were filled out and returned. The return rate was 72.94%.

¹ Respectively, this study examined doctors from both ends of the burnout scale: internists on one hand and pediatricians and dermatologists on the other hand.

Measures

Work Stress was gauged using a 14-item scale developed by Cohen, Kamarck, and Mermelstein (1983). Sample items included: “I experienced a low mood during the last year”, “I felt tense and under pressure during the last year”. Participants indicated the frequency with which they experienced the situation described by each item using a 6-point Likert scale ranging from 1 (*never*) to 6 (*all the time*). Cronbach’s alpha was .85 ($M = 3.09$, $SD = 0.71$).

Burnout was tapped with the Burnout Measure (BM; Pines & Aronson, 1988) containing 21 items evaluated on 7-point frequency scales, assessing the level of an individual’s physical, emotional, and mental exhaustion. Sample items included “feeling weak/sickly and having sleep problems” (physical exhaustion), “Feeling depressed and hopeless” (emotional exhaustion), “Feeling worthless/like a failure and disappointed with people” (mental exhaustion). In a dimensionality and validity research of the BM, Enzmann, Schaufeli, Janssen, and Rozeman (1998) found that in contrast to the presumed dimensions ‘physical exhaustion’, ‘emotional exhaustion’, and ‘mental exhaustion’, the factors of the BM are ‘demoralization’ (D), ‘exhaustion’ (E), and ‘loss of motive’ (L). Cronbach’s alpha was .90 ($M = 3.10$, $SD = 0.80$).

Work satisfaction was measured by the 20-item Minnesota Satisfaction Questionnaire (MSQ) – short form. Responses were given on a Likert scale ranging from 1 (*totally dissatisfied*) to 6 (*extremely satisfied*). A satisfaction score was calculated for each participant by averaging the responses to all items. Measure reliability (Cronbach’s alpha) for the questionnaire was .91 ($M = 4.2$, $SD = 0.81$).

Turnover Intentions were measured using Rusbult and Lowery’s (1985) questionnaire. This scale consisted of seven items. The questionnaire requires respondents to evaluate the degree to which they agree with statements describing their intentions to remain in the organization on a 6-point scale. Cronbach’s alpha for this measure in the study was .73 ($M = 1.84$, $SD = 0.72$).

Results

Table 1 shows correlations among the study variables. As can be seen, a strong positive relationship between *work stress* and *burnout* was found (.55, $p < .0001$), and a strong negative association emerged between *burnout* and *work satisfaction* (–.63, $p < .0001$) as well as between *work satisfaction* and *turnover intentions* (–.65, $p < .0001$).

Evidently, all three hypotheses were corroborated. A structural equation model (by AMOS 7) was computed to simultaneously test all the relationships as predicted by the three hypotheses (Figure 1). However, a direct path from *work stress* to *work satisfaction* and another from *burnout* to *turnover intentions* were also incorporated into the model, because previous publications have borne out these links (Moreno-Jiménez et al., 2009).

Since there is no single statistical test that best describes the strength of a model’s predictions (Hair, Anderson, Tatham, & Black, 1992), several measures of approximation were employed. In the Normed Fit Index (NFI), the Goodness-of-Fit Index (GFI), and the Comparative Fit Index (CFI) a degree of fit above .9 is considered sufficient (Bentler, 1990). The approximation measures found here were above .95, and therefore meet the approximation criteria (NFI = .991, CFI = .995). In addition, lack-of-fit was measured by means of RMSEA (root mean square error of approximation), where the value of a suitable fit should be lower than .1 (Jöreskog & Sörbom, 1989). In the current study, the results for lack-of-fit were sufficient (RMSEA = .088). In addition, $\chi^2(1)$ was 1.95, $p > .05$.

Specifically, Figure 1 indicates that *work stress* relates directly and positively to *burnout* ($\beta = .55$), *burnout* relates directly and negatively to *work satisfaction* ($\beta = -.37$), and *work satisfaction* is

directly and negatively connected to *turnover intentions* ($\beta = -.53$), as hypothesized. Furthermore, however, we found a negative direct relationship between *work stress* and *work satisfaction* ($\beta = -.45$) as well as a direct positive link between *burnout* and *turnover intentions* ($\beta = .19$), thereby lending support to the conclusion that the relationships between *work stress* and *work satisfaction* as well as between *burnout* and *turnover intentions* are not fully and solely directly mediated but rather partially mediated.

Further analyses

We used two statistical methods in order to test the validity and stability of our findings: (1) Spearman’s (1904, 1910) disattenuated correlation coefficient in order to control for measurement errors; and (2) Browne’s (1975) cross-validation coefficient to control for possible artifactual effects of the sample size. The disattenuated correlation coefficients have been presented in Table 1 (in parenthesis). We can conclude that there were not substantial measurement errors in our data, because the disattenuated correlations were in accordance with the predicted values, in regard to the reliabilities and correlations of our study (see Muchinsky, 1996; Zimmerman & Williams, 1997). Nevertheless, there are two correlations which reached .99 (burnout E and total burnout) and .98 (burnout D and total burnout) after disattenuation, and thus can be considered measuring the same construct.

In order to view more precise results in predicting the different variables (see Figure 1), we calculated Browne’s (1975) cross-validation coefficient (\hat{P}_c^2). For the R^2 of burnout (.30), Browne’s cross-validation coefficient was .29, meaning there is a 1% discrepancy between the original R^2 and Browne’s cross-validation coefficient. For the R^2 of work satisfaction (.53), Browne’s cross-validation coefficient was .51, meaning there is a 2% discrepancy between the original R^2 and Browne’s cross-validation coefficient. For the R^2 of work satisfaction (.44), Browne’s cross-validation coefficient was .41, meaning there is a 3% discrepancy between the original R^2 and Browne’s cross-validation coefficient. In sum, these discrepancies do not prove to be problematic for the current study due to their low (although progressively increasing) values.

Discussion

In the present study, we sought to extend the investigation of the relationships between work stress, burnout, work satisfaction, and turnover intentions among hospital physicians.

The hypothesis (H1) – that a positive relationship would be found between work stress and burnout – was upheld. Medical personnel face enormous mental pressures that could result in burnout (Pines, 2011). In their work, physicians are required to cope with numerous demands: clinical demands of the job (for instance, decisions about patients), academic demands (for instance, learning new technologies), and administrative demands (for instance, the need to consider financial considerations when treating patients). These demands could easily result in various pressures, from clinical responsibility to an overload of tasks under time constraints, emotionally fraught contact with patients and staff, and self-confidence in the ability to do their job properly (Agius, Blenkin, Deary, Zealley, & Wood, 1996; Bruke & Richardson, 1990). Burnout is caused by ongoing mental stress or by other chronic work-related pressures (Hobfoll & Shirom, 2000; Maslach, Schaufeli, & Leiter, 2001). A recent study of IT specialists (Jung, 2013) found respectively that each work burnout factor (i.e., emotional exhaustion and cynicism) was predicted by job stressors (i.e., role overload, role insufficiency, and role boundary).

Our second hypothesis (H2) – that burnout would negatively associate with work satisfaction – was also confirmed. This

Table 1
Correlations among study variables.

	M	SD	α	1	2	3	4	5	6
1. Work stress	3.09	0.71	.85	-					
2. Burnout	3.10	0.80	.90	.55** (.63)	-				
3. Burnout E	3.93	1.13	.90	.45** (.51)	.89** (.99)	-			
4. Burnout D	2.47	0.81	.81	.49** (.59)	.84** (.98)	.52** (.64)	-		
5. Burnout L	2.45	0.74	.74	.50** (.63)	.68** (.83)	.50** (.65)	.55** (.71)	-	
6. Work satisfaction	4.20	0.81	.91	-.66** (-.75)	-.63** (-.70)	-.48** (-.56)	-.57** (-.69)	-.61** (-.74)	-
7. Turnover intentions	1.84	0.72	.73	.52** (.66)	.52** (.64)	.37** (.48)	.54** (.73)	.46** (.63)	-.65** (-.80)

Note. The disattenuated correlation coefficients (Spearman, 1904, 1910) are shown in parenthesis, and discussed in further analyses.

N = 124; * $p < .05$, ** $p < .01$.

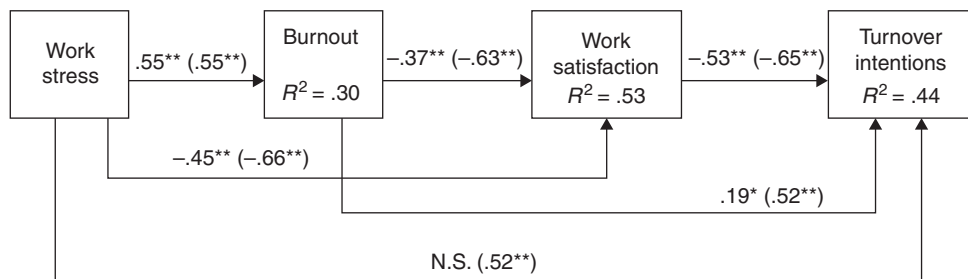


Figure 1. Research Model.

Note. The standardized regression coefficients are depicted on the paths, while the correlations coefficients are shown in parenthesis.

N = 124.

* $p < .05$, ** $p < .01$.

connection was reported in previous studies (i.e., Hombrados-Mendieta & Cosano-Rivas, 2013; Wolpin, Burke, & Greenglass, 1991). The intensity of the relationship depends on satisfaction measures (for instance pay, promotion, the work itself, supervisor, and the organization as a whole) and the sector (private or public) (Tsigilis, Zachopoulou, & Grammatikopoulos, 2006). A study conducted in Israel on 890 doctors in six areas of specialization revealed similar findings: physicians employed in hospitals are more burned-out (the physical tiredness aspect) and express less satisfaction than independent HMO doctors (Nirel, Shirom, & Ismail, 2003).

Finally, the third hypothesis (H3) – that work satisfaction would negatively relate to turnover intentions – was corroborated. Dissatisfaction and turnover intentions are types of employee withdrawal. The withdrawal is intended to protect the individual from stress and its consequences (Keaveney & Nelson, 1993). The results of the present study concur with other studies that see the worker's dissatisfaction or 'psychological withdrawal' as the first stage that motivates the withdrawal behavior that eventually results in turnover (Hom & Griffeth, 1991; Krausz, Koslowsky, & Eiser, 1998).

Beyond the direct relationships, the results indicate that satisfaction mediates the relationship between stress and turnover intentions, whereas the direct link between turnover intentions and stress is not significant. Some studies have found weak correlation between work stress and turnover intentions (i.e., Bedeian & Armenakis, 1981), but most of the results show a significant relationship between the variables (Goodman & Boss, 2002; Moreno-Jiménez, Gálvez-Herrer, Rodríguez-Carvajal, & Sanz-Vergel, 2012).

The main explanation for not finding a significant link between stress and turnover intentions, in our opinion, could be the characteristics of Israeli physicians' work environment. The number of hospitals in Israel is limited, and doctors realize that employment conditions in all hospitals are similar. Furthermore, a considerable number of hospital physicians in Israel work in a number of employment settings. Research has shown that most physicians (84%) in the examined specialties (including cardiologists and general

surgeons who provide services in hospitals) work for more than one organization (Nirel et al., 2003). That is to say, knowing medical organizations well, physicians are aware that moving from one setting to another is not lucrative. As a result, physicians do not engage in pipedreams that another hospital would be better and, consequently, their turnover intentions are lower despite their dissatisfaction.

Physicians who are fed up with the difficult work conditions in hospitals could abandon the profession entirely, moving on to biotechnology, pharmaceutical companies, medical research, teaching, etc. (Dyke, Holtzman-Schweid, Bin-Nun, & Kushnir, 2011), but this obviously means intending to leave the profession rather than to leave the organization.

Also, the mediation of work satisfaction between perceived work stress and turnover intentions is known in the literature (for example, Fried, Shirom, Gilboa, & Cooper, 2008 – partially; Paillé, 2011 – fully). Our findings that work stress does not directly affect turnover intentions could be explained by stress creating negative feelings manifested in reduction of the worker's satisfaction. Turnover intentions reflect the individual's attempt to cope with these negative feelings (that deplete his/her resources) by means of psychological withdrawal. Support of this explanation can be found in Lazarus' (1999) process approach to coping with stress, namely that an individual that is exposed to stress performs: (a) primary appraisal – the individual perceives and interprets the significance of the encounter with the stressor as damaging, threatening, or challenging; (b) secondary appraisal – the individual evaluates possible response options to the damage, threat, or challenge. Subsequent emotions are rooted in the secondary appraisal (for instance, anger, anxiety, hope, etc.) (Lazarus, 1999, pp. 94–96). As stated, individuals that suffer from constant depletion of their resources perceive the chance for change as slim. Evaluation of response options becomes limited (the employee is burned-out and depleted) and raises negative feelings that are the ingredients of dissatisfaction. Thus, the individual concludes that action must be taken on oneself (rather than changing the stressor), while adjusting and accepting the stress situation or, alternatively, withdrawing from it, as is suggested in this model. Following Locke's

(1976) widely-accepted definition of work satisfaction, and applying it to the present study's variables, it can be said that after the work is evaluated as stressful (due to demands from the doctors), an emotional reaction to work events is formed (probably negative, expressed as dissatisfaction) as are work-related behavior intentions (turnover).

We also found that burnout is a factor that partially mediates the relationship between work stress and dissatisfaction. The explanation is in the fact that work stress often, although not always, directly causes dissatisfaction. Hindrance stressors (Cavanaugh, Boswell, Roehling, & Boudreau, 2000) are perceived as disruptive to the individual (prevent him/her from achieving desired goals) such as organizational politics, bureaucracy, or concerns over employment security (Gilboa, Shirom, Fried, & Cooper, 2008). When faced with hindrance stressors, people believe that they do not have the required resources and coping mechanisms to face these demands no matter how much effort they invest (LePine, Podsakoff, & LePine, 2005). Podsakoff, LePine, and LePine (2007) reported that while hindrance stressors decrease job satisfaction and increase turnover intentions, challenge stressors increase job satisfaction and decrease turnover intentions. In a study that examined stress and burnout of police officers, Pines and Keinan (2005) found that despite the heightened stress and potential burnout, the police officers reported satisfaction with their work. In their study, burnout was found to relate more to satisfaction and turnover intentions than to work stress. Despite the stress, burnout can be low if workers feel that their job is important and useful (Pines & Keinan, 2005), or if their sense of self-efficacy is intact (Friedman, 2000). Challenge stress, which creates a sense of meaningfulness, reduces burnout and allows people to feel satisfied with their stressful work (the interest, the challenge, etc.). As a result, there are fewer turnover intentions. Respectively, hindrance stress that disrupts the worker's ability to achieve significant goals enhances burnout, which in turn leads directly to turnover intentions in order to stem depletion of resources (Moreno-Jiménez et al., 2009), but also is indirectly mediated by dissatisfaction due to the presence of negative feelings.

Limitations

The present research has a number of limitations.

First, all of the study variables were examined concurrently. Long-term investigation (longitudinal study), which is important when examining dynamic variables, is missing. This is especially true for burnout studies, because burnout changes over one's employment period (Dunford, Shipp, Boss, Angemeier, & Boss, 2012).

It is also possible that situation variables affected the study. The data were collected around the time of the big doctors' strike. The strike was inundated with large media campaigns about doctors' inferior wages and employment conditions. This could make generalization of the results to periods of stability and quiet difficult.

Another possible drawback is that many specialists and physicians work in more than one setting (Nirel et al., 2003). This has implications for the doctors' sense of overload, burnout – physical fatigue and cognitive exhaustion, low satisfaction, and less commitment to the primary place of work. Stress and burnout accumulate from numerous workplaces (more work hours per day). This study did not examine the respondents' number of various work settings, which could affect their burnout and dissatisfaction at the hospital. This should be done in future studies.

In addition, the study did not control for individual differences that might affect the level of subjective stress. For example, individuals high in NA (negative affectivity) are more likely to experience

discomfort and view their life as a series of stressors even in the absence of overt stress (Watson, 1988; Watson & Clark, 1984). Therefore, it seems quite possible that negative affectivity may be driving the obtained relationships among the variables.

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 (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 relationship between the theoretic structures that we examined, but rather stem from the fact that a joint rules system, or schematic structure, was used to evaluate items or measures that represent separate structures (Avolio, Yammarino, & Bass, 1991), so that the observed relationships among variables were artificially 'inflated' (Lim & Yuen, 1998). As regards our 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 a link between the variables themselves.

Finally, the study sampled only 124 interviewees, a relatively small sample. This is in accordance with Salgado's (1998) research, in which he reviews and compares sample sizes across three peer-reviewed journals. In his paper, he documents an increase in sample size over the years. This may possibly point to a weakness of the current research, that is the sample size. 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 about the relationships between the investigated variables.

However, it is imperative to note that although the sample size might seem insufficiently large, we have used two methods in order to test the stability of the findings and control for the possibility of artifactual sample size effect on them. Based both on cross-validation coefficients (Browne, 1975) and on disattenuated correlation coefficients (Spearman, 1904, 1910), we conclude that the sample size of the current research does not prove to have significantly impacted on the results in terms of measurement errors and strength of the findings.

Recommendations for future research

Medicine is a draining profession in itself (Kushnir & Cohen, 2006; Pines, 2011). Additionally, doctors' satisfaction with internal factors (meaningfulness, interest, challenge, self-fulfillment) is much higher than their satisfaction with external factors (unrewarding work environment, hard physical conditions, inability to lead a normal family life) (Cooke & Chitty, 2004; Landon, Reschovsk, Pham, & Blumenthal, 2006; Van Dyke, Holtzman-Schweid, Bin-Nun, & Kushnir, 2011; Zuger, 2004). We suggest expanding the scope of the study and adding the variable 'satisfaction with profession'. It could be interesting to investigate whether burnout and stress affect various types of satisfaction. It is possible that among doctors, satisfaction with their profession mediates the relationship between stress and dissatisfaction with the organization.

Additionally, turnover intentions are a form of psychological withdrawal. It should be examined whether, as a result of burnout and dissatisfaction, more serious withdrawal behaviors occur (such as tardiness and absenteeism), as was found in many models (Hom & Griffeth, 1991; Krausz et al., 1998), or whether among doctors – due to their complex and important profession – a different withdrawal model occurs.

Doctors may experience challenge stress in major parts of their work. We therefore recommend an in-depth examination of the

research model that differentiates between hindrance and challenge stressors. We believe that challenge stressors (as opposed to hindrance stressors) reduce burnout, and thus reduce turnover intentions, both directly (Podsakoff et al., 2007) and mediated by satisfaction.

The present research was conducted among hospital physicians. Hospitals are bureaucratic organizations, which include numerous stressors that negatively affect employees: overload, lack of independence and rewards, and stressors that stem from the service receivers (Pines, 2011). We have seen that there are differences rooted in the doctors' employment base (hospital or HMO) (Nirel et al., 2003). We recommend examining the research model on physicians in less bureaucratic organizations, and comparing the results.

Organizational and managerial implications

Observing the research model and its results emphasizes the importance of treating physicians' stressors and burnout in order to prevent their dissatisfaction and turnover intentions. Subjective perception of stress and the burnout closely related to it precede the rest of the unwanted organizational results, and should therefore be addressed first. We recommend that heads of health systems treat the physicians' objective stressors, which affect subjective perceptions of stress, which is, in turn, related to burnout. We propose two levels of treatment to reduce stress: structural and organizational.

The structural aspect should involve reduction of objective stress on physicians by changing the actual structure of health services. Hospital doctors suffer from an overload of tasks, great responsibility, and they work long hours. We believe that a considerable number of tasks that are at present performed by hospital doctors should be transferred to other medical branches. Hospital physicians would deal with life-threatening emergencies, intensive care, and complex medical procedures. Other cases, not related to infective diseases (which could cause epidemics), can be supported by community clinics and home care. This would result in the development of new professions such as nurse's assistant, who would actively perform simple, routine medical procedures that were so far performed by hospital doctors and nurses, thus freeing them 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 it. For instance, in the past, treatment of diabetes was performed in hospitals, whereas 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 the suggested structural change could have far-reaching consequences. It could reduce hospital costs, while decreasing overload and improving service to the patients. Furthermore, it could reduce physicians' overload by eliminating routine tasks and grinding bureaucracy, which would enable a meaningful relationship with the patient, a sense of satisfaction and significance among doctors, spare time for updating, research, and rest, less mistakes, etc. Another benefit would be opening new employment avenues and creating jobs that would relieve doctors and nurses of routine procedures. Moreover, 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.

The organizational facet relates to 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, so as to maintain a reasonable level of

resources, and enable recovery from stress. For instance, opening a gym for doctors in the hospital, setting time for yoga/meditation, providing effective tools for coping with stress, augmenting psychological resources (optimism, hope, resilience, etc.) that are the 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 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 continuing professional education to reduce and prevent burnout promote positive attitudes among health professionals, strengthen patient-provider relationships, and enhance well-being (Asuero et al., 2014). Optimal coping with stress at work to a certain degree reduces future stress, because it is a cycle that feeds itself. Proper coping with stress at work will enable the physician to be less impatient with the patient, which in turn improves the level of service and prevents possible problems from a patient who is dissatisfied with the service that he/she received.

Conflict of Interest

The authors of this article declare no conflict of interest.

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