

The crossover of burnout and its relation to partner health

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Summary

Two studies among medical residents and teachers in the Netherlands and Greece tested the hypothesis that burnout may transfer from employees to their intimate partners at home and indirectly influence the partner's health. Study 1 included a general index of self-rated health, whereas, Study 2 included a detailed measure of depression. Results show that burnout crosses over and that partner burnout is related to health (negative) and depression (positive). Moreover, both studies supported the mediating role of partner burnout in the relationship between employee burnout and partner health/depression. Additionally, results were similar when partner burnout was used as the predictor variable of medical residents' and teachers' health through their burnout. These findings are discussed in light of the recently proposed spillover–crossover model. Copyright © 2009 John Wiley & Sons, Ltd.

Key Words

burnout; crossover; depression; health; spillover–crossover model

Introduction

Previous research has shown that job burnout is related to psychological and physical health (Schaufeli & Enzmann, 1998; Melamed, Shiron, Toker, Berliner, & Shapira, 2006). Thus, burned-out employees who are chronically fatigued and cynical about their work may suffer from headaches, dizziness, stomach pain and back pain—to name only a few health problems. Since fatigue and cynicism are highly visible symptoms, it is likely that burnout is communicated from employees to their partners at home (Bakker, Westman, & Van Emmerik, 2009). Crossover studies have indeed confirmed that burnout is transferred between closely related individuals (Bakker,

Demerouti, & Schaufeli, 2005; Westman & Bakker, 2008).

The present research uses crossover theory to investigate whether and how employees' burnout symptoms are related to their intimate partner's health. Specifically, two studies among risk groups conducted in two countries will examine the extent to which burnout crosses over from employees to their partners at home and is indirectly predictive of the partners' depressive symptoms and self-rated health. Before substantiating these claims, I will briefly define burnout and discuss its relationship with health.

Burnout and health

Burned-out employees have high levels of exhaustion and they endorse negative attitudes towards their work (Demerouti & Bakker, 2008; Maslach, Schaufeli, & Leiter, 2001). Exhaustion refers to chronic fatigue that is the response to prolonged exposure to high job demands and a lack of job

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resources (Bakker & Demerouti, 2007). Negative attitudes may take the form of cynicism or depersonalization. Cynicism refers to a lack of interest in the job and a lack of job meaningfulness (Bakker, Demerouti, & Schaufeli, 2002). In human services work, negative attitudes may turn into depersonalization, which means distancing oneself emotionally from service recipients (e.g. becoming impersonal callous, hardening). Some studies suggest that such negative attitudes may result in even higher job demands over time, creating a negative cycle of burnout and job demands (e.g. Bakker, Schaufeli, Sixma, Bosveld, & Van Dierendonck, 2000; Demerouti, Le Blanc, Bakker, Schaufeli, & Hox, 2009).

Burnout may result in health problems because of the chronic character of the syndrome. Studies have indeed shown that the human physiological system may be affected by chronic stress, specifically, the autonomic nervous system and the hypothalamus-pituitary-adrenal cortex axis, which is partly responsible for an individual's potential to adapt to stressors, and may result in harmful allostatic load if overly activated (McEwen, 2004; but see Langelaan, Bakker, Schaufeli, Van Rhenen, & Van Doornen, 2007). In addition to such direct effects, burnout may also influence health through unhealthy behaviours, including alcohol consumption and excessive smoking (Ahola, 2007; Winwood, Winefield, & Lushington, 2003).

During the past 35 years, several studies have shown a relationship between burnout and health (for a review, see Ahola, 2007). Although there are some methodological challenges with many of the studies, in general, the research evidence points at a positive relationship between burnout on the one hand, and psychological and physical health on the other. Some of these studies utilized a longitudinal design. For example, regarding psychological health, in a one-year follow-up among Canadian teachers, Greenglass and Burke (1990) found that the exhaustion and depersonalization dimensions of burnout predicted depressive symptoms among women, whereas, the exhaustion and diminished personal accomplishment dimensions predicted depressive symptoms among men. In their study among North American medical residents, Hillhouse, Adler and Walters (2000), in a similar vein, found that patient-related exhaustion predicted mood disturbance over the period of 1 year. Ahola (2007) used a nationally representative sample of the Finnish working population including

more than 3000 employees. Occupational burnout was related to an increased prevalence of depressive and anxiety disorders and alcohol dependence among male and female employees.

Compared with psychological health, physical health has less often been studied in relation to burnout. The limited research evidence points at a positive relationship between burnout and physical health problems. In the population-based Finnish Health 2000 Study, a positive association was found between burnout and non-specific shoulder pain (Miranda, Viikari-Juntura, Heistaro, Heliövaara, & Riihimäki, 2005). Consistent with these findings, in their study among Swedish pain patients, Soares and Jablonska (2004) found a positive relationship between burnout and heterogeneous musculoskeletal pain. Moreover, in a longitudinal study among Dutch male employees who took part in a medical examination, self-reported exhaustion predicted physician-diagnosed myocardial infarctions in a four-year follow-up (Appels & Schouten, 1991). Finally, in her population-based study of Finnish employees, Ahola (2007) found that burnout was related to musculoskeletal disorders among women and cardiovascular diseases among men—after controlling for socio-demographic factors, physical strenuousness of work, health behaviour and depressive symptoms.

Taken together, previous research indicates that burnout has important implications for one's own health. In the present study, we use this research evidence to predict that:

Hypothesis 1: Burnout has a negative effect on self-rated health (*Study 1*).

Hypothesis 2: Burnout has a positive effect on depression (*Study 2*).

The crossover of burnout

Crossover is the term used to describe the interpersonal process that occurs when job stress or psychological strain experienced by one person affects the level of strain of a closely related other (Bolger, DeLongis, Kessler, & Wethington, 1989; Westman, 2001). Some researchers have focused on the crossover of job stressors from the individual to the spouse; others have examined the process whereby job stressors of the individual affect the *strain* of the spouse; and yet others have studied how psychological strain of one partner

affects the strain of the other (for an overview, see Bakker et al., 2009).

Most studies have investigated and found the crossover of psychological strains, such as anxiety (Westman, Etzion, & Horovitz, 2004), distress (Barnett, Raudenbush, Brennan, Pleck, & Marshall, 1995), job burnout (Bakker et al., 2005; Bakker, Le Blanc, & Schaufeli, 2005; Westman & Bakker, 2008; Westman, Etzion, & Danon, 2001) and depression (Howe, Levy, & Caplan, 2004). A few studies investigated and found crossover of physical health between partners (Gorgievski-Duijvesteijn, Giesen, & Bakker, 2000; Westman, Keinan, Vinokur, & Benyamini, 2008).

The focus in the present two studies is on the crossover of burnout, and its indirect effect on partner health. There are several reasons why burnout may cross over from employees to their intimate partner. A first reason is that individuals who are closely related (including intimate partners) often take the perspective of each other, and therefore their experiences may converge (Bakker & Demerouti, 2009). Secondly, as elucidated before, burnout symptoms are clearly visible, and individuals who frequently interact are inclined to mimic and synchronize each other's facial expressions, postures and movements. As a consequence, they may converge emotionally—even without being aware of it (Hatfield, Cacioppo & Rapson, 1994; Totterdell, 2000).

A third reason for crossover between closely related individuals is frequent exchange of views. For example, in their study among teachers, Bakker and Schaufeli (2000) found that teachers who frequently talked with their burned-out colleagues about problematic students had the highest probability of catching the negative attitudes expressed by their colleagues. In repeatedly trying to understand the problems their colleagues were facing, teachers presumably had to 'tune in' to the negative attitudes expressed by their colleagues. Consequently, the teachers started to take over the exhaustion and cynicism of their colleagues (see Bakker et al., 2009). A recent diary study confirmed that communication frequency moderates the crossover effect (Bakker & Xanthopoulou, in press). Because intimate partners frequently discuss personally relevant information with each other, we predict that burnout does cross over in a direct way.

The central aim of the present research is to investigate in two studies whether the crossover of burnout has consequences for one's partner's

health. Previous studies have shown that there is direct crossover of burnout (Westman & Bakker, 2008), and that burnout is related to physical and psychological health (Ahola, 2007; Melamed et al., 2006). Our central hypothesis is that employee burnout has an indirect effect on the partner's health. Burned-out employees who frequently talk with their partner about the stressful aspects of work will communicate their loss of energy and negative attitudes. As a consequence, their partner's burnout levels will increase, and this will then fuel their partner's health problems. We will focus on self-rated health (Study 1) and depressive symptoms (Study 2). The two occupational groups investigated are medical residents and teachers—both groups have been found to be at high risk for burnout (Bakker, Schaufeli, & Van Dierendonck, 2000). In sum, we formulated the following hypotheses:

Hypothesis 3: Employee burnout has a negative effect on partner's health through partner burnout (Study 1).

Hypothesis 4: Employee burnout has a positive effect on partner's depression through partner burnout (Study 2).

Study 1

Method

Participants and procedure. All 5245 Dutch medical residents who, at 1 October 2005, were included in the national register of the Royal Dutch Medical Association, received a questionnaire by mail with 105 respondents indicating that they were no longer residents. Of the remaining 5140 residents, 2240 responded (43.7 per cent), of whom 2115 completed the questionnaire and 125 indicated they did not wish to participate. A cover letter was included that explained the purpose of the study—a working conditions survey—and emphasized anonymity. The medical residents were also invited to ask their partner to participate—given that the partner worked.

In total, 221 couples of medical residents and their partners participated in the present study. Most residents were female ($N = 127$, 57.5 per cent), and their mean age was 31.52 years [standard deviation (SD) = 3.49]. Majority of the participants was married (92.8 per cent). Most couples (64.7 per cent) had no children, 44 (19.9

per cent) had one child, 21 (9.5 per cent) had two children and 10 couples (4.6 per cent) had three or four children (three missing values). The mean working experience of the medical residents was 3.08 years ($SD = 1.47$). As regards to the residents' partners, their mean age was 32.37 years ($SD = 4.58$), and they were working in several different occupational sectors. Most partners (38.9 per cent) had an occupation in medicine (e.g. as a medical resident, medical specialist, nurse, etc.). Other sectors where partners worked were, for example, management (10.0 per cent), finances (9.9 per cent) and the police (7.2 per cent). Their mean working experience was 7.38 years ($SD = 4.74$), and the majority of them had completed university education (69.2 per cent).

Measures. *Burnout* was assessed with the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) (Maslach, Jackson, & Leiter, 1996) for the medical residents and with the MBI-General Survey (MBI-GS) (Schaufeli, Leiter, Maslach, & Jackson, 1996) for their partners because the latter group could be involved in any type of work. We focused on the two core dimensions of burnout, namely exhaustion and depersonalization/cynicism. The emotional exhaustion subscale of the MBI-HSS includes eight items, such as 'I feel emotionally drained from my work'. The depersonalization subscale includes five items, for example 'I feel I treat some of my patients as if they were impersonal objects'. Partners filled in the MBI-GS (Schaufeli et al., 1996). The MBI-GS can be used in any occupational context and includes exhaustion and cynicism as scales that parallel those of the MBI-HSS except that items do not explicitly refer to working with people. Exhaustion is measured with five items, including 'I feel tired when I get up in the morning and have to face another day on the job'. Cynicism is measured with four of the five items from the original scale. Item 4 ('I just want to do my job and not be bothered') was omitted, as suggested by Schutte, Toppinnen, Kalimo, and Schaufeli (2000). They have shown that this item does not load on the intended factor, and thus creates problems with factorial validity. An example item is 'I have become more cynical about whether my work contributes anything'. All items were scored on a seven-point scale ranging from 0 ('never') to 6 ('always').

Self-rated health was measured with the general item of a validated psychosomatic health questionnaire for the assessment of subjective health

(Dutch abbreviation: VOEG, Dirken, 1969): 'In general, do you feel healthy?' (1 = rarely or never, 2 = sometimes, 3 = often, 4 = very often). To examine its validity, I used data collected in a previous unpublished study among personnel working for an insurance company ($N = 362$). I correlated the general item with the 12 other items of the original scale assessing specific psychosomatic problems. This resulted in a correlation of $r = -0.56$, $p < 0.001$, indicating that the general self-rated health item is highly negatively related to a wide range of psychosomatic problems. This strengthens my belief that the one-item measure is a valid indicator of the participants' health status.

Strategy of analyses. The matched responses of both partners were analyzed with structural equation modelling (SEM) techniques, using the AMOS 5 software package (Arbuckle, 2003). I analyzed the covariance matrix using the maximum likelihood method of estimation. Besides the chi-squared statistic, the analysis assessed the goodness-of-fit index (GFI), the root mean square error of approximation (RMSEA), the non-normed fit index (NNFI) and the comparative fit index (CFI). 'Burnout' was included as a latent factor with exhaustion and depersonalization as the indicators for the medical residents, and exhaustion and cynicism as the indicators for their partners. For both partners, 'Health' was included as a latent factor with one item as indicator. Since it is unreasonable to assume that this item is perfectly reliable, I assumed that its reliability was 0.90 (for more details, see Jöreskog & Sörbom, 1993).

Results

Descriptive statistics. The means, SDs and correlations between the model variables are presented in Table I.

Hypothesis testing. To test the hypotheses, I build a structural equation model with four variables: (1) medical resident burnout; (2) medical resident health; (3) partner burnout; and (4) partner health. Medical resident burnout had a path with medical resident health and with partner burnout. Partner burnout had a relationship with partner health. Because previous research has shown that health may also directly cross over between partners (Westman et al., 2008), I

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Table I. Means, standard deviations (SD), correlations and reliabilities (Cronbach's alpha on the diagonal) of the study variables in Study 1, $N = 221$ couples.

| | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 |
|-------------------------|------|------|---------|---------|---------|---------|-------|---|
| Medical residents | | | | | | | | |
| 1. Emotional exhaustion | 2.06 | 1.15 | 0.91 | — | — | — | — | — |
| 2. Depersonalization | 1.47 | 0.88 | 0.64** | 0.75 | — | — | — | — |
| 3. Self-rated health | 3.37 | 0.67 | -0.45** | -0.21** | — | — | — | — |
| Partners | | | | | | | | |
| 4. Exhaustion | 1.84 | 0.92 | 0.25** | 0.24** | -0.20** | 0.83 | — | — |
| 5. Cynicism | 1.47 | 0.98 | 0.12 | 0.04 | -0.14* | 0.40** | 0.75 | — |
| 6. Self-rated health | 3.41 | 0.59 | -0.11 | -0.17* | 0.16* | -0.25** | -0.10 | — |

* $p < 0.05$; ** $p < 0.01$.

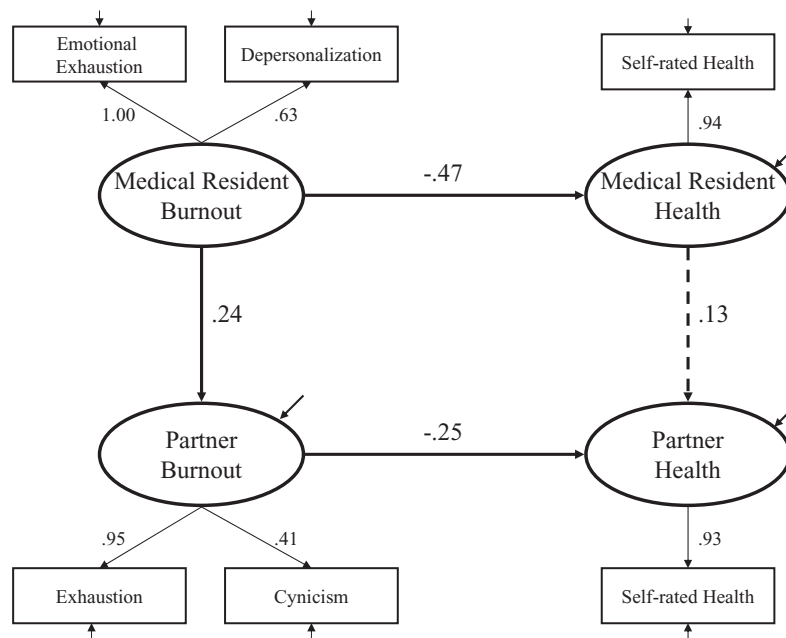


Figure 1. The crossover of burnout and its relationship with partner health, Study 1 ($N = 221$). *Note:* All structural paths and factor loadings are significant at the $p < 0.05$ level, except for the dotted arrow ($p = 0.09$).

included this path as well. The proposed model fit well to the data: $\chi^2(7) = 14.26$; $p = 0.047$; GFI = 0.980; RMSEA = 0.069; NNFI = 0.931; CFI = 0.968. As can be seen in Figure 1, all structural paths were significant, but medical resident health showed only a marginal relationship with partner health ($\beta = 0.13$, $p = 0.09$). Thus, consistent with Hypothesis 1, burnout is negatively related to health. This is true for both medical residents and their partners (within-person effects). In addition, medical resident burnout is positively related to partner burnout ($\beta = 0.25$, $p < 0.001$).

To test Hypothesis 3, I first examined whether there was a direct relationship between the latent

variables 'medical resident burnout' and 'partner health'. The path between both variables was negative and significant ($\beta = -0.19$, $p < 0.05$). I then tested a nested model that included the proposed relationships (cf. Figure 1) and the direct path from medical resident burnout to partner health. This nested model did *not* fit better to the data than the proposed model [$\Delta \chi^2(1) = 0.01$, not significant (NS)], and the path coefficient was close to zero ($\beta = 0.01$, $p = 0.98$). These findings suggest that partner burnout completely mediated the effect of medical resident

burnout on partner health, although the effect was only marginally significant ($z = -1.69$, $p = 0.09$).

As an additional test of Hypothesis 3, we tested a model starting with partner burnout. This model is similar to the model in Figure 1, but now the path from medical resident burnout to partner burnout, and the path from medical resident health to partner health are reversed. As could be expected, this model also fit well to the data, $\chi^2(7) = 13.14$, $p = 0.069$, GFI = 0.981; RMSEA = 0.063; NNFI = 0.942; CFI = 0.973. The burnout crossover coefficient was 0.25 ($p < 0.05$), whereas, the health crossover coefficient was now also significant: 0.14 ($p < 0.05$). The Sobel test revealed that medical resident burnout carried the effect of partner burnout on medical resident health ($z = -2.07$, $p < 0.05$). These findings offer additional evidence for Hypothesis 3.

Discussion

The results of Study 1 support the hypothesis that burnout is negatively related to self-rated health (Hypothesis 1), and may cross over and indirectly influence partner health (Hypothesis 3). A second study was conducted to validate and expand the findings of Study 1. In Study 2, I included a validated measure of depression instead of a general health indicator.

Study 2

Method

Participants and procedure. In total, 209 Greek teachers and their partners participated in this study. Most teachers were female ($N = 151$, 72.2 per cent), and their mean age was 43.07 years ($SD = 6.45$). The majority of the participants was married (95.7 per cent) for an average of 15.50 years ($SD = 8.20$). Twenty-two (10.5 per cent) of them had no children, 43 (20.6 per cent) had one child, 121 (57.9 per cent) had two children and 23 (10.6 per cent) had three or more children (one missing value). The mean working experience of the teachers was 15.51 years ($SD = 7.68$). As regards to teachers' partners, their mean age was 45.00 years ($SD = 8.00$), and they were working in several different occupational sectors. In particular, 121 (57.9 per cent) were working in the public sector, 47 (22.5 per cent) were

working in the private sector and 37 (17.7 per cent) were self-employed; four partners did not report the sector they were working in. Their mean working experience was 17.32 years ($SD = 8.64$), and the majority of them had university education (56.9 per cent).

Data were collected at the schools where the teachers were employed. In every school, the research assistant was introduced to the teachers who had been asked to attend a short meeting in the director's office during a break of the day. They were informed about the background of the study and received general instructions about how to fill in the questionnaire. The teachers who were willing to participate were asked to take two questionnaires home, have one questionnaire filled in by their partners and return it along with their own in a sealed envelope to the director within a few days. All teachers were informed that participation was voluntary, and that data would be treated anonymously and confidentially.

Measures. *Burnout.* Teacher and partner burnout was measured with the MBI-GS. See for the description of this instrument Study 1.

Depression was measured with Radloff's (1977) Center for Epidemiological Studies Depression scale that includes 20 items. Respondents indicated how often during the preceding week they felt in the way each item described (e.g. 'I was bothered by things that usually don't bother me') using a scale ranging from 1 = rarely or none of the time (less than 1 day) to 4 = most or all of the time (5–7 days).

Results

Descriptives. The means, SDs, correlations and reliabilities between the model variables are presented in Table II.

Hypothesis testing. The structural equation model that was tested included four variables: (1) teacher burnout; (2) teacher depression; (3) partner burnout; (4) and partner depression. Teacher burnout had a path with teacher depression and with partner burnout. In addition, partner burnout had a relationship with partner depression. Since previous research has shown that depression may also directly cross over between partners (Howe, Levy, & Caplan, 2004), I included this path as well. The proposed

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Table II. Means, standard deviations (SD), correlations and reliabilities (Cronbach's alpha; on the diagonal) of the study variables in Study 2, $N = 209$ couples.

| | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 |
|-------------------------|------|------|--------|--------|--------|--------|--------|------|
| Teachers | | | | | | | | |
| 1. Emotional exhaustion | 2.26 | 1.17 | 0.87 | — | — | — | — | — |
| 2. Depersonalization | 1.31 | 1.14 | 0.40** | 0.75 | — | — | — | — |
| 3. Depression | 1.53 | 0.40 | 0.40** | 0.47** | 0.89 | — | — | — |
| Partners | | | | | | | | |
| 4. Exhaustion | 2.87 | 1.41 | 0.14* | -0.06 | 0.06 | 0.90 | — | — |
| 5. Cynicism | 1.98 | 1.41 | 0.22** | 0.16* | 0.19** | 0.52** | 0.77 | — |
| 6. Depression | 1.65 | 0.46 | 0.04 | 0.16* | 0.27** | 0.38** | 0.42** | 0.90 |

* $p < 0.05$; ** $p < 0.01$.

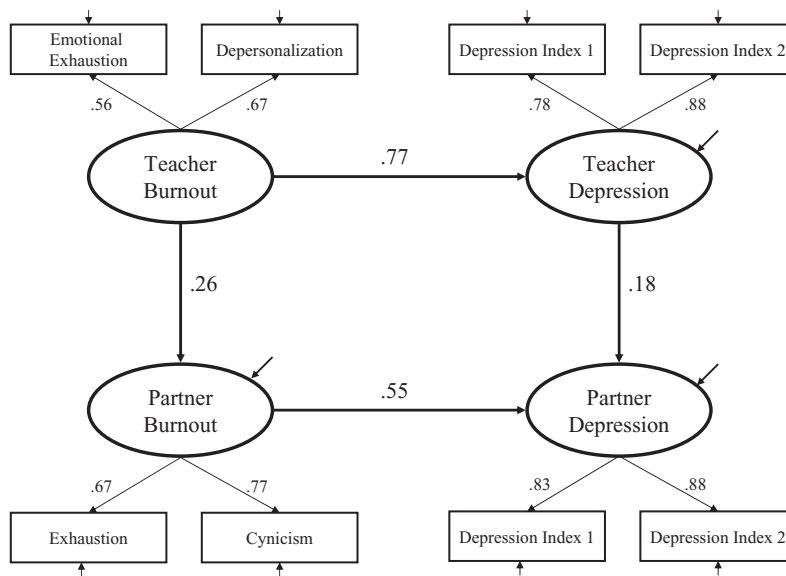


Figure 2. The crossover of burnout and its relationship with partner depression, Study 2 ($N = 209$). Note: All structural paths and factor loadings are significant at the $p < 0.05$ level.

model fit reasonably well to the data, $\chi^2(16) = 44.84$; $p = 0.001$; GFI = 0.949; RMSEA = 0.093; NNFI = 0.906; CFI = 0.946. As can be seen in Figure 2, all structural paths were significant. Thus, consistent with Hypothesis 2, burnout is positively related to depression. This is true for teachers and for their partners (within-person effects). In addition, teacher burnout is positively related to partner burnout ($\beta = 0.26$, $p < 0.05$). This latter relationship is almost identical to the one found in Study 1. Furthermore, teacher depression is positively related to partner depression ($\beta = 0.18$, $p < 0.05$).

To test Hypothesis 4, we first examined whether there was a direct effect of teacher burnout on

partner depression. The path between both variables was positive and significant ($\beta = 0.30$, $p < 0.01$). We then tested a nested model that included the proposed relationships (cf. Figure 2) and the direct path from teacher burnout to partner depression. This nested model did *not* fit better to the data than the proposed model ($\Delta \chi^2(1) = 2.57$, NS.). Moreover, the path coefficient turned out to be non-significant ($\beta = -0.33$, $p = 0.12$) suggesting that partner burnout completely mediated the relationship between teacher burnout and partner depression. Note that the path coefficient was negative, which suggests a statistical suppressor effect (Maassen & Bakker, 2001). The Sobel test confirmed that partner burnout carried

the effect of teacher burnout on partner depression ($z = 2.17, p < 0.05$).

As an additional test of Hypothesis 4, I tested a model starting with partner burnout. This model is similar to the model in Figure 2, but now the path from teacher burnout to partner burnout, and the path from teacher health to partner health is reversed. As could be expected, this model also fit well to the data, $\chi^2(16) = 43.60; p = 0.001$; GFI = 0.951; RMSEA = 0.091; NNFI = 0.910; CFI = 0.948. The burnout crossover coefficient was 0.23 ($p < 0.05$), whereas the depression crossover coefficient was 0.19 ($p < 0.05$). The Sobel test revealed that teacher burnout carried the effect of partner burnout on teacher depression ($z = 1.97, p < 0.05$). These findings offer additional evidence for Hypothesis 4.

Discussion

The results of Study 2 confirm the hypothesis that burnout is negatively related to own depression (Hypothesis 2), and may cross over and indirectly influence partner depression (Hypothesis 4). These findings expand Study 1 by showing that employee burnout indirectly influences partner depression through partner burnout.

General discussion

The present two studies suggest that burnout can cross over and has an indirect effect on partner health. The results clearly show that burnout is related to partner's general perceptions of health and partner's depressive symptoms. Thus, participants were more likely to report low scores on health and elevated scores on depression when their partner was burned-out, because partner burnout was predictive of own burnout.

Contributions

One contribution of the present research is that it validates previous findings on the crossover of burnout. The results add to a growing body of literature showing that exhaustion and cynicism built up at work are taken home and communicated to the intimate partner. Because the findings of the two studies among different occupational groups (medical residents and teachers) in the Netherlands and Greece are

conceptually similar, the results seem externally valid. A second contribution is the relationship between burnout and health. Consistent with previous research, our studies show that burnout is negatively related to psychosomatic health (Melamed et al., 2006), and positively related to depression (Ahola, 2007). This adds to the evidence reported in the literature that burnout has important implications for psychological and physical health.

The third, and probably most important contribution of this research, is the finding that employee burnout is related to partner health. Using the data of dual-earner parents, the results clearly showed that burnout levels of employees working in occupations that are at risk for burnout (medical residents and teachers; Bakker et al., 2000; Schaufeli & Enzmann, 1998) contributed to psychosomatic health of the partner through partner burnout. This finding expands previous crossover studies by showing the indirect link from one enduring state (job burnout) to another (health, depression). Previous crossover studies generally did not study the indirect effects of burnout crossover.

A recent meta-analytic study using data of more than 100,000 couples (Di Castelnuovo, Quacquarello, Donati, De Gaetano, & Iacoviello, 2009) showed positive spousal concordance for the majority of main coronary risk factors, including hypertension, smoking, diabetes and obesity. Spousal concordance may be due to shared environment, common behaviours and also positive assortative mating, that is, the tendency of individuals to choose a spouse with similar characteristics. Spousal concordance for burnout may partly be due to the same factors, but our findings do show that spousal concordance for health and depression can partly be ascribed to the crossover of burnout. Since previous studies have clearly indicated that the root cause of burnout is the work environment (Maslach et al., 2001), and given that the spouses in the present studies worked in different occupations, our findings suggest that the social process of communicating burnout is an important process to consider.

In addition, we have proposed the spillover-crossover model to integrate work-family conflict and crossover theories (Bakker, Demerouti, & Dollard, 2008; Bakker, Demerouti, & Burke, 2009; Shimazu, Bakker, & Demerouti, 2009). Accordingly, work-related strain (including burnout) build up at work is brought home and

interferes with private life. Consequently, people start to give less support to their partner, or even undermine the partner, which contributes negatively to partner's well-being. This model may also partly account for the present findings. To the extent that burnout results in undermining behaviours (Westman & Vinokur, 1998), it is well conceivable that employee burnout influences partner health, because the burnout of one member of the dyad is the stressor for the other member.

Limitations

Some limitations of this research should be noticed. Firstly, we used only surveys and this implies that common-method variance is a potential threat to the current findings. Future studies should try to include physician ratings of health/depression. Nevertheless, we did use two sources of information and found significant relationships between the burnout levels reported by dual-earner couples. Secondly, both studies had a cross-sectional design. This implies that we do not have any information about the causal direction of the crossover effects studied. I used theory to determine that burnout was a predictor of health and depression. Although such a relationship has been found in previous survey research (Ahola, 2007), future crossover studies should try to adopt a longitudinal design. Thirdly, the studies were limited to the crossover process and did not examine possible moderators of crossover, like the frequency of exchanging views, empathy, emotional intelligence or perspective taking (Bakker et al., 2009). Research on the crossover of burnout and other work-related states may be taken to the next level by including such moderators, focus on specific emotions like sadness, fear, but also happiness and joy (Härtel & Page, 2009), and by testing daily crossover. Finally, the percentage of the medical residents in Study 1 that asked their partners is unknown. We do not know how many of the participants really asked their partners to fill in the second questionnaire (that was included in the envelope addressed to the medical residents). Therefore, it is unclear what the exact response rate is. In addition, in Study 2, it was not recorded how many teachers were approached in total. This means that both samples can best be seen as convenience samples.

Conclusion

The present two studies suggest that burnout can cross over and influence partner health. This clearly suggests that burnout not only influences individual employees' health and behaviours, but also other people's health. Burnout is communicated to the intimate partner, and indirectly related to partner (psychological) health. This means that burnout is a social problem with far-reaching consequences. Organizations should therefore invest in job resources that may help employees to deal with their job demands. It is conceivable that such investment eventually results in positive spillover, whereby the engagement of employees influences the engagement of their partners.

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