

Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study

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Summary

This study focuses on burnout and its positive antipode—engagement. A model is tested in which burnout and engagement have different predictors and different possible consequences. Structural equation modeling was used to simultaneously analyze data from four independent occupational samples (total $N = 1698$). Results confirm the hypothesized model indicating that: (1) burnout and engagement are negatively related, sharing between 10 per cent and 25 per cent of their variances; (2) burnout is mainly predicted by job demands but also by lack of job resources, whereas engagement is exclusively predicted by available job resources; (3) burnout is related to health problems as well as to turnover intention, whereas engagement is related only to the latter; (4) burnout mediates the relationship between job demands and health problems, whereas engagement mediates the relationship between job resources and turnover intention. The fact that burnout and engagement exhibit different patterns of possible causes and consequences implies that different intervention strategies should be used when burnout is to be reduced or engagement is to be enhanced. Copyright © 2004 John Wiley & Sons, Ltd.

Introduction

Positive states are not popular in psychology. Based on an electronic search of *Psychological Abstracts*, Myers (2000) calculated that negative emotions outnumber positive emotions by a ratio of 14 to 1. The same is true for occupational health psychology: a simple count of articles that appeared from 1996 onwards in the *Journal of Occupational Health Psychology* reveals that negative work-related outcomes outnumber the positive outcomes by a comparable ratio of 15 to 1. So, it is not surprising that the emerging *positive psychology* proposes a shift from this traditional focus on weaknesses and malfunctioning towards human strengths and optimal functioning (Seligman & Csikszentmihalyi, 2000). A similar switch from burnout towards its opposite—engagement—has recently been put forward by Maslach, Schaufeli, and Leiter (2001). In the current article we propose

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a comprehensive model to predict burnout and engagement from job demands and job resources, and to relate both types of employee well-being to potential individual and organizational costs.

Burnout and engagement

Burnout is a metaphor that is commonly used to describe a state of mental weariness. Originally, burnout was considered to occur exclusively in the human services among those who do 'people work' of some kind (Maslach & Schaufeli, 1993). However, gradually it became clear that burnout also exists outside the human services (Maslach & Leiter, 1997). Consequently, the original version of the Maslach Burnout Inventory (Maslach & Jackson, 1986) was adapted for use outside the human services; this new version was called MBI-*General Survey* (MBI-GS: Schaufeli, Leiter, Maslach, & Jackson, 1996). The three dimensions of the MBI-GS parallel those of the original MBI, in the sense that they are more generic and do not refer to other people one is working with. The first dimension—*exhaustion*—measures fatigue without referring to other people as the source of one's tiredness. The second dimension—*cynicism*—reflects indifference or a distant attitude towards work in general, not necessarily with other people. Finally, *professional efficacy* encompasses both social and non-social aspects of occupational accomplishments. In the present study, the MBI-GS is used to measure burnout; high scores on exhaustion and cynicism, and low scores on professional efficacy, are indicative of burnout.

Job engagement is assumed to be the positive antipode of burnout. Or, as Maslach and Leiter (1997, p. 34) put it: 'Energy, involvement, and efficacy—these are the direct opposites of the three dimensions of burnout.' In their view, burnout is an erosion of engagement, whereby 'Energy turns into exhaustion, involvement turns into cynicism, and efficacy turns into ineffectiveness' (p. 24). According to Maslach and Leiter (1997), job engagement is assessed by the opposite pattern of scores on the three MBI dimensions: that is, low scores on exhaustion and cynicism, and high scores on efficacy, are indicative of job engagement. Hence, Maslach and Leiter (1997) consider burnout and engagement to be the opposite poles of a continuum that is entirely covered by the MBI. However, this way of using the MBI as a bipolar instrument that assesses burnout *as well as* engagement is rather questionable in view of the debate on the polarity of positive and negative affect (Diener, 1999). For instance, based on secondary analyses of a set of earlier studies, Russell and Carroll (1999) showed convincingly that positive and negative affect are independent states, rather than two opposite poles of the same bipolar dimension. In a similar vein, it could be argued that instead of being two opposite poles burnout and engagement are independent, yet negatively correlated states of mind.

We take this perspective by measuring burnout and engagement independently using different instruments. Contrary to Maslach and Leiter (1997) we do *not* feel that engagement is adequately measured by the opposite profile of MBI scores since—logically speaking—this implies that both concepts are each other's complements. Apart from the analogy with the independence of positive and negative affect this also does not make sense, given the nature and the scoring of the MBI items. For instance, feeling emotionally drained from one's work 'once a week' does by no means exclude that in the same week one might feel bursting with energy. Seen from this perspective, instead of perfectly complementary and mutually exclusive states, burnout and engagement are independent states that—because of their antithetical nature—are supposed to be negatively related. We expect the relationship between burnout and engagement to be moderately to strongly negative.¹

¹According to Cohen and Holliday's (1982) rule of thumb, correlations between 0.40 and 0.69 are considered to be moderate, whereas correlations exceeding 0.69 are considered high.

We define engagement as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption (see also Schaufeli, Salanova, González-Romá, & Bakker, 2002a). Engagement refers to a persistent and pervasive affective–cognitive state that is not focused on any particular object, event, individual, or behavior. *Vigor* is characterized by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence also in the face of difficulties. *Dedication* is characterized by a sense of significance, enthusiasm, inspiration, pride, and challenge. Vigor and dedication are the direct positive opposites of exhaustion and cynicism, respectively. The third dimension of engagement is called absorption, which was found to be a constituting element of engagement in 30 in-depth interviews (Schaufeli et al., 2001). *Absorption* is characterized by being fully concentrated and happily engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work. Being fully absorbed in one's work comes close to what has been called 'flow,' a state of optimal experience that is characterized by focused attention, clear mind, mind and body union, effortless concentration, complete control, loss of self-consciousness, distortion of time, and intrinsic enjoyment (Csikszentmihalyi, 1990). However, typically, flow is a more complex concept that includes many aspects and refers to short-term 'peak' experiences instead of a more pervasive and persistent state of mind, as is the case with absorption.

In sum: burnout and engagement are considered each other's opposites, particularly as far as exhaustion and vigor, and cynicism and dedication are concerned. The former two scales span a dimension that might be labeled *activation*, whereas both latter scales constitute the opposite poles of a dimension that might be labeled *identification* (for a theoretical discussion see Schaufeli & Bakker, 2001). In addition, burnout and engagement both include a third constituting characteristic: reduced professional efficacy and absorption, respectively.

Engagement is operationalized with the Utrecht Work Engagement Scale (UWES), a self-report instrument that includes the three dimensions that were mentioned above. Two recent studies using confirmative factor analysis demonstrated the factorial validity of the UWES (Schaufeli et al., 2002a, 2002b). As expected, the engagement and burnout scales were moderately negatively correlated. Schaufeli et al. (2002a) observed that a core burnout factor—consisting of exhaustion and cynicism—and an extended engagement factor—including professional efficacy in addition to the three original engagement scales—fitted the data best. In a similar vein, using discriminant analysis, Demerouti et al. (2001a) found that levels of job demands and job control were predicted by two discriminant functions: a core burnout function (i.e., exhaustion and cynicism—and health complaints) and an extended engagement function (i.e., including all three engagement scales plus professional efficacy). The previous results agree with Green, Walkey, and Taylor (1991), who called exhaustion and depersonalization 'the core of burnout.' Furthermore, from the perspective that engagement is the opposite of burnout, it makes sense that the only *positively* worded MBI burnout scale—professional efficacy—loads on the engagement factor.

The first objective of the current study is to test whether or not a model that includes the core of burnout (exhaustion and cynicism) as well as an extended engagement factor (vigor, dedication, absorption, and efficacy) fits better to the data compared to: (1) a model that assumes that *all* burnout and engagement scales load on a single factor, which would agree with Maslach and Leiter's (1997) approach; (2) a model that includes the original burnout (exhaustion, cynicism, efficacy) and engagement scales (vigor, dedication, absorption).

Job demands and job resources

Generally speaking, two sets of variables can be distinguished in any kind of job: job demands and job resources. Jones and Fletcher (1996, p. 34) define demands as 'the degree to which the environment

contains stimuli that peremptorily require attention and response. Demands are the “things that have to be done.” Clearly, in every job something has to be done. More specifically, we refer to job demands as those physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (i.e., cognitive or emotional) effort and are therefore associated with certain physiological and/or psychological costs. Although job demands are not necessarily negative, they may turn into job stressors when meeting those demands requires high effort and is therefore associated with high costs that elicit negative responses such as depression, anxiety, or burnout. In the present study, we included quantitative (work overload) as well as qualitative (emotional) job demands.

Job resources refer to those physical, psychological, social, or organizational aspects of the job that either/or (1) reduce job demands and the associated physiological and psychological costs; (2) are functional in achieving work goals; (3) stimulate personal growth, learning and development. Hence, resources are not only necessary to deal with job demands and to ‘get things done,’ but they also are important in their own right (Hobfoll, 2002). In the present study, we included job resources at the task-level (performance feedback), the interpersonal-level (support from colleagues), and the organizational level (supervisory coaching).

In their so-called structural model, Maslach, Jackson, and Leiter (1986, pp. 36–37) hypothesize that the presence of specific demands (i.e. work overload and personal conflicts) and the absence of specific resources (i.e. control coping, social support, autonomy, and decision involvement) predicts burnout, which in its turn is expected to lead to various negative outcomes such as physical illness, turnover, absenteeism, and diminished organizational commitment. However, their model is purely descriptive and exclusively serves as a heuristic framework for integrating study results that were obtained with the MBI. Recently, Demerouti, Bakker, Nachreiner, and Schaufeli (2001b) went one step beyond by successfully testing the so-called Job Demand-Resources (JD-R) model that posits that job demands (i.e., physical demands, time pressure, shift work) are associated with exhaustion, whereas lacking job resources (i.e., performance feedback, job control, participation in decision making, social support) are associated with disengagement. Instead of the MBI, Demerouti et al. (2001b) used a newly developed German questionnaire—the Oldenburg Burnout Inventory (OLBI; Demerouti, Bakker, Vardakou, & Kantas, 2003)—that includes both core dimensions of burnout (i.e. exhaustion and disengagement) that are conceptually similar to those of the MBI-GS (i.e. exhaustion and cynicism). However, contrary to the MBI-GS, both OLBI-dimensions are measured by negatively phrased items *as well as* by positively phrased items. By doing so, Demerouti et al. (2001b, 2003) offer a third alternative to the operationalization of burnout and engagement. While Maslach and Leiter (1997) argue that burnout and engagement are the endpoints of a continuum that is spanned by the MBI, and Schaufeli et al. (2002a, 2002b) argue that burnout and engagement are independent states that should be measured separately by different instruments, the OLBI is constituted by two bipolar scales that include positive engagement items *as well as* negative burnout items.

Theoretically speaking, the JD-R model assumes two processes: (1) an energetic process of overtaxing and wearing out in which high job demands exhaust the employee’s energy backup; (2) a motivational process in which lacking recourses preclude dealing effectively with high job demands and foster mental withdrawal or disengagement. In the current article, we extend the JD-R model as proposed by Demerouti et al. (2001b) by including engagement—as measured independently from burnout—and by adding indicators for health impairment and organizational commitment (i.e., low turnover intention) as possible consequences of burnout and engagement, respectively.

The research model

Building upon previous work our research model (see Figure 1) assumes two psychological processes.

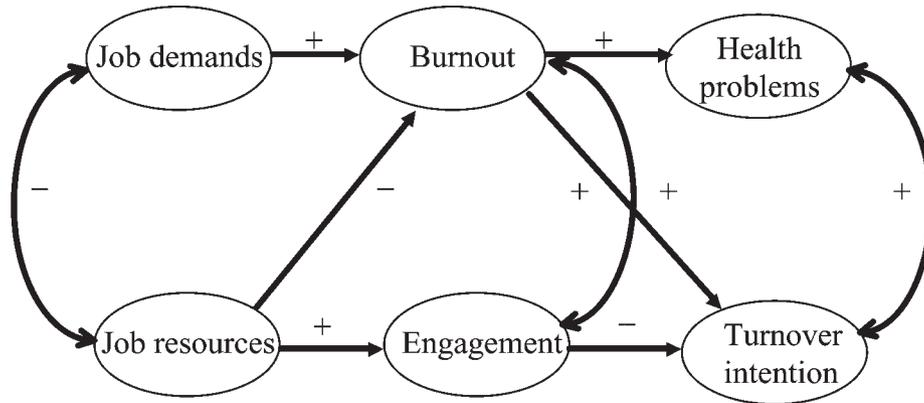


Figure 1. The research model

The energetic process

This process links job demands with health problems via burnout and can be illuminated by Hockey's (1993, 1997) state regulation model of compensatory control. This model offers a cognitive–emotional framework for understanding human performance under stress. It is concerned with the maintenance of performance stability under demanding conditions, which requires the mobilization and management of mental effort. When confronted with high job demands, which, according to our definition require sustained effort, employees either adopt performance protection strategies which are associated with extra costs, or they accept a reduction in overt performance with no increase in costs. Under normal working conditions, performance remains stable and the associated effort remains within reserve limits, though the overall level of energy spent is increased. Although an active coping response is basically adaptive in the short run, it is likely to be maladaptive as a habitual pattern of response to work or, if sustained over a prolonged period, because it might deplete the individual's energy resources.

When the perceived demands are too high to be met by the usual working effort, two options are open (Hockey, 1997). In the so-called strain coping mode, the maximum effort budget is further increased to accommodate the high level of demand. The target performance is maintained, but only at the expense of an increase in compensatory costs that are manifested psychologically (e.g., fatigue and irritability) as well as physiologically (e.g., increased excretion of cortisol). An alternative response to excessive demands is to adopt a so-called passive coping mode, which involves downward adjustment of performance targets, for instance by reducing levels of accuracy and speed. By leaving the maximum effort budget at its usual level, further psychological and physiological costs are prevented, however, at the expense of performance targets. In extreme cases, complete disengagement from the pursuit of task goals may be observed.

Although Hockey's model of compensatory control was not designed to explain burnout it is noteworthy that all three burnout dimensions are included: energy depletion (exhaustion), disengagement (cynicism), and diminished performance (reduced efficacy). Moreover, the burnout process may be described in a way that is compatible with Hockey's model. According to Maslach (1993), burnout is caused by high job demands that drain the employee's energy and in an attempt to cope with the resulting exhaustion the employee withdraws mentally. However, this is an inadequate strategy since this prevents proper performance. Indeed, it has been consistently found that emotional exhaustion is related to job demands, such as time pressure and work overload, as is shown in a meta-analysis by Lee and Ashforth (1996). Obviously, giving too much too long is energy depleting and leads to exhaustion. This agrees with the habitual active coping mode and perhaps even more so with the strain coping

mode, as described by Hockey (1997). The passive coping mode comes close to cynicism, the second core dimension of burnout. Indeed, some studies have found that exhaustion leads to cynicism, rather than the other way around (Bakker et al., 2000; Lee & Ashforth, 1993; Toppinen-Tanner, Kalimo, & Mutanen, 2002). This might suggest that Hockey's coping modes unfold in a dynamic way across time: after having invested extra energy, up to the point of exhaustion, employees 'decide' that 'enough is enough' and hence switch from an active/strain mode to a passive coping mode that is characterized by de-investment and disengagement.

Psychophysiological speaking, the habitual active coping mode, but particularly the strain coping mode, is related to increased sympathetic activity. And so is a passive coping mode, at least when performance on the job is of existential importance for the person involved, which typically is the case in burnout candidates (Schaufeli & Enzmann, 1998, pp. 77–78). The process of sympathetic overload resulting from high job demands that might lead to health impairment is known as sustained activation (Knardahl & Ursin, 1985).

The motivational process

This process links job resources via engagement with organizational outcomes (e.g., turnover intention). As follows from our definition, job resources may play either an intrinsic motivational role because they foster employees' growth, learning and development, or they may play an extrinsic motivational role because they are instrumental in achieving work goals. In the former case, job resources fulfill basic human needs, such as the needs for autonomy (DeCharms, 1968), competence (White, 1959), and relatedness (Baumeister & Leary, 1995). According to self-determination theory (Deci & Ryan, 1985) work contexts that support psychological autonomy, competence, and relatedness enhance well-being (i.e., vitality) and increase intrinsic motivation (Ryan & Frederick, 1997). For instance, proper feedback fosters learning, thereby increasing job competence, whereas decision latitude and social support satisfy the need for autonomy and the need to belong, respectively. This intrinsic motivational potential of job resources is also recognized by Job Characteristics Theory (JCT; Hackman & Oldham, 1980). According to JCT, every job has a specific motivational potential that depends on the presence of five core job characteristics: skill variety, task identity, task significance, autonomy, and feedback. Furthermore, JCT hypothesizes that these job characteristics are linked—through so-called critical psychological states—with positive outcomes such as high-quality work performance, job satisfaction, and low absenteeism and turnover.

Job resources may also play an extrinsic motivational role, because, according to the so-called Effort-Recovery model (Meijman & Mulder, 1998), work environments that offer many resources foster the willingness to dedicate one's efforts and abilities to the work task. In that case it is likely that the task will be completed successfully and that the work goal will be attained. For instance, supportive colleagues and proper feedback from one's superior increase the likelihood of being successful in achieving one's work goals.

In either case, be it through the satisfaction of basic needs or through the achievement of work goals, the outcome is positive and engagement—a fulfilling, positive work-related state of mind—is likely to occur. In its turn, it is plausible to assume that engaged workers have a low tendency to leave the organization. After all, the organization provides them with valued job resources that enhance learning, growth, and development (Houkes, Janssen, De Jonge, & Nijhuis, 2001). In other words, engagement is expected to mediate the relationship between job resources and (low) intention to leave.

Hypotheses

Our hypothetical model is graphically displayed in Figure 1. It includes the energy-depleting process of gradually wearing out (top) and the motivational process of personal development and goal

attainment (bottom). In addition, Figure 1 includes five cross-links between both processes. First, following our definition of job resources in which job resources potentially reduce job demands, we expect a negative relationship between demands and resources. Second, as argued before, we expect a negative relationship between burnout and engagement. Third, based on ample empirical evidence, we hypothesize that job resources are negatively related to burnout, whereas—fourth—burnout is positively related to turnover intention (for an overview see Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998, pp. 89–91). The theoretical rationale for the former is that lacking resources—by definition—increase job demands and may hence foster burnout. The positive relationship between burnout and turnover intention was demonstrated in a study that used a social exchange perspective in which both burnout and turnover intention were considered to originate from an inequitable exchange relationship with the organization (Geurts, Schaufeli, & De Jonge, 1998). Finally, we expect a positive relationship between health problems and turnover intentions, as has been shown in previous research (e.g., Jamal, 1990).

In sum: this study seeks to test the following four (sets of) hypotheses:

Hypothesis 1: A two-factor model that includes the core of burnout (exhaustion and cynicism) as well as an extended engagement factor (vigor, dedication, absorption, and efficacy) fits better to the data than: (a) a one-factor model and (b) an alternative two-factor model that includes the original burnout (exhaustion, cynicism, efficacy) and engagement scales (vigor, dedication, absorption).

Hypothesis 2: Burnout mediates the relation between high job demands and experienced health problems.

Hypothesis 3: Engagement mediates the relationship between job resources and (low) turnover intention.

Hypothesis 4: Various cross-links exist between the energetical and motivational driven processes:

- (a) Job demands and job resources are negatively related.
- (b) Engagement and burnout are negatively related.
- (c) Job resources are negatively related to burnout.
- (d) Burnout is positively related to turnover intention.
- (e) Health problems and turnover intention are positively related.

Hypotheses 2–4 are tested simultaneously across four independent samples by fitting the research model (see Figure 1) to the data using structural equation modeling methods.

Organizational Context

Economy

The Netherlands is a prosperous and open service-oriented economy depending heavily on foreign trade. The majority of the work force (73 per cent) works in service occupations, which is the highest rate among all EU member states. At the time of the studies (2001), the economy is noted for stable industrial relations, moderate inflation, a sizable current account surplus, and an important role as a European transportation hub. The Dutch economy has expanded by 3 per cent or more in

each of the preceding 4 years and real GDP growth was about 3.6 per cent in 2001. The labor market was tight, with an unemployment rate as low as 2.4 per cent. During that year, the government implemented its most comprehensive tax reform since World War II, designed to reduce high income tax levels and redirect the fiscal burden onto consumption. The Dutch were among the first 11 EU countries establishing the euro currency zone on January 1, 1999.

Organizations

Employees from four different Dutch service organizations participated in the present research: an insurance company, a pension fund company, an Occupational Health and Safety Service, and a home-care institution. Each of these organizations has a rich history in the Netherlands, and delivers services for the local Dutch market. The four organizations clearly differ regarding their activities and culture. The insurance and pension fund companies are finance-related, and have a management by objectives philosophy; employees mainly work with information. In contrast, the occupational health and safety service and home care organization do 'people work', and can be characterized by a strong helping orientation. Both financial organizations went through a transition at the time of the study. Due to changes in the Dutch law, the market became more open and competitive. Therefore the structure of the organization was transformed from a functional organization to an organization based on client teams. In addition, the pension fund company is different from the three other participating organizations in that it is characterized by a relatively young work force (mean age 35 years vs. 40 years for the remaining organizations) with limited job tenure. The two human service organizations did not go through recent restructurings, but had problems with attracting a sufficient number of workers, due to the shortage of labour in the tight labour market. The home-care institution is publicly funded by premiums that are collected by the tax authorities. Due to changes in Dutch working conditions legislation, the occupational health and safety service had been transformed in the early 1990s from a public funded agency into a competitive commercial organization.

Activities

The services of the insurance company include life and funeral insurance, disability insurance, pension funds, and home loans; the main activities of the employees in the pension fund company are to collect premiums, to administrate, and to pay out monthly allowances and pensions. In contrast, the occupational health and safety services provide assessment of safety risks, physical risks, and psychosocial health risks; prevention of work-related health problems, accidents, and disability; protection and promotion of employees' safety, health, and well-being; whereas the main activities of the home-care employees included nurturing of clients with physical or mental health impairments. Home-care employees provided their clients with support to improve their daily functioning (e.g., help them to get out of bed and go to the toilet, wash them, listen to their grieves, and take care of household chores, such as washing, cleaning and cooking).

Method

Samples and procedure

After informative meetings with representatives of the management, personnel department, and workers council, all employees from the four organizations received paper-and-pencil questionnaires and return envelopes at their work. The questionnaires were accompanied by a letter, in which the goal of

the study was briefly introduced, and the confidentiality and anonymity of the answers were emphasized. The employees were kindly requested to fill out the questionnaire in private and to post it afterwards in a special box at their departments.

Sample 1 ($N = 381$) consisted of employees of an insurance company (response rate 61 per cent). The sample included 261 males (69 per cent) and 120 females (31 per cent). The mean age was 40 years ($SD = 10.4$). Mean organizational tenure was 12.5 years ($SD = 10.5$ years). Twelve per cent of the sample had a managerial position. Most participants had a full-time job (64 per cent). The services of this company include life and funeral insurance, disability insurance, pension funds, and home loans.

Sample 2 ($N = 202$) consisted of employees of several branches of a large Occupational Health and Safety Service (response rate 63 per cent). The sample included 76 males (38 per cent) and 126 females (62 per cent). The mean age was 40 years ($SD = 9.0$) and mean organizational tenure was 7 years ($SD = 6.5$). The majority of the sample was on tenure (90 per cent) and most employees worked full-time (75 per cent). Twenty-five per cent of the participants had a supervisory position. Occupational health services provide: assessment of safety risks, physical risks, and psychosocial health risks; prevention of work-related health problems, accidents, and disability; protection and promotion of employees' safety, health and well-being.

Sample 3 ($N = 507$) consisted of employees of a pension fund company (response rate 83 per cent). The sample included 173 males (34 per cent) and 334 females (66 per cent) and their mean age was 35 years ($SD = 9.5$). Mean organizational tenure was 6.5 years ($SD = 7.5$). The majority of this sample had a steady contract (73 per cent) and most employees worked full-time (91 per cent). Sixteen per cent of the participants had a supervisory position. The main activities of the employees in this organization were to collect premiums, to administrate and to pay out monthly allowances and pensions.

Sample 4 ($N = 608$) consisted of employees of a home-care institution. Compared to the other samples, the response rate (47 per cent) was relatively low. Presumably this was caused by the fact that, in contrast to the other samples, in Sample 4 the investigation was not initiated by academic researchers but by management, which might have reduced employees' motivation to participate. The large majority of the sample was female (97 per cent), and the mean age was 42 years ($SD = 10.0$). Mean organizational tenure was 9 years ($SD = 7.0$). Most employees worked part-time: 1–10 hours (17 per cent), 11–20 hours (39 per cent), 21–30 hours (25 per cent), 31–36 hours (13 per cent), and more than 36 hours (6 per cent). The main activities of the home care employees included nurturing of clients with physical or mental health impairments. Home-care employees provided their clients with support to improve their daily functioning (e.g., help them to get out of bed and go to the toilet, wash them, listen to their grieves, take care of household chores, such as washing, cleaning and cooking).

Instruments

Burnout was assessed with the Dutch version (Schaufeli & Van Dierendonck, 2000) of the Maslach Burnout Inventory–General Survey (MBI-GS; Schaufeli et al., 1996). The MBI-GS includes three subscales: *Exhaustion* (EX) (five items; e.g., 'I feel used up at the end of a work day'); *Cynicism* (CY) (five items; e.g., 'I doubt the significance of my work'); *Professional Efficacy* (PE) (six items; e.g., 'I can effectively solve the problems that arise in my work'). All items were scored on a seven-point frequency rating scale ranging from 0 ('never') to 6 ('always'). High scores on EX and CY and low scores on PE are indicative of burnout (i.e., all PE items are reversibly scored). Internal consistencies (Cronbach's α) are displayed in Table 1. After removing one item ('I just want to do my job and not be bothered'), the reliability of the CY scale was substantively increased in all samples. This particular CY item is found to be notoriously unsound (see also Schutte, Toppinen, Kalimo, & Schaufeli, 2000).

Table 1. Internal consistencies (Cronbach's α) of the study variables

Variable	Sample 1 (N = 381)	Sample 2 (N = 202)	Sample 3 (N = 507)	Sample 4 (N = 608)
<i>Job demands</i>				
Work overload	0.85	0.85	0.83	0.83
Emotional demands	0.72	0.78	0.75	0.72
<i>Job resources</i>				
Feedback	0.84	0.78	0.80	0.83
Social support	0.81	0.81	0.80	0.82
Supervisory coaching	0.87	0.91	0.88	0.89
<i>Burnout</i>				
Exhaustion	0.89	0.90	0.86	0.82
Cynicism ^a	0.80	0.76	0.77	0.72
Professional efficacy	0.78	0.79	0.75	0.74
<i>Engagement</i>				
Vigor	0.82	0.80	0.78	0.75
Dedication	0.90	0.89	0.90	0.88
Absorption	0.75	0.73	0.77	0.70
<i>Outcomes</i>				
Health	0.84	0.83	0.82	0.83
Turnover intention	0.89	0.80	0.78	0.72

^aAfter removing one item (see text).

Engagement was assessed with the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002a). The items of the UWES are grouped into three subscales that reflect the underlying dimensions of engagement: *Vigor* (VI) (six items; e.g., 'When I get up in the morning, I feel like going to work'); *Dedication* (DE) (five items; e.g., 'I am enthusiastic about my job'), and *Absorption* (AB) (six items; e.g., 'When I am working, I forget everything else around me'). The engagement items are similarly scored as those of the MBI-GS. In order to avoid answering bias, burnout and engagement items were randomly merged into a 33-item questionnaire.

Job demands: Two types of job demands were included: quantitative (i.e., workload) and qualitative (i.e., emotional) demands. *Workload* was based on a Dutch version (Furda, unpublished, 1995; see also De Jonge et al., 2000) of Karasek's (1985) job content scale. The scale includes five items that refer to quantitative, demanding aspects of the job (e.g., time pressure, working hard); including 'My job requires working very hard.' Items were scored on a four-point frequency scale, ranging from 1 ('never') to 4 ('always').

Emotional demands were assessed by a five-item scale developed by Van Veldhoven and Meijman (1994; see also Van Veldhoven et al., 2002). An example item is: 'Is your work emotionally demanding?' Items were scored in a similar way as the previous scale.

Job resources: Three job resources were measured that pertain to the task (i.e., performance feedback), and the interpersonal (i.e., social support from colleagues) and organizational job contexts (i.e., supervisory coaching), respectively. *Performance feedback* was assessed with three items, based upon Karasek's (1985) job content instrument; e.g., 'I receive sufficient information about the goal of my work.' Items were scored on a five-point frequency scale, ranging from 1 ('never') to 5 ('always').

Social support from colleagues was measured with a 10-item scale developed by Van Veldhoven and Meijman (1994); e.g., 'Can you ask your colleagues for help if necessary?' Items were scored in a similar way to the previous scale (see also Van Veldhoven et al., 2002).

Supervisory coaching was measured using a Dutch adaptation of Graen and Uhl-Bien's (1991) 12-item Leader–Member exchange scale (Le Blanc, 1994); e.g., 'My supervisor uses his/her influence to help me solve my problems at work.' Items were scored in a similar way as both previous scales.

Health problems were measured with a 13-item questionnaire for psychosomatic health complaints, including headaches, cardiovascular problems, and stomach aches (Dirken, 1969). Response categories ranged from 1 ('never or rarely') to 4 ('very often'). This instrument is used by the Dutch Central Bureau of Statistics to monitor health problems in the Dutch population.

Turnover intention was assessed with a three-item scale, based on Van Veldhoven and Meijman (1994); e.g., 'I intend to change jobs during the next year.' Items were scored on a five-point scale, ranging from 1 ('completely disagree') to 5 ('completely agree') (see also Van Veldhoven et al., 2002).

As can be seen from Table 1, without exception, α -values of all scales meet the criterion of 0.70 (Nunnally & Bernstein, 1994).

Analyses

Structural equation modeling (SEM) methods as implemented by AMOS (Arbuckle, 1997) were used for data analyses. Model testing was carried out in all four samples simultaneously by using the so-called multiple-group method. First, two second-order two-factor models of burnout and engagement were tested across samples. The one-factor model (M1) assumes one underlying factor that includes all burnout and engagement dimensions, whereas the second model (M2) assumes that the three burnout dimensions (EX, CY, and PE) and the three engagement dimensions (VI, DE, and AB) both load on separate yet negatively correlated factors—'burnout' and 'engagement', respectively. In order to test Hypothesis 1, the fit of M1 and M2 was then compared with that of an alternative model (M2_{alternative}) that assumes that instead of loading on 'burnout' PE loads on 'engagement.' Next, following Taris, Bok, and Meijer (1998) the factorial invariance of the best fitting model—presumably M2_{alternative}—was investigated by: (1) constraining the second-order factor loadings to be equal across all samples; (2) constraining in addition the covariances between both latent variables be equal across all samples. When the fit of both successive models does *not* significantly deteriorate, maximum factorial invariance has been demonstrated.

In order to test Hypotheses 2–4, our research model as depicted in Figure 1 was fitted to the data (M_{original}). Two indicators (i.e., workload and emotional demands) were used to estimate the latent job demands variable, whereas feedback, social support of colleagues, and supervisory coaching were used as indicators of the latent job resources variable. Furthermore, latent ill-health and turnover intention variables were postulated that were each measured by a single indicator. In order to account for random measurement errors of both scales we set the random error variances associated with each variable equal to the product of its variance and the quantity one minus its estimated reliability, as indicated by coefficient α (Bollen, 1989). Three structural models with increasing constraints were subsequently fitted to the data. First, all parameters were freely estimated across samples; that is, parameters were allowed to differ in each sample. Next, the parameters of the structural model (i.e., those parameters that specify the relationships between the latent variables of the model as depicted in Figure 1) were constrained to be equal across samples. In the final step, in addition to these structural parameters, the parameters of the measurement model (i.e., those parameters that specify the relationships between latent and manifest variables) were constrained to be equal across samples. Following the same logic as outlined above, when the fit of the successive models does *not* significantly deteriorate, maximum invariance has been demonstrated. That is, in that case not only do similar structural relations exist between the latent variables in each sample, but also the estimated parameters that link the manifest variables with the latent variables are equal.

Fit indices

Maximum likelihood estimation methods were used and the input for each analysis was the covariance matrix of the items. The goodness-of-fit of the models was evaluated using the following absolute goodness-of-fit indices (cf. Jöreskog & Sörbom, 1986): (1) the χ^2 goodness-of-fit statistic; (2) the Root Mean Square Error of Approximation (RMSEA); (3) the Goodness of Fit Index (GFI); (4) the Adjusted Goodness of Fit Index (AGFI). Since χ^2 is sensitive to sample size—the probability of rejecting a hypothesized model increases with sample size—the use of relative goodness-of-fit measures is strongly recommended (Bentler, 1990). Following Marsh, Balla, and Hau (1996), three relative goodness-of-fit measures were calculated: (1) Normed Fit Index (NFI); (2) Non-Normed Fit Index (NNFI); and (3) Comparative Fit Index (CFI). Since the distribution of the GFI and the AGFI is unknown, no statistical test or critical value is available (Jöreskog & Sörbom, 1986). Values smaller than 0.08 for RMSEA are indicative of an acceptable fit, and values greater than 0.1 should lead to model rejection (Cudeck & Browne, 1993). For all three relative fit indices, as a rule of thumb, values greater than 0.90 are considered as indicating a good fit (Hoyle, 1995).

Results

In order to test Hypothesis, the fit of three model models was compared. First, the one-factor model (M1) was simultaneously fitted to the data of the four samples. In the next step, M2 was fitted that assumes that EX, CY, and PE load on a latent burnout variable, whereas, VI, DE, and AB load on a latent engagement variable.² As can be seen from Table 2, M1 fits rather poorly to the data with none of the fit indices meeting its criterion. Unfortunately, fitting M2 failed because the produced covariance matrix of both latent variables—‘burnout’ and ‘engagement’—was not positive definite, which might be caused by model misspecification. Next, the alternative model (M2_{alternative}) was tested, which assumes that instead of loading on burnout PE loads on engagement. As can be seen from Table 2, M2_{alternative} showed an acceptable fit to the data and it fitted significantly better to the data than M1, $\Delta\chi^2(4) = 184.49$; $p < 0.001$. Hence, Hypothesis 1b was confirmed.

However, based on the so-called modification indices, the fit of M2_{alternative} could be significantly improved ($\Delta\chi^2(38) = 184.35$, $p < 0.001$) by allowing two pairs of errors to correlate; namely the

Table 2. The fit of the second-order factor models of the MBI-GS and the UWES; multiple group analyses including Sample 1 ($N = 381$), Sample 2 ($N = 202$), Sample 3 ($N = 507$), and Sample 4 ($N = 608$)

	χ^2	d.f.	GFI	AGFI	RMSEA	NFI	NNFI	CFI
M1	605.13	36	0.90	0.78	0.10	0.86	0.79	0.87
M2 _{alternative}	420.64	32	0.97	0.83	0.08	0.91	0.84	0.91
M3	236.29	24	0.96	0.86	0.05	0.95	0.88	0.95
M4	288.20	42	0.95	0.90	0.06	0.94	0.92	0.94
M5	290.35	45	0.95	0.91	0.06	0.94	0.93	0.94
Null model	4477.07	60	0.49	0.28	0.21	—	—	—

Note: GFI, Goodness-of-Fit Index; AGFI, Adjusted Goodness-of-Fit Index; RMSEA, Root Mean Square Error of Approximation; NFI, Normed Fit Index; NNFI, Non-Normed Fit Index; CFI, Comparative Fit Index. For a description of the models, see text.

²The covariance matrices of the burnout and engagement scales of the four samples are available on request from the first author.

errors of EX and VI, and of CY and DE, respectively. Despite the danger of chance capitalization (MacCallum, Roznowski, & Necowitz, 1992) we decided to include these error terms in a re-specified model (M3) since both can be interpreted straightforwardly. Namely, as indicated above, EX and VI as well as CY and DE are each assumed to both span a dimension that has been labeled activity and identification, respectively (see Introduction). Obviously, part of the initial error variance is common and might be explained by each of these two dimensions.

In order to assess the invariance of the factor loadings (M4) and of the covariances of the latent factors (M5) across samples, the fit of M4 and of M5 was assessed relative to that of M3. Although the fit of M4 and M5 remains acceptable according to most fit indices, a formal χ^2 -difference test revealed that the difference between M3 and M4 was significant, $\Delta\chi^2(18) = 51.91, p < 0.001$. Hence, the factor loadings (as well as the correlated error terms) are *not* invariant across samples. Logically speaking the difference in fit between M3 and M5 is also significant, $\Delta\chi^2(24) = 54.06, p < 0.001$.

In sum: (1) burnout and engagement do *not* refer to one underlying dimension; (2) the core of burnout is constituted by EX and CY, whereas in addition to VI, DE and AB, PE also loads on the latent engagement variable—hence Hypothesis 1 was confirmed; (3) the estimated correlations between the latent burnout and engagement variables are moderate and range from -0.38 to -0.51 across the four samples; (4) the factor loadings and correlations between latent factors are *not* invariant across samples.

In order to test Hypotheses 2–4, the model as displayed in Figure 1 was fitted to the data of all four samples simultaneously. Table 3 shows the descriptive statistics of the study variables in the total sample. Consistent with the previously obtained results, EX and CY were included as indicators of the latent burnout variable, whereas VI, DE, AB, and PE were included as indicators of the latent engagement variable. Furthermore, also in accordance with the results of the previous analyses, the error terms of EX and VI, and of CY and DE, were allowed to correlate.

As can be seen from Table 4, the research model displayed in Figure 1 (M_{original}) fits marginally well to the data with only RMSEA meeting its criterion of < 0.08 and CFI approaching 0.90. Inspection of the modification indices revealed that the fit would improve if the error terms of DE and AB, and of VI and AB, would be allowed to correlate. This illustrates the special role of AB vis-à-vis both other engagement scales, as was indicated in the introduction. Indeed, re-specifying the model accordingly ($M_{\text{re-specified}}$) improved the fit of the model significantly, $\Delta\chi^2(8) = 163.54, p < 0.001$, with an additional increase in *all* fit indices. Next, two constrained models were fitted to the data: (1) a model with all structural parameters constrained to be equal across samples ($M1_{\text{constrained}}$); (2) a model that in addition assumes that all parameters of the measurement model are equal across samples ($M2_{\text{constrained}}$). In both cases, compared to $M_{\text{re-specified}}$ the fit of the constrained models to the data deteriorates significantly: $\Delta\chi^2(27) = 62.66, p < 0.001$ and $\Delta\chi^2(58) = 388.73, p < 0.001$, for $M1_{\text{constrained}}$ and $M2_{\text{constrained}}$, respectively. Hence, relationships between latent variables—and between latent and observed variables—are *not* invariant across samples. Inspection of the parameter estimates in all four samples revealed that particularly the estimates in Sample 4 (Home Care Institute) differed from those in the remaining three samples. Therefore, the multi-group analyses were repeated without Sample 4. Indeed, it appeared that compared to $M_{\text{re-specified}}$, the fit of $M1_{\text{constrained}}$ to the data did *not* significantly deteriorate, $\Delta\chi^2(16) = 26.12, \text{ n.s.}$ Thus, the relationships between the latent variables as specified in our research model (Figure 1) are invariant across Sample 1, Sample 2, and Sample 3. Figure 2 presents the ranges of the standardized parameters in Samples 1–3 (top), as well as those of Sample 4 (bottom).

In order to test Hypotheses 2 and 3 that assume that burnout and engagement play a mediating role, $M_{\text{re-specified}}$ was fitted simultaneously to the data of all four samples again, but now with additional paths running from job demands and job resources to health problems and intention to quit, respectively. If this model would fit better to the data than $M_{\text{re-specified}}$ this would suggest that burnout and engagement do *not* play a mediating role. However, this was *not* the case since the alternative model

Table 3. Mean (*M*), standard deviation (*SD*) and correlations (*r*) of the study variables (total sample: *N* = 1698)

Variable	<i>M</i>	<i>SD</i>	<i>r</i>													
			1	2	3	4	5	6	7	8	9	10	11	12		
1 Workload	2.62	0.49														
2 Emotional demands	2.10	0.56	0.20													
3 Social support	3.89	0.86	-0.18	0.01												
4 Coaching	3.09	0.76	-0.11	-0.11	0.30											
5 Feedback	2.97	0.89	-0.03	-0.12	0.19	0.55										
6 Exhaustion	1.74	1.05	0.28	0.23	-0.22	-0.16	-0.20									
7 Cynicism	1.76	1.46	0.14	-0.04	-0.23	-0.14	-0.09	0.31								
8 Professional efficacy	4.15	0.83	0.03	0.04	0.25	0.24	0.32	-0.20	-0.16							
9 Vigor	3.94	0.91	0.00	-0.06	0.15	0.25	0.30	-0.40	-0.16	0.59						
10 Dedication	4.13	1.12	-0.02	0.10	0.26	0.29	0.30	-0.28	-0.29	0.63	0.66					
11 Absorption	3.71	0.94	0.07	0.10	0.07	0.19	0.21	-0.07	-0.12	0.47	0.62	0.67				
12 Health problems	3.47	0.37	0.15	0.18	-0.12	-0.14	-0.20	0.56	0.16	-0.16	-0.32	-0.19	-0.08			
13 Turnover intention	2.43	1.02	0.16	0.05	-0.22	-0.24	-0.16	0.23	0.15	-0.14	-0.16	-0.39	-0.20	0.11		

Notes: Correlations of 0.09 or higher are significant at *p* < 0.001. The covariance matrices of the four samples are available on request from the first author.

Table 4. The fit of the research model (see Figure 1), multiple group analyses including Sample 1 ($N=381$), Sample 2 ($N=202$), Sample 3 ($N=507$), and Sample 4 ($N=608$)

	χ^2	d.f.	GFI	AGFI	RMSEA	NFI	NNFI	CFI
M_{original}	1041.46	224	0.92	0.86	0.05	0.87	0.85	0.89
$M_{\text{re-specified}}$	876.92	216	0.93	0.88	0.04	0.89	0.88	0.91
$M1_{\text{constrained}}$	939.58	243	0.92	0.88	0.04	0.88	0.87	0.91
$M2_{\text{constrained}}$	1265.65	274	0.90	0.87	0.05	0.84	0.85	0.87
Null model	7905.85	312	0.49	0.40	0.12	—	—	—

Note: GFI, Goodness-of-Fit Index; AGFI, Adjusted Goodness-of-Fit Index; RMSEA, Root Mean Square Error of Approximation; NFI, Normed Fit Index; NNFI, Non-Normed Fit Index; CFI, Comparative Fit Index. For the a description of the models, see text.

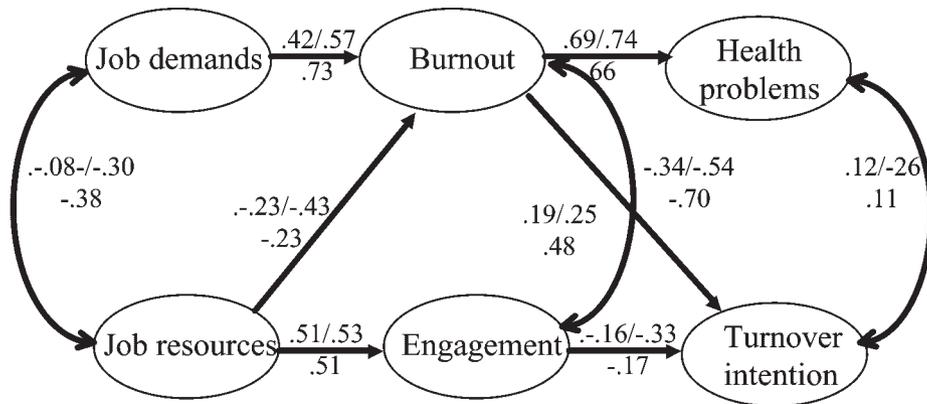


Figure 2. The research model (standardized path coefficients). Top: range of coefficients in Samples 1–3. Bottom: coefficients of Sample 4

fitted significantly worse to the data compared to $M_{\text{re-specified}}$, $\Delta\chi^2(8) = 48.54; p < 0.001$. Inspection of the parameter estimates of the direct effects revealed that only in Sample 3 was the relationship between job resources and turnover intention substantial (i.e., -0.30), whereas in the remaining seven cases these direct effects were either non-significant or marginally significant with critical values ≤ 2.00 .

Hence, we can conclude that Hypothesis is confirmed: burnout fully mediates the relationship between job demands and health problems. In a similar vein, Hypothesis assuming that engagement mediates the relationship between job resources and turnover intention was also supported. Only in Sample 3 was a partial mediation effect observed.

As can be seen from Figure 2, job demands and job resources were negatively correlated in all samples, but only in Samples 3 (-0.30) and 4 (-0.38) was this negative association was significant, so that Hypothesis 4a was partially confirmed. Furthermore, burnout and engagement are negatively related, thus confirming Hypothesis 4b. It should be noted, however, that as a result of our previous analyses, PE is modeled as a constituting element of engagement rather than of burnout. As expected in Hypothesis 4c, job resources are negatively related to burnout. In its turn, as hypothesized in Hypothesis 4d, burnout is positively related to turnover intentions. Finally, and again as expected, health problems and turnover intention were positively correlated in all samples. However, the associations were rather weak and only reached significance in Sample 1 (0.26), so that Hypothesis 4d was confirmed only in Sample 1.

In order to rule out the possibility that other cross-links might exist, $M_{\text{re-specified}}$ was fitted to the data again, but now with two additional paths: job demands \rightarrow engagement and engagement \rightarrow health problems. However, compared to $M_{\text{re-specified}}$, the resulting model fitted significantly worse to the data: $\Delta\chi^2(8) = 37.44$, $p < 0.001$.

Overall, it can be concluded that particularly strong and consistent relationships exist between (1) job demands and burnout, (2) burnout and health problems, and (3) job resources and engagement (see Figure 2). In contrast, the cross-links between job resources and burnout, and between burnout and turnover intention, are much weaker, as is the relationship between engagement and turnover intention. This agrees with the two main processes that we have described in the Introduction: (1) an energetic, effort-related process: job demands \rightarrow burnout \rightarrow health problems; (2) a motivation process: job resources \rightarrow engagement \rightarrow low turnover intention. Furthermore, some paths are remarkably similar across samples with ranges smaller than 0.10, whereas ranges of other paths are typically 0.20 (the estimates of Sample 4 exceed these ranges on some occasions). The three strongest paths are also the most similar across samples: demands \rightarrow burnout, burnout \rightarrow health problems, and resources \rightarrow engagement (see Figure 2). In addition, the estimated path burnout \rightarrow turnover intention is rather similar across samples as well. Finally, more variance is explained in burnout (mean across samples: 48 per cent range: 29–72 per cent) and health problems (mean across samples: 37 per cent; range: 33–42 per cent) compared to engagement (mean across samples: 27 per cent; range: 26–28 per cent) and turnover intention (mean across samples: 17 per cent; range: 9–24 per cent). This suggests that the effort-driven, energetic process is more pervasive than the motivational process.

Discussion

The aim of the current study was to test a research model that specifies possible predictors and consequences of burnout and engagement, based on an energetically driven and a motivational driven process, respectively. In doing so, we sought to contribute to what is currently known as positive psychology (Seligman & Csikszentmihalyi, 2000). That is, in addition to a negative psychological state like burnout, which is commonly researched in occupational health psychology, we also explored the role of its positive antipode: job engagement. In order to reduce the risk of change capitalization, a multi-sample approach was used that included four samples consisting of employees from commercial organizations (i.e., an insurance company, a pension fund company, and an occupational health and safety service) as well as from a not-for-profit human service organization for home care.

Burnout and engagement

Instead of loading on one single general well-being dimension, the burnout and engagement scales loaded on two separate, moderately negatively correlating dimensions. Obviously, in contrast to the assumption of Maslach and Leiter (1997), burnout and engagement—when measured by different instruments—do *not* merge into one single dimension with high opposite factor loadings for each construct. Instead, it appeared that an a priori formulated alternative model fits best to the data which assumes a ‘core of burnout’ dimension (Green et al., 1991), including exhaustion (EX) and cynicism (CY) as well as an enlarged engagement dimension. The latter includes in addition to the three engagement scales—vigor (VI), dedication (DE), and absorption (AB)—the positively worded burnout scale that assesses professional efficacy (PE). Both dimensions are moderately negatively related, roughly

sharing one tenth to a quarter of their variance. Thus, put differently, the alternative model suggests that PE loads on the 'wrong' factor; rather than being a burnout component, PE appears to be an element of engagement. However, it cannot completely be ruled out that this finding reflects an artifact since, like the engagement items, all PE items are positively formulated, whereas all EX and CY items are negatively formulated. As noted before, in trying to minimize answering bias that could lead to such an artifact we randomly merged all positive and negative items into one questionnaire.

Our results agree with cumulating evidence that points to the divergent role that lack of professional efficacy plays as compared to exhaustion and cynicism, which seem to constitute the essence of the burnout syndrome (Maslach et al., 2001). Furthermore, our results concerning the structure of burnout and engagement agree with earlier findings obtained by Schaufeli et al. (2002a) in two Spanish samples of students and employees, respectively. Despite this successful replication, the present study was unable to show that the factor loadings and the correlations between burnout and engagement are invariant across all four samples. Thus it seems that, although the model fits well across samples, the contribution of the scale scores to both factors as well as the relationship between them differs from sample to sample. In addition, the current study showed that the fit of the two-factor model improves significantly when correlations are allowed between the error terms of VI and EX, and of DE and CY. This agrees with our theoretical reasoning in the introduction that VI and EX, and DE and CY, are the end-points of a two underlying dimensions that have been labeled 'activation' and 'identification,' respectively.

In sum, results of the current study replicate the findings of Schaufeli et al. (2002a), who showed that burnout and engagement are moderately negatively related, whereby instead of a burnout component PE seems to be an element of engagement. Moreover, some indications were found for the existence of two underlying dimensions (i.e., activation and identification), which hints to the central role of VI and EX, and DE and CY, at the expense of PE and AB.

The research model

The hypothesized model (see Figure 1) fits reasonably well to the data of the four samples under study—albeit after two correlations between error terms of engagement scales were allowed. These two correlated error terms, which both involve AB, illustrate the special role that this dimension seems to play, as compared to both core characteristics of engagement (i.e., VI and DE). Furthermore, the structural relationships between the latent variables of the research model are invariant across three of the four samples; only the estimates from Sample 4 (a home care organization) differ systematically from those of the other three samples. In order to investigate the possibility that this difference reflects the over-representation of (part-time working) females in Sample 4 as compared to the other three samples (97 per cent vs. 61 per cent), the model as depicted in Figure 2 ($M_{\text{re-specified}}$) was fitted separately in the male ($N=529$) and the female ($N=1169$) subsamples. Since compared to the female sample, $M_{\text{re-specified}}$ fitted slightly better in the male sample, it cannot be ruled out that the divergent results observed in Sample 4 are due to the fact that this sample almost exclusively consists of females, of which—in addition—53 per cent work 20 hours per week or less. The two most characteristic differences in estimated model parameters that are observed among women working in home care are that high job demands are relatively strongly (0.73) related to burnout symptoms, which in their turn are relatively strongly (0.48) related to the intention to leave the organization (see Figure 2). It can be speculated that the fact that women who are employed in home care and who experience high levels of job demands and (thus) burnout are particularly likely to leave the organization because they perceive available alternative opportunities (Rusbult & Farrell, 1983). Namely, instead of working full-time as the principal breadwinner, most women in home care work part-time to supplement the family

budget. Accordingly, the barrier to leave the work situation is rather low, particularly when job demands as well as levels of burnout are high the traditional role as house-wife may become more appealing.

Not only does the hypothesized research model fit to the data, but it is superior to the fit of two alternative models as well: (1) a model that in addition assumes direct paths from job demands to health problems, and from job resources to turnover intention; (2) a model that in addition assumes cross-links between job demands and engagement, and between engagement and health problems. Taken together, the results from these additional analyses suggest that: (1) burnout and engagement seem to fully mediate the job demands—health problems relationship and the job resources—turnover intention relationship, respectively; (2) burnout rather than engagement seems to play a central role in the model; it is related to all five latent variables in the model whereas engagement is only related to three latent variables. Also the model explains more variance in burnout than in engagement.

The main assumption of the proposed model, namely that two underlying processes exist, remains unchallenged; (1) an effort-driven energetic process in which burnout plays a key role and that might lead to negative health outcomes; (2) a motivational process that is driven by the availability of job resources and in which engagement plays a key role. It seems that—in terms of explained variance—the former process is more pervasive compared to the latter process. Moreover, compared to the relationships between the elements of these two processes, both hypothesized cross-links (i.e., job resources → burnout and burnout → turnover intention) are relatively weak. Finally, it appeared that job demands and job resources are negatively related; the correlation is non-significant in Samples 1 and 2 and significant in Samples 3 and 4. Obviously, high levels of job demands concur with low levels of job resources and vice versa. This makes sense because job resources have been defined as those aspects of the job that may reduce job demands. So when resources are lacking, demands are not likely to be diminished and will remain high.

On a more general level, our study illustrates that negative psychological states (i.e., burnout) and positive psychological states (i.e., engagement) play similar roles in quite different processes. The former plays a mediating role in an effort-based energetic process that is driven by high job demands and that eventually might lead to health problems, whereas the latter plays a mediating role in a motivational process that is driven by available resources and that might lead to organizational attachment (i.e., a low turnover tendency). Hence, including a positive psychological state increases our understanding of employee functioning.

Study limitations and directions for further research

The main limitation of the current study is its cross-sectional nature. Although the use of arrows in the research model as depicted in Figures 1 and 2 suggests causality, this suggestion is clearly wrong. For instance, it cannot be ruled out that the relationship between job demands and burnout, or between burnout and health complaints, is influenced by a 'third variable,' most notably negative affectivity (NA; Watson & Clark, 1984). Research, however, seems to justify the omission of this potential confounder in job stress research using self-reports. For instance, Moyle (1995) in a study of possible influences that NA could have on the stressor–strain relationship concluded that NA cannot generally account for the observed correlations between work environment measures and strains. In a similar vein more recent studies have corroborated that NA does not overly distort relationships between self-report measures of stressors and strains (e.g. Schonfield, 1996; Williams, Gavin, & Williams, 1996; Dollard & Winefield, 1998; De Jonge et al., 2001). These results led some authors to voice criticisms against the previously recommended practice to control for person-based measures of NA (Brief et al., 1988). For instance, Karasek et al. (1998) argued that the cure could be worse than the problem

and could easily be overdone, leading to Type II statistical errors: true variance in strain measures could be removed with NA. Likewise, after reviewing a range of possible mechanisms by which NA could affect the stressor-strain relationship, Spector, Zapf, Chen, and Frese (2000) warn not to 'throw out the baby with the bath water.' They argue that partialling NA out is the wrong approach, instead a better quality of the data is the way forward. At any rate, our research model needs to be tested longitudinally (since NA is supposed to be a stable personality trait it is automatically accounted for in longitudinal panel studies). That is, it should be investigated whether job demands and job resources at Time 1 predict burnout and engagement at Time 2, and whether burnout and engagement in their turn predict health problems and organizational withdrawal at Time 3. As far as burnout is concerned, few longitudinal studies with mixed results have been conducted regarding its antecedents and consequences (for an overview see Schaufeli & Enzmann, 1998, pp. 93-98). So far, no longitudinal studies on engagement have been carried out.

Secondly, our study exclusively relies on self-report measures. As noted in the Introduction, particularly the effort-related energetic process linking job demands, burnout, and health problems has physiological concomitants that have to be included in future research on our model. To date, only few studies have been carried out on the psychophysiology of burnout (e.g., Melamed, Ugarten, Shirom, & Kahana, 1999), which yielded conflicting results. In a somewhat similar vein, the second motivational process includes behavioral indicators that may be measured more objectively by using company files (e.g., regarding actual personnel turnover, sickness absenteeism, performance). So far, studies on engagement that include such objectively measured behavioral indicators are lacking.

Thirdly, despite the different role that the burnout and engagement seem to play in the energetic and motivational processes, respectively, their antecedents and consequences partly overlap; that is, like engagement burnout is also related to (lack of) recourses—albeit much weaker—and to turnover intention. The former relationship is most likely due to the fact that demands and resources are not independent—lacking resources may also increase demands—whereas the latter might reflect the nature burnout which is characterized by (mental) withdrawal from the stressful job environment. In order to make an even more convincing case for the discriminant validity of burnout and engagement, it follows that future research should include other resources that are more distal from job demands (e.g., career perspective, skill development, and learning opportunities) as well as other outcomes that have less conceptual overlap with burnout (e.g., job performance and extra-role behavior).

Although we tested our model in four independent samples that were drawn from different types of organizations, there is still an apparent need for replication in other samples using different types of indicators for job demands and job resources as well as for different types of individual and organizational outcomes. In fact, our model is indifferent as far as specific job demands, job resources, health outcomes, or motivational outcomes are concerned.

Practical implications

Since job demands play a central role in the hypothesized energetic process that might lead to burnout and health problems, but also to potential negative organizational outcomes such as the intention to leave the organization, reducing those demands seems to be warranted. Many preventive organizational based strategies exist to tackle high job demands, such as job redesign, flexible work schedules, and goal setting (for an overview see Quick, Quick, Nelson, & Hurrell, 1997; pp. 163-206). Increasing job resources (e.g., through participative management, increasing social support, and team building), on the other hand, would eventually lead to more engagement at the job, but its indirect effect on turnover intention is rather small; and so is its direct effect on burnout. Hence, from a preventive point of view, decreasing job demands is to be preferred above increasing job resources.

Since burnout plays a key role in the model, individual-based interventions to reduce burnout symptoms might also be an avenue to explore (for an overview of such interventions see Schaufeli & Enzmann, 1998, pp. 146–168). Recently, Van der Klink, Blonk, Schene, and Van Dijk (2001) have shown in a meta-analysis of 48 studies that particularly stress management programs that use a cognitive-behavioral approach are effective in reducing stress reactions, including burnout. Clearly, such individual-based programs should be supplemented by organization-based programs in order to be effective in the long run. For instance, based on an in-depth analyses of 11 case studies, Kompier and Cooper (1999) identified a combination of work-directed and worker-directed measures as one of the five critical success factors for the prevention of job stress in organizations.

We hope that with the proposed model we have contributed not only to a better understanding of burnout—a traditional issue in occupational health psychology—but also to the relatively new ‘positive’ concept of job engagement.

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