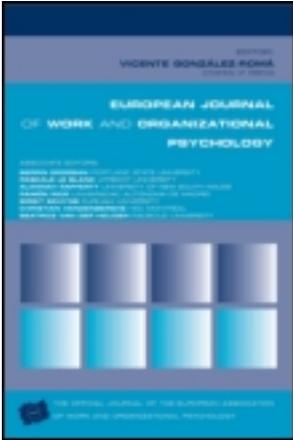


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The job demands-resources model and counterproductive work behaviour: The role of job-related affect

Cristian Balducci ^a, Wilmar B. Schaufeli ^b & Franco Fraccaroli ^c

^a Department of Political Science, University of Bologna, Bologna, Italy

^b Department of Social and Organizational Psychology, University of Utrecht, Utrecht, The Netherlands

^c Department of Cognitive and Education Sciences, University of Trento, Rovereto, Italy

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The job demands–resources model and counterproductive work behaviour: The role of job-related affect

Cristian Balducci

Department of Political Science, University of Bologna, Bologna, Italy

Wilmar B. Schaufeli

*Department of Social and Organizational Psychology, University of Utrecht,
Utrecht, The Netherlands*

Franco Fraccaroli

*Department of Cognitive and Education Sciences, University of Trento,
Rovereto, Italy*

The Job Demands–Resources (JD-R) model postulates that job demands and job resources constitute two processes: the health impairment process, leading to negative outcomes, and the motivational process, leading to positive outcomes. In the current research we extended the JD-R model by including both counterproductive work behaviour (CWB) as a behavioural stress-reaction and job-related affect as a mediator in both processes. In a sample of 818 public-sector employees we found support for a model where job demands (workload, role conflict, and interpersonal demands) were associated with abuse/hostility CWB, whereas job resources (decision authority, social support, and promotion prospects) were associated with work engagement. Furthermore, job-related negative affect mediated the relationship between job demands and abuse/hostility CWB, whereas job-related positive affect mediated the relationship between job resources and work engagement. We also found that the impact of job demands on negative affect was attenuated by job resources.

Keywords: Abuse/hostility; Work engagement; Counterproductive work behaviour; Job demands–resources model; Job-related affect.

Correspondence should be addressed to Cristian Balducci, Department of Political Science, University of Bologna, Via dei Bersaglieri, 6/c – 40125 Bologna, Italy.
E-mail: cristian.balducci3@unibo.it

The constant and rapid changes that occur in the world of work (Kompier, 2006; Landsbergis, 2003) have posed new challenges for occupational health research. A number of researchers (e.g., Cunningham, de La Rosa, & Jex, 2008; Hellgren, Sverke, & Näswall, 2008) have argued that the most widely used models of work stress, namely the demand-control-support model (DCS; Johnson & Hall, 1988; Karasek, 1979; Karasek et al., 1998) and the effort-reward imbalance model (ERI; Siegrist, 1996; Siegrist et al., 2004), may have limitations in capturing the new, complex, and often context-specific determinants of job stress and occupational well-being. In an attempt to meet these criticisms, a new model of work stress has been recently introduced: the Job Demands–resources model (JD-R; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). The basic tenet of this model is that each work environment has its own set of characteristics that determine employee health and well-being. The JD-R model does not propose new theoretical constructs; rather, it is a conceptual framework that can be applied in all occupational settings to identify potentially damaging job characteristics (job demands) and protective factors (job resources) that can be used to promote employee well-being (Demerouti et al., 2001).

The JD-R model has been successfully adopted in a number of studies concerned with different occupational settings and different sets of job demands and job resources (Bakker, Demerouti, & Euwema, 2005; Bakker, Demerouti, & Schaufeli, 2003; Llorens, Bakker, Schaufeli, & Salanova, 2006). However, most—if not all—studies on the model have taken burnout to be the main outcome of the stress process. One of the aims of the present study is to test the robustness of the JD-R model beyond burnout by including a negative behavioural outcome that is basically independent of burnout and does not necessarily reflect a psychopathological process associated with chronic stress. To this end, we focus on counterproductive work behaviour (CWB; Fox & Spector, 2005; Sackett, 2002; Sackett & DeVore, 2001), a phenomenon that has been frequently explained in terms of dispositional tendencies (Dilchert, Ones, Davis, & Rostow, 2007; Ones & Viswesvaran, 2001), but which has also been conceptualized as a manifestation of job stress (Fox, Spector, & Miles, 2001; Spector & Fox, 2005).

A second novel aspect of the present study is its focus on the role of job-related affect in the relation between job demands and job resources and health and well-being. Research aimed at understanding the role of job-related affect has increased relatively recently (Totterdal, Wall, Holman, Diamond, & Epitropaki, 2004; van Katwyk, Fox, Spector, & Kelloway, 2000), and it is usually restricted to negative affect (e.g., Fox et al., 2001), although this is only half of the spectrum of job-related affective experiences. In this study, therefore, we seek to integrate the role of job-related affect within the JD-R model by focusing on both negative and positive affect, and

by postulating that affect plays a crucial mediating role in the job stress process.

JOB DEMANDS, JOB RESOURCES, WORK ENGAGEMENT, AND COUNTERPRODUCTIVE WORK BEHAVIOUR

The JD-R model postulates that, although every occupation has its own specific risk and protective factors affecting individual well-being, these factors may be classified in the two broad categories of job demands and job resources (Bakker & Demerouti, 2007; Demerouti et al., 2001; Schaufeli & Bakker, 2004). Job demands are the physical, psychological, and social/organizational aspects of the job (e.g., time pressure, workload, emotional demands) that require physical or mental effort and are thus associated with the consumption of psychophysical energy, and which in the longer run may potentially give rise to health problems. Job resources, on the other hand, are the physical, psychological, and social/organizational aspects (e.g., social support, organizational justice, career opportunities) that, by fulfilling basic human needs or by facilitating the achievement of work goals, attenuate job demands, and/or stimulate personal growth and development. According to the JD-R model (see, e.g., Bakker & Demerouti, 2007), job demands and job resources are responsible for two substantially independent processes. Job demands engender a health impairment process leading to stress-related negative outcomes such as burnout, and job resources promote a motivational process leading to positive outcomes such as work engagement (Bakker & Demerouti, 2008; Bakker & Schaufeli, 2008; Bakker, Schaufeli, Leiter, & Taris, 2008; Schaufeli & Salanova, 2007, 2008).

Research has furnished robust empirical support for the two processes hypothesized by the JD-R model (Hakanen, Bakker, & Demerouti, 2005; Hakanen, Bakker, & Schaufeli, 2006; Hakanen, Schaufeli, & Ahola, 2008; Llorens et al., 2006; Schaufeli & Bakker, 2004). Schaufeli and Bakker (2004), for example, tested the model on four different samples of workers in the service sector and found that job demands positively affected burnout, which in turn affected psychosomatic complaints (i.e., the health impairment process), whereas job resources positively impacted on work engagement, which in turn negatively predicted turnover intention (i.e., the motivational process). These results have been replicated longitudinally (e.g., Hakanen et al., 2008; Schaufeli, Bakker, & van Rhenen, 2009), and they have also been corroborated (Demerouti et al., 2001) by using independent observations of job characteristics (i.e., observer ratings). Thus, given this robust evidence in support of the JD-R model of burnout, it seems likely that the basic processes of the JD-R model reflect more general processes of human functioning at work, of which burnout is only one possible manifestation. In this case,

the JD-R model should explain qualitatively different outcomes of the stress process, such as CWB, a behavioural manifestation of job stress (Fox et al., 2001). The JD-R model has been rarely used to predict behavioural correlates of job stress. In the few studies in which this has been done (e.g., Bakker, Demerouti, de Boer, & Schaufeli, 2003; Bakker, Demerouti, & Schaufeli, 2003), sickness absence was taken as outcome measure, but again in relation to the experience of chronic stress (i.e., burnout).

CWB (Fox & Spector, 2005; Ones, 2002; Sackett, 2002) has received increasing attention in the past decade or so. The term CWB refers to volitional acts that harm or intend to harm organizations and their stakeholders. The most salient form of CWB is physical violence (Di Martino, Hoel, & Cooper, 2003; LeBlanc & Barling, 2005). However, it may also take the form of much less striking behaviours such as the theft of objects belonging to the employer or to colleagues, organizational withdrawal, acts of abuse and hostility towards others, and sabotage (Spector & Fox, 2005).

To explain the occurrence of CWB, Spector and Fox (2005) have built upon models derived from aggression theories (e.g., Neumann & Baron, 2003, 2005) and have suggested that CWB may be a reaction to frustration at work due to a number of organizational factors that impede performance. Indeed, research has shown a clear link between work stressors such as interpersonal conflict, workload, role conflict, and role ambiguity, on the one hand, and CWB on the other (for a review, see Spector & Fox, 2005). Personal factors such as self-control (Marcus & Schuler, 2004) and negative affectivity (Douglas & Martinko, 2001) may also be important factors in this process. A limitation of the available research in this area is that a comprehensive model which tries to explain the process leading to CWB has not yet been attempted. Accordingly, in the research reported by this study we used the theoretical framework offered by the JD-R model to investigate CWB. More specifically, we hypothesized that CWB is an outcome of the health impairment process as described by the JD-R model. Most research on CWB (e.g., Bechtoldt, Welk, Hartig, & Zapf, 2007) has been carried out by using different types of global measures of counterproductivity. Recent research (Rosigno & Hodson, 2004; Spector et al., 2006), however, has shown that there may be differences in the antecedents of the different facets of CWB. Therefore, we focused on a specific form of CWB, namely abuse/hostility towards others (stated differently, CWB targeting persons). Previous research showed that abuse/hostility is significantly related with different kinds of job demands (Barling, Duprè, & Kelloway, 2009; Spector & Fox, 2005) as well as with job-related affect (Spector et al., 2006)—two crucial components of the model tested in the current study.

As regards the motivational process hypothesized by the JD-R model, we used work engagement (see e.g., Bakker et al., 2008) as a key component of

this process. Work engagement may be defined as an enduring work-related psychological state characterized by feelings of vigour, dedication, and absorption, and it may be considered a well-established outcome of the availability of resources at work (see e.g., Bakker & Demerouti, 2008). Thus, on the basis of these considerations, we sought evidence for the following two hypotheses:

Hypothesis 1: The availability of job resources is positively related to the experience of work engagement.

Hypothesis 2: Job demands are positively related to abuse/hostility CWB.

THE ROLE OF AFFECT IN THE JOB STRESS PROCESS

Affect refers to consciously accessible feelings (Fredrickson, 2001), including different moods and emotions. According to Lazarus's transactional model (see e.g., Lazarus, 2006), psychological stress involves affective arousal and the activation of regulative processes intended to manage these affects. Furthermore, "situations vary greatly in whether they pull for threat or challenge. Some clearly impose too much of a demand on a person's resources to lead to challenge, and they are likely to be threatening, whereas other situations provide much latitude for available skills and persistence, and so encourage challenge rather than threat" (p. 77). This means that both negative and positive affective arousal may ensue from a stressor encounter. Nevertheless, stress research has mainly focused on negative emotions such as anger, anxiety, and fear. However, with the emerging positive psychology movement (Seligman & Csikszentmihalyi, 2000), increasing attention is being paid to positive emotions (Folkman, 2008; Fredrickson, 1998), so that there is now evidence (Pressman & Cohen, 2005; Steptoe, Gibson, Hamer, & Wardle, 2007) that they play a health protective role. According to the Broaden-and-Build theory proposed by Fredrickson (1998, 2001), positive emotions have a similar adaptational function as negative emotions, since they *broaden* people's momentary thought-action repertoires and build their enduring physical, intellectual, social, and psychological resources that may be used to manage future threats. Also in the case of organizational research, the role of affect has been mainly studied in terms of negative affect. Alternatively, affective experiences have been studied by using measures of job satisfaction—although the latter is not an adequate measure of affect, but rather a more complex construct with diverse attitudinal aspects (Spector, 1997)—or by using dispositional, context-free measures of affect such as negative affectivity (Watson, Clark, & Tellegen, 1988).

Thus, while it is increasingly acknowledged (Frost, 2003; van Katwyk et al., 2000) that job-related affective experiences may play a crucial role in mediating the relationship between the work environment and positive and negative health and well-being outcomes, there is a need for more refined research in this area.

A recent elaboration on the construct of work engagement (Salanova, Schaufeli, Xanthopoulou, & Bakker, 2010) suggests that it may develop through the experience of positive affective states at work, which in their turn are related to the psychosocial resources made available by the organization. As far as CWB is concerned, a number of researchers believe that the effect of organizational stressors on CWB is mediated by the experience of job-related negative affect. Spector and Fox (2005), for example, propose with their stressor emotion hypothesis that emotionally critical internal states such as anger, anxiety, and fear are the immediate antecedents of CWB, which is seen as a way to enact (and discharge) such states. A very similar view is put forward by Bechtoldt et al. (2007), who suggest that CWB is an emotion-regulation strategy with which individuals may overcome negative emotions at work. In line with this interpretation, research has shown that perceived stressors usually associated with CWB (e.g., role conflict, organizational constraints), are indeed related to the experience of negative emotions such as anger and anxiety (see Spector & Goh, 2001, for a meta-analysis). Nevertheless, evidence in favour of the mediational role of job-related affect in the process leading to CWB is still scarce—an exception is Fox et al. (2001). Thus, given our assumption that job-related affect may be a critical factor in the job-stress process, we formulate the following predictions:

Hypothesis 3: Positive job-related affect mediates the relationship between job resources and work engagement.

Hypothesis 4: Negative job-related affect mediates the relationship between job demands and abuse/hostility CWB.

THE BUFFERING ROLE OF JOB RESOURCES

A further proposition of the JD-R model (Bakker & Demerouti, 2007) is that the resources available on the job might offset the effect of job demands in the health impairment process. This is the so-called buffering hypothesis, which was first proposed by Karasek (1979) and studied in his DCS model by using decision latitude and social support as the buffering elements. On the whole, however, the buffering hypothesis received only modest empirical support in successive studies (de Jonge & Kompier, 1997; de Lange, Taris, Kompier, Houtman, & Bongers, 2003). The JD-R model insists on the

buffering potential of job resources by proposing that not only social support and decision latitude may act as buffers, but also other resources such as supervisory feedback and coaching, promotion prospects, etc. This extended buffering hypothesis, however, has not received much empirical attention to date, with only few studies finding evidence in support of it (Bakker et al., 2005; Xanthopoulou, Bakker, Dollard, et al., 2007b). Hence, a further aspect of interest of the present study is that it investigates the buffering potential of job resources in the health impairment process.

Buffering of job resources may occur at different stages of the stressor-strain relationship, more particularly at the level of perception by altering the appraisal process, or at the level of the response by moderating the consequences of the appraisal (for a more thorough discussion see Bakker & Demerouti, 2007). Thus, according to the mediation model of abuse/hostility CWB proposed in the present study, job resources may attenuate the occurrence of abuse/hostility in two different ways (Fox, Spector, & Rodopman, 2004). First at the beginning of the process, they may do so by offsetting the effect of job demands on job-related negative affect. Second and later in the process, they may do so by directly attenuating the relationship between job-related negative affect and abuse/hostility CWB. Hence, we finally formulate the following hypotheses:

Hypothesis 5: Job resources moderate the relationship between job demands and job-related negative affect. Specifically, at higher levels of job resources there is a weaker relationship between job demands and job-related negative affect.

Hypothesis 6: Job resources moderate the relationship between job-related negative affect and abuse/hostility CWB. Specifically, at higher levels of job resources the relationship between job-related negative affect and abuse/hostility is weaker.

METHOD

Participants

Data were collected between April and October 2007 in the context of a psychosocial risk assessment conducted in a public administration agency in central Italy. As part of this assessment, all workers in nonmanagerial positions were requested to fill in a structured, anonymous questionnaire. Participation to the survey was on a voluntary basis, with the questionnaire being administered during working hours separately for each of the 13 departments of the organization. A total of 818 employees participated; the overall response rate was 58.8%, and varied between 40% and 72.2% in

different departments. The sample was made by females in 50.3% of the cases; this represented fairly well the gender distribution in the organization (49.2% were females). The ages of participants were distributed as follows: 0.8% were aged 20–29, 21% were 30–39, 42.7% were 40–49, 32.1% were 50–59 and 3.4% were 60 or more. As far as the age distribution in the population, 65% of employees were aged 40 years or above, which indicates that the sample had a certain approximation to the population as far as age is concerned. Most of participants (97.9%) had permanent job contracts. Given the sensitive nature of the questionnaire contents, no further demographic data were collected.

Measures

Job demands. Previous qualitative interviews conducted by the first author with employees of the organization suggested that three common sources of stress were interpersonal relationships, role stressors, and work overload. We therefore operationalized job demands in terms of workload, role conflict, and interpersonal demands.

- Workload was measured by using the Effort scale from the Effort Reward Imbalance questionnaire (ERI; Siegrist, 1996; Siegrist et al., 2004). This scale consists of five items referring to quantitative and qualitative aspects of the workload, an example item being “I have constant time pressure due to a heavy work load”. Responses were given on a 5-point scale ranging from 1 (“disagree”) to 5 (“agree, and I’m very disturbed by this”). Cronbach’s alpha was .78 in the present study.
- Role conflict was measured by using a widely used scale (Rizzo, House, & Lirtzman, 1970; see also Kelloway & Barling, 1991) of which we included six items, such as “I receive incompatible requests from two or more people”. Responses to items were given on a 5-point scale ranging from 1 (“completely true”) to 5 (“completely false”), with items being reverse scored before computing the scale score. Cronbach’s alpha was .76.
- Interpersonal demands were evaluated by using four items that referred to (negative) social climate at work. Three of these items were taken from Vartia (1996) and a fourth item was added for the present study. An example item is: “There is interpersonal tension in my workplace”. Responses were given on a 5-point scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”); Cronbach’s alpha was .83.

Job resources. We operationalized this construct in terms of autonomy, promotion prospects, and social support, factors that emerged as important helping elements in the studied organization. These are job resources with potential importance in most work settings (e.g., Warr, 2007).

- Autonomy was measured by three items forming the Decision authority scale of the Job Content Questionnaire (Karasek et al., 1998). An example item is “In the organization of my work I have a lot to say”. Responses were given on a 4-point scale ranging from 1 (“strongly disagree”) to 4 (“strongly agree”). Cronbach’s alpha for this scale was .69.
- Promotion prospects were evaluated by using the Salary/promotion scale from the ERI questionnaire (Siegrist et al., 2004), which is composed of four items that mainly explore career-related aspects, such as “Considering all my efforts and achievements, my job promotion prospects are adequate”. Responses were given on a 5-point scale ranging from 1 (“yes”) to 5 (“no, and I’m very disturbed by this”). Cronbach’s alpha was .81 for this scale.
- Social support was evaluated by using the Esteem scale from the ERI questionnaire (Siegrist et al., 2004), which consists of five items such as “I experience adequate support in difficult situations”. Responses varied on a scale from 1 (“yes”) to 5 (“no, and I’m very disturbed by this”) and Cronbach’s alpha was .82.

For all the job resources scales described here, items were recoded—when necessary—so that a higher score indicated a higher level of the resource investigated.

Job-related affect. This construct was measured by using a shortened 12-item version (Schaufeli & van Rhenen, 2006) of the Job-related Affective Well-being Scale (JAWS; van Katwyk et al., 2000). The JAWS investigates the frequency of experience of positive (e.g., enthusiasm, satisfaction) and negative (e.g., anger, pessimism) affective states associated with one’s work across the last 30 days, with responses given on a frequency scale ranging from 1 (“never”) to 5 (“very often”). We obtained a Cronbach’s alpha of .85 for the six-item negative affect scale, and a Cronbach’s alpha of .89 for the six-item positive affect scale. However, we modelled negative affect in terms of a three-item low pleasure/high arousal parcel (LPHA) and a three-item low pleasure/low arousal parcel (LPLA), and we modelled positive affect in terms of a three-item high pleasure/high arousal parcel (HPHA) and a three-item high pleasure/low arousal parcel (HPLA).

Abuse/hostility CWB. This form of CWB was evaluated by using 12 items (e.g., “Blamed someone at work for error you made”) taken from the Counterproductive Work Behaviour Checklist (CWB-C; Spector et al., 2006). Responses to items were given on a 5-point scale ranging from 1 (“never”) to 5 (“daily”). Since the last three response categories of the scale (i.e., “1–2 times per month”–“Daily”) were almost never endorsed, we merged them in a single category. By dropping two of the 12 items, we obtained a Cronbach’s alpha of .71. It should be noted that it is not uncommon to obtain a somewhat low internal consistency with behavioural items such as those indicating CWB (Spector et al., 2006), probably because these items reflect a psychological construct which is difficult to define with precision (for a discussion see Kline, 1999). For hypotheses testing abuse/hostility was modelled in terms of two randomly selected five-item parcels, which showed an intercorrelation of $r = .48$.

Work engagement. This was measured by means of the short version of the Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003; Schaufeli, Bakker, & Salanova, 2006), which assesses the experience of vigour, dedication, and absorption—the three component aspects of the construct—by means of nine items (e.g., “At my work, I feel bursting with energy”). Responses to items were given on a frequency scale varying from 0 (“never”) to 6 (“always”). Cronbach’s alpha was .92 for the overall scale. However, we modelled work engagement in terms of the three 3-item component scales vigour, dedication, and absorption.

Analytical strategy

To test our hypotheses we conducted a series of structural equation modelling analyses by using LISREL 8.71 (Jöreskog & Sörbom, 1996). In order to test for the mediating effect of negative and positive job-related affect on the relationship between, job demands and abuse/hostility, and job resources and work engagement, respectively (Hypotheses 3–4), we used the *product of coefficients approach* (Preacher & Hayes, 2008) or Sobel (1986) test, following the recommendations given by LeBreton, Wu, and Bing (2009). To test for the moderation effect of job resources on the relationship between job demands and job-related negative affect and on the relationship between job-related negative affect and abuse/hostility CWB (Hypotheses 5 and 6), we used moderated structural equation modelling (MSEM; Cortina, Chen, & Dunlap, 2001). For more details on MSEM see later.

The fit of the structural equation models was evaluated by using the χ^2 statistic and a variety of other fit indices (Bentler, 2007; Byrne, 1998; Hu & Bentler, 1999). We relied on the NFI and CFI (values $> .90$ usually indicate

an acceptable fit), the RMSEA (values $\leq .08$ indicate an acceptable fit) and the SRMR (values $\leq .08$ indicate a good fit). Since a number of variables exhibited a skewed distribution, with CWB showing a very positive skewed distribution, we opted for the weighted least square (WLS) estimation method to run all SEM analyses.

RESULTS

Descriptives

Descriptive statistics of the study variables including their intercorrelations (Pearson's r) are presented in Table 1. To be noted is that abuse/hostility had the strongest correlation with job-related negative affect ($r = .24$). Abuse/hostility also correlated positively, as expected, with the included job demands, particularly with role conflict ($r = .20$), whereas it had negative correlations with promotion prospects ($r = -.12$) and social support ($r = -.22$). As for work engagement, this had the strongest correlation with job-related positive affect ($r = .60$). Furthermore, in line with the motivational process hypothesized by the JD-R model, work engagement also correlated in the moderate range with all job resources, with the highest correlation being with social support ($r = .34$).

Mediation analysis

Before testing Hypotheses 1–4 (direct effect of job demands and job resources on, respectively, abuse/hostility and work engagement, and the mediating role of negative and positive job-related affect), we checked whether the latent factors job demands and job resources could be differentiated empirically. To this end we ran confirmatory factor analysis (CFA), comparing the fit of a two-factor (job demands and job resources) model to the fit of a one-factor (psychosocial risk) model. In the two-factor model role conflict, workload, and interpersonal demands were the observed indicators for job demands, whereas autonomy, promotion prospects, and social support were the observed indicators for job resources. CFA results supported the differentiation between job demands and job resources, since the two-factor model fitted statistically significantly better than the one-factor model, $\Delta\chi^2(1) = 39.26$, $p < .001$, with a latent correlation between job demands and job resources in the two factor model of $\varphi = -.70$.

Table 2 displays the results of a series of SEM models by which we tested our hypotheses. Model 1 (M1)—the direct effect model, with job demands and job resources impacting on abuse/hostility and work engagement,

TABLE 1
Means, standard deviations, and correlations of study variables

	<i>M</i> (<i>SD</i>)	1	2	3	4	5	6	7	8	9	10
1. Abuse/hostility CWB	11.86 (2.14)	—									
2. Work engagement	34.57 (14.43)	-.15	—								
3. Job-related negative affect	14.53 (5.53)	.24	-.27	—							
4. Job-related positive affect	17.09 (5.11)	-.15	.60	-.45	—						
5. Workload	9.82 (3.99)	.14	-.04 [†]	.48	-.21	—					
6. Role conflict	14.62 (5.47)	.20	-.15	.39	-.23	.32	—				
7. Interpersonal demands	12.46 (3.49)	.16	-.10	.27	-.22	.22	.25	—			
8. Autonomy	32.32 (6.26)	-.01 [‡]	.29	-.16	.28	.07 [†]	-.14	-.12	—		
9. Promotion prospects	13.11 (4.55)	-.12	.29	-.40	.35	-.24	-.26	-.26	.25	—	
10. Social support	20.52 (4.91)	-.22	.34	-.55	.47	-.41	-.36	-.35	.31	.60	—

CWB = counterproductive work behaviour. Unless otherwise stated, correlation is statistically significant at $p < .01$. [†]*ns*.

TABLE 2
Results of mediated and moderated SEM analysis

	χ^2	<i>df</i>	<i>SRMR</i>	<i>RMSEA (CI)</i>	<i>NFI</i>	<i>CFI</i>
M1 (outcomes on predictors)	159.55**	41	.065	.069 (.058–.080)	.96	.97
M2 (full mediation of negative and positive affect)	282.65**	84	.084	.064 (.056–.073)	.95	.97
M3 (full mediation of negative affect, partial mediation of positive affect)	267.39**	83	.082	.062 (.054–.071)	.96	.97
M4 (moderation of JR on JD-Negative affect relationship: main effects only)	91.95**	5	.120	.170 (.140–.200)	.94	.95
M5 (moderation of JR on JD-Negative affect relationship: main and interaction effects)	85.00**	4	.100	.170 (.140–.200)	.95	.95
M6 (moderation of JR on JD-Negative affect relationship: main and interaction effects improved)	36.23**	3	.061	.130 (.096–.170)	.98	.98
M7 (moderation of JR on Negative affect-Abuse/hostility CWB relationship: main effects only)	10.37*	3	.028	.060 (.040–.080)	.98	.99
M8 (moderation of JR on Negative affect-Abuse/hostility CWB relationship: main and interaction effects)	7.00*	2	.020	.060 (.042–.080)	.99	.99

JR = job resources; JD = job demands; CWB = counterproductive work behaviour. * $p < .05$, ** $p < .01$.

respectively—had an acceptable fit to the data. The path from job demands to abuse/hostility was positive and statistically significant, $\gamma = .39$, $p < .05$, and so was the path from job resources to work engagement, $\gamma = .50$, $p < .05$. This finding supported our Hypotheses 1 and 2.

Model 2—the full mediation model of job-related affect, with negative affect mediating the job demands-abuse/hostility relationship and positive affect mediating the job resources-work engagement relationship—had an acceptable fit to the data (see Table 2). However, inspection of the model's diagnostic statistics revealed that there was a very high modification index for the direct path from job resources to work engagement. Thus, we tested an alternative mediation model (Model 3), with full mediation for negative affect and partial mediation for positive affect. Model 3 had a statistically significant better fit than Model 2, $\Delta\chi^2_{M2-M3}(1) = 15.26$, $p < .001$. Thus, Model 3, which is graphically represented in Figure 1, was the best-fitting model. Subsequently, the

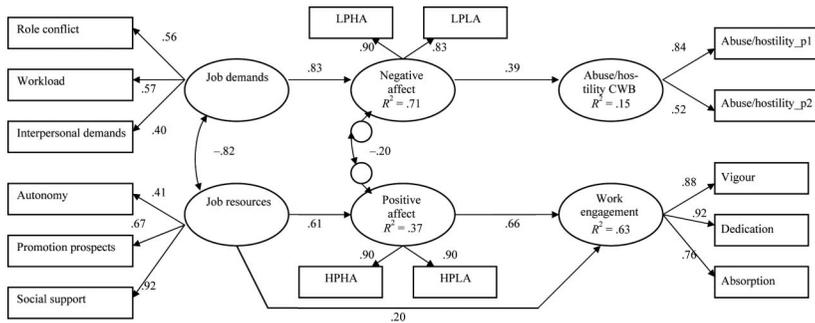


Figure 1. The final job demands-resources model with the mediational role of job-related affect. All paths are statistically significant at $p < .05$. LPHA = low-pleasure/high arousal affect; LPLA = low-pleasure/low arousal affect; HPHA = high-pleasure/high arousal affect; HPLA = high-pleasure/low arousal affect; Abuse/hostility_p1/p2 = Abuse/hostility parcel 1/2; CWB = counterproductive work behaviour.

mediating paths were evaluated by using the Sobel (1986) test. To this end appropriate unstandardized coefficients were chosen (see LeBreton et al., 2009) in the final supported mediation model (i.e., Model 3). Sobel tests supported the mediating role for both job-related negative affect and job-related positive affect, $Z = 6.25$, $p < .001$, and $Z = 8.30$, $p < .001$, respectively. Hence, we found evidence for Hypothesis 4 and partial evidence for Hypothesis 3.

Moderation analysis

To test Hypotheses 5 and 6 (moderation of job resources on the relationship between job demands and negative affect, and on the relationship between negative affect and abuse/hostility), we focused on the mediated health impairment process and conducted MSEM by using the procedure outlined by Mathieu, Tannenbaum, and Salas (1992) as reported in Cortina et al. (2001). The two exogenous latent factors representing the independent variables had only one observed indicator each. The latter was the score obtained by summing and standardizing (i.e., centring) the scores on the variables involved in the definition of the factor. The indicator of the interaction factor was the product of the indicators of the interacting factors. The path from each latent exogenous factor to its indicator was fixed by using the square root of the reliability of the indicator. The reliabilities of the indicators of the interacting factors were estimated by means of the indicators' Cronbach's alphas. The reliability of the indicator for the interaction factor was calculated by taking the product of the reliabilities of the interacting factors' indicators, plus the square of the latent

correlation between the interacting factors, divided by one plus the square of the same latent correlation just mentioned (Cortina et al., 2001).¹ The error variance of each observed indicator was set equal to the product of its variance and one minus its reliability. A significant interaction effect is supported when the path coefficient from the latent interaction factor to the latent endogenous factor is significant and the model including this path fits significantly better, as evaluated by a difference in the χ^2 statistic, than the model which does not include this particular path.

The first MSEM analysis included three exogenous latent factors (job demands, job resources, and their interaction) and an endogenous latent factor, i.e., job-related negative affect, which was measured by the two indicators LPHA and LPLA affect parcels. Table 2 (models M4–M6) reports the results of this analysis. A comparison between Models 4 and 5, $\Delta\chi^2_{M4-M5}(1) = 6.95, p < .01$, which differed for the inclusion in Model 5 of a direct path from the interaction factor to the negative affect factor, indicated that Model 5 better fitted the data, ΔR^2_{M4-M5} for job-related negative affect = .02, with the interaction factor showing a weak but statistically significant path in the expected direction, $\gamma = -.11, p < .05$. Overall, however, the fit of Model 5 was not adequate. This misfit was mainly due to substantial relationships between the interaction factor and its component factors, which were not eliminated by the preliminary centring operations. According to Cortina et al. (2001, p. 329), “centering does not necessarily reduce these relationships to a point at which they need not be estimated”. Thus, in Model 6 we freed the covariance between the interaction factor and the job resources factor, with the path from the interaction factor to the endogenous factor being unaffected by this modification. As a result, the fit of the model substantially improved and could be even further improved by also freeing the covariance between the interaction factor and the job demands factor (not reported in Table 2). However, we believe that the results of Model 6, which is graphically represented in Figure 2, provide sufficient evidence in support of our Hypothesis 5. Simple slope analysis (Figure 3) confirmed the expected (Hypothesis 5) buffering effect of job resources: at higher levels of job resources, the job demands–job-related negative affect relationship was weaker.

The second MSEM analysis included as exogenous factors job-related negative affect, job resources, and their interaction, and as the endogenous

¹The following formula has been used to compute the reliability of the indicator for the interaction factor (Cortina et al., 2001, p. 351):

$$r_{\xi_1, \xi_2 * \xi_1, \xi_2} = [(r_{\xi_1 * \xi_1} * r_{\xi_2 * \xi_2}) + r_{\xi_1 \xi_2}^2] / (1 + r_{\xi_1 \xi_2}^2)$$

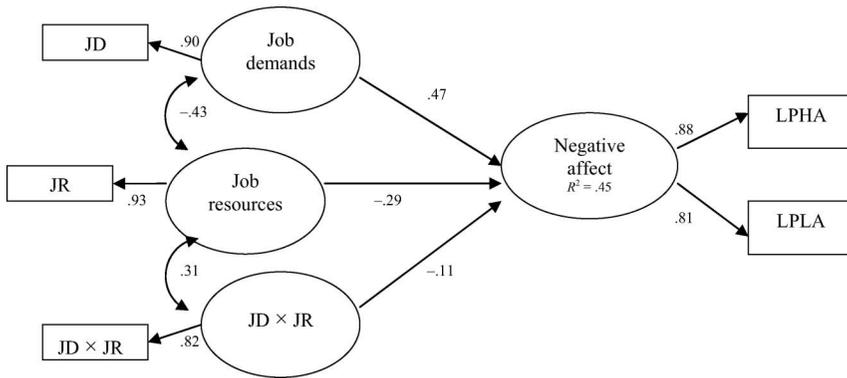


Figure 2. SEM analysis of interaction between job demands and job resources on job-related negative affect. All paths are statistically significant at $p < .05$. JD = job demands; JR = job resources; JD \times JR = Job demands \times Job resources; LPHA = low-pleasure/high arousal affect; LPLA = low pleasure/low arousal affect.

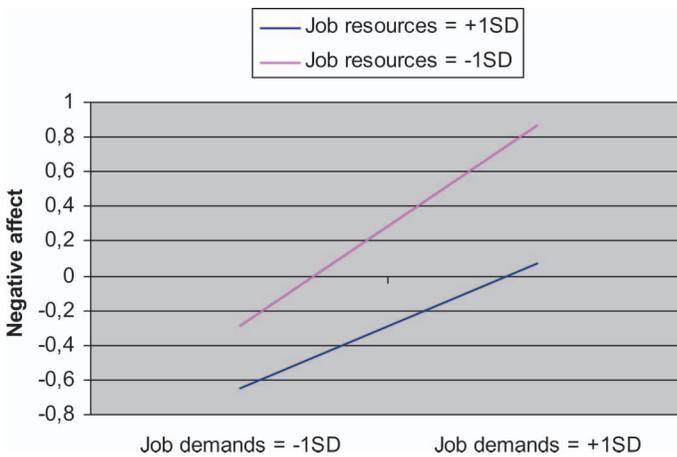


Figure 3. Simple-slope analysis of the interaction between job demands and of job resources on job-related negative affect.

factor abuse/hostility, with the latter being measured by the two parcel items described earlier (see Method). Building upon the previous moderation analysis, we decided to estimate all the covariances between the latent exogenous factors in this analysis. Table 2 (M7–M8) displays the results of this analysis. A χ^2 difference test between Model 7 and Model 8, $\Delta\chi^2_{M7-M8}(1) = 3.37, p = .066$, just missed significance. The direct path from the interaction factor to the abuse/hostility factor in Model 8, $\gamma = .10, ns$,

t -value = 1.71, also missed significance, despite being very close to the significance level, ΔR^2_{M7-M8} for abuse/hostility = .01. Thus we didn't find evidence in support of Hypothesis 6. For completeness of information we report the graphical representation of Model 8 (see Figure 4). Of note is that the path from the interaction factor to the abuse/hostility factor is positive. Simple slope analysis (Figure 5) indicated a trend for job resources to potentiate, rather than to buffer, the relationship between job-related negative affect and abuse/hostility, which was exactly the contrary of what we hypothesized.

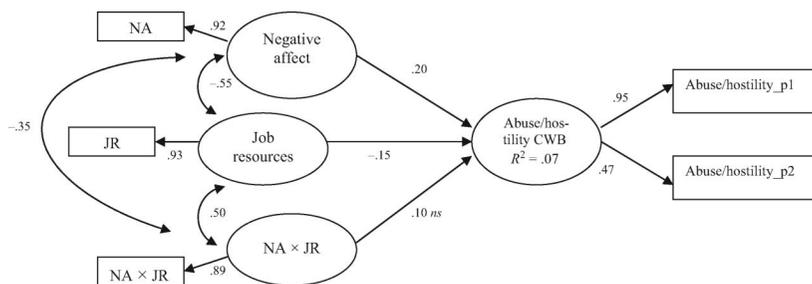


Figure 4. SEM analysis of the interaction between job-related negative affect and job resources on Abuse/hostility CWB. Unless otherwise stated, all paths are statistically significant at $p < .05$. NA = negative affect; JR = job resources; NA × JR = Negative affect × Job resources; Abuse/hostility_p1/p2 = Abuse/hostility parcel 1/2; CWB = counterproductive work behaviour.

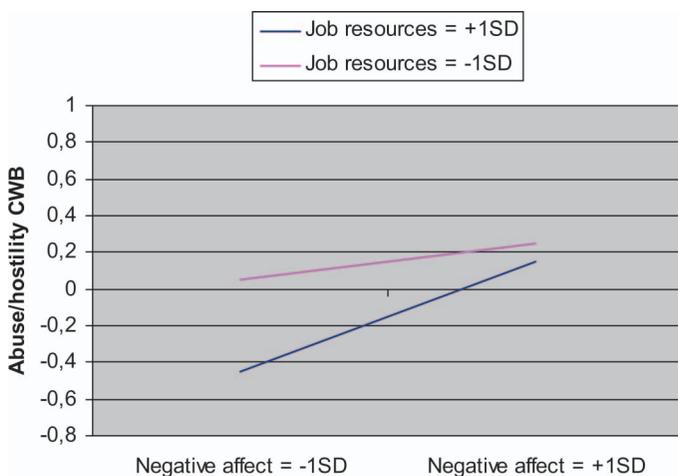


Figure 5. Simple-slope analysis of the interaction between job-related negative affect and job resources on Abuse/hostility CWB. CWB = counterproductive work behaviour.

Supplemental analyses

Given that the measures of job-related affect used in the present study could substantially reflect the stable disposition of negative affectivity (NA; Watson et al., 1988), and that negative affectivity is associated with report of greater stress (see, for a recent discussion, Zellars, Meurs, Perrewé, Kacmar, & Rossi, 2009), we tested a further model in which negative affect and positive affect were the exogenous factors and job demands and job resources acted as mediators. Specifically, in this model job demands mediated the relationship between job-related negative affect and abuse/hostility, whereas job resources mediated the relationship between job-related positive affect and work engagement. The fit of this model was the following: $\chi^2(84) = 380.27$, $p < .01$, SRMR = .14, RMSEA = .080 (CI = .070–.086), NFI = .94, CFI = .96. Although this model had a certain degree of fit, the fit was poorer than that of the equivalent model where negative affect and positive affect, rather than job demands and job resources, acted as mediators (see Table 2, M2).

Furthermore, all data in the current study have been collected from a single source, i.e., self-report, which increases the likelihood that common method bias (see, e.g., Chan, 2009; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Spector, 2006) may have affected our results. Therefore, an additional set of analyses was carried out in order to determine if method variance was a concern in the present study. Using the procedure described by Williams, Cote, and Buckley (1989), and employed by others (e.g., Carlson & Perrewé, 1999; Fecteau, Dobbins, Russel, Ladd, & Kudisch, 1995), CFA was conducted to test four different measurement models. Model 1 was a null model with no latent factors underlying the data; Model 2 hypothesized that a single method factor explained the data; Model 3 was the measurement model, in which the 15 observed variables loaded on the six hypothesized factors—or traits—described previously (see Figure 1); and finally Model 4 posited that the data could be accounted for by the six hypothesized traits plus and uncorrelated method factor. If a method factor exists, Model 2 should fit the data significantly better than Model 1, and Model 4 should fit the data significantly better than Model 3. Furthermore, the variance accounted for in each measure by traits and method as specified in Model 4, can be estimated. Specifically, for each measure the square of the trait factor loading and of the method factor loading indicate the variance accounted for by the trait and the method factor, respectively, with the remaining variance representing unique variance. By partitioning the variance in this way, the relative importance of the method factor in comparison to the trait factors can be estimated.

The analyses revealed that the common method model (Model 2) fitted better the data than the null model (Model 1), $\Delta\chi^2_{M1-M2}(15) = 5865.19$,

TABLE 3
Amount of variance explained by trait, method, and unique components

	<i>Trait</i>	<i>Method</i>	<i>Unique components</i>
M4 (supplemental analyses)	.47	.14	.39
Williams et al. (1989)	.50	.27	.23
Facteau et al. (1995)	.42	.06	.57

Values for the Williams et al. (1989) study are average values across 11 datasets.

$p < .01$; however, the fit of the common method model could not be judged as adequate: $\chi^2_{M2}(90) = 736.44$, $p < .01$, SRMR = .25, RMSEA = .112 (CI = .100–.122), NFI = .89, CFI = .90. The fit of Model 3 and of Model 4 was the following: $\chi^2_{M3}(75) = 259.27$, $p < .01$, SRMR = .086, RMSEA = .065 (CI = .057–.074), NFI = .96, CFI = .97, and $\chi^2_{M4}(60) = 127.04$, $p < .01$, SRMR = .041, RMSEA = .044 (CI = .033–.055), NFI = .98, CFI = .99. A comparison between the two models, $\Delta\chi^2_{M3-M4}(15) = 132.23$, $p < .01$, revealed that the addition of a common method factor to the measurement model significantly improved the fit. Thus, a common method factor existed and influenced the data. However, Table 3, in which the variance of Model 4 has been partitioned between the method factor, the trait factors, and the unique variance, reveals that 46.79% of the variance in the data was explained by the six trait factors, whereas the method factor accounted for 14.19% of the total variance. This was much less than the variance explained by the method factor in Williams et al. (1989)—see Table 3—although it was more than that observed by Facteau et al. (1995)—on this see also Doty and Glick (1998). Furthermore, an inspection of the hypothesized relationships between the trait factors in Model 4 revealed that these relationships were all statistically significant and similar to the corresponding paths observed for Model 3 of the main analyses (see Figure 1). For example, the relationship between job demands and job resources was $-.71$, the relationship between job-related negative affect and abuse/hostility was $.20$, and the relationship between job resources and job-related positive affect was $.58$. Taken together, we believe that these results testify for the fact that common method variance was not a too serious problem in the present study and that the observed relationships represent substantive effects.

DISCUSSION

The job demands–resources model and abuse/hostility CWB

The purpose of the analysis reported here was to test the main tenets of the JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001) by using

CWB (Fox & Spector, 2005; Sackett & DeVore, 2001) rather than burnout as an outcome. Building upon recent research on CWB (e.g., Spector et al., 2006), according to which there may be differences in the nomological net of the different forms of CWB, we focused on a specific facet of the phenomenon. We accordingly tested a JD-R model in which the motivational process was operationalized in terms of the effect of job resources on work engagement, whereas the health impairment process was operationalized in terms of the effect of job demands on abuse/hostility. The results of SEM analysis supported our first two hypotheses, indicating that the JD-R model fitted the data well, with all the structural relations being in the expected direction. In other words, an overarching job resources factor consisting of autonomy, promotion prospects, and social support was related to work engagement (Hypothesis 1) and an overarching job-demands factor consisting of workload, role conflict, and interpersonal demands was related to abuse/hostility (Hypothesis 2). It should be noted that the way in which job demands and job resources are operationalized as general factors is not an idiosyncrasy of the JD-R model, since other researchers (Beehr & Newman, 1978; Viswesvaran, Sanchez, & Fisher, 1999) have assumed similar metaconstructs capturing different underlying unidimensional constructs of stressors (including also resources) and strains.

The results of the present study provide preliminary evidence for the potential applicability of the JD-R framework outside the area of burnout research, thereby supporting the claim (Bakker & Demerouti, 2007) that the two processes hypothesized by the model (i.e., the health impairment process and the motivational process) may reflect substantive psychological processes. As far as CWB is concerned, previous research has already shown that it may be related to a number of organizational stressors, as well as to individual characteristics (Spector & Fox, 2005). Also attempted has been a comprehensive conceptualization of the phenomenon whereby CWB is viewed as basically a frustration reaction (Fox & Spector, 2005). However, this research has not gone beyond testing for the effect of single linkages between the hypothesized factors of importance for counterproductivity and CWB, thus adopting what has been called a “piecemeal” approach (Fox et al., 2001). In contrast, the JD-R framework enabled us to successfully test a more comprehensive model of CWB which more closely reflects the reality of workplaces where different organizational factors may jointly impinge on individual workers—thus triggering the stress process leading to CWB—but where there are also a variety of resources available that may mitigate strain reactions. Furthermore, by using the JD-R model, CWB can be integrated into a model which is able to take account, within the same set of relationships, of positive as well as negative outcomes of working conditions.

The mediating role of job-related affect

To further improve our understanding of the dual processes assumed by the JD-R model, we tested for the mediation effect of negative and positive job-related affective experiences (Hypotheses 3 and 4, respectively). Affective arousal is considered to be a crucial mediator in the stress process (Lazarus, 2006). Surprisingly, however, only little organizational research has addressed the mediational role of affective experiences elicited by working conditions on individual regulative processes. Our results indicate that job-related affective experiences may be integrated into the JD-R model, and they suggest that such experiences may play a crucial role in the health impairment and motivational processes.

The affectively mediated health impairment process of CWB supported in the present study builds upon the work of Spector and Fox (2005) and Fox et al. (2001). However, it is a more comprehensive (yet parsimonious) account of CWB than in previous studies, and in which we observed that abuse/hostility may indeed be a self-regulative process by which workers manage their negative affect derived from taxing working conditions. We explored the role of three organizational factors (workload, role conflict, and interpersonal demands) of significance in the organization studied and that have been reported (Spector & Fox, 2005) as among the most powerful and consistent correlates of CWB in general and abuse/hostility in particular. We found that their effect was fully mediated by job-related negative affective states. This may mean that behaviours considered to be dysfunctional from an organizational perspective—since they go against the legitimate interests of the organization and its stakeholders as well as, often, against the law (Sackett & DeVore, 2001)—may actually be functional from an individual perspective, in that individuals may discharge otherwise health-impairing affective experiences at work through CWB. In other words, it cannot be ruled out that CWB (or at least some facets of this phenomenon) makes it possible for the damaging effect of negative working conditions on psychophysical health not to go beyond negative affective states. This is an interesting idea to be developed in future research.

As hypothesized, we found evidence for a mediating effect of job-related positive affect in the relationship between job resources and work engagement, although it was a partial rather than full mediation. Of course other, nonaffective mediating mechanisms may also have been at work. For example, Xanthopoulou, Bakker, Demerouti, and Schaufeli (2007a) have found that more cognitive, rather than affective, states such as self-efficacy mediated the relationship between job characteristics and individual outcomes, and van den Broeck, Vansteenkiste, de Witte, and Lens (2008) have found that the relationship between resources and

engagement was mediated by basic psychological needs (i.e., needs for autonomy, competence, and belongingness) derived from Self-Determination Theory (Deci & Ryan, 2000). Whereas in previous research work engagement was repeatedly found to be driven by job resources (Bakker & Demerouti, 2008; Schaufeli & Salanova, 2008), the relationship between work engagement and job-related positive affect has not received much attention. In line with the Broaden-and-Build theory proposed by Fredrickson (1998, 2001), Salanova et al. (2010) have theorized that the frequent experience of positive affect in the workplace may promote more stable positive psychological states like work engagement. The present study provided some empirical evidence in line with this assumption. This is important because occupational health research has to date neglected the potential of affective experiences at work as immediate antecedents of individual and organizational outcomes. This applies in particular to positive affective experiences. Given the growing body of evidence (see, e.g., Pressman & Cohen, 2005; Steptoe et al., 2007) regarding their effect on health and positive individual adaptation, we emphasize that further research (including intervention research) should focus on positive as well as negative affective experiences as crucial mediating elements in the job stress and motivational processes.

The buffering hypothesis

We tested for two different moderating effects of job resources, first on the relationship between job demands and job-related negative affect, and second on the relationship between job-related negative affect and abuse/hostility. By conducting a successful test of Hypothesis 5, we showed that job resources moderate the relationship between job demands and job-related negative affect, meaning that the impact of job demands may be attenuated when the organization provides resources such as increased autonomy, adequate promotion prospects, and social support. This, in turn, according to our analysis, may make it less likely that workers will engage in abuse/hostility, since their level of negative affect due to demanding working conditions will be lower. This evidence in line with the buffering hypothesis is similar to that offered by previous research on the JD-R model (Bakker et al., 2005; Xanthopoulou et al., 2007b), in which psychological stress symptoms were taken as outcome variable. However, this previous research tested for all the possible combinations of job demands and job resources on burnout symptoms, which is somewhat at odds with the parsimony underlying the JD-R model. In other words, if different job resources are hypothesized as a single common factor in terms of the motivational process, the same underlying common property should emerge in terms of buffering potential. This, of course, does not rule out that each specific

resource at work may have a prevalent buffering effect on a specific demand from the same domain, as assumed by the matching principle of the Demands Induced Stress Compensation model (DISC; de Jonge & Dormann, 2006).

Thus, our test of the buffering hypothesis of the JD-R model is one of the first parsimonious proofs in support of one of the central tenets of the model. However, the interaction term accounted for only 2% of the variance in the negative affect factor, which should be considered a small effect (Cohen, Cohen, West, & Aiken, 2003). Yet the result is noteworthy, considering the problems in detecting interaction effects in social science research, for instance because of the usually low reliability of the interaction term. The implication of this result is that job resources may buffer the effect of job demands not only on burnout symptoms, as shown by previous research, but also on affective states which are not pathological in nature and which are commonly experienced in the workplace.

When testing for the moderation effect of job resources on the relationship between negative affect and abuse/hostility (Hypothesis 6), results didn't reach the statistical significance. Furthermore, the trend in the results was unexpected: The availability of job resources seemed to strengthen instead of buffer the relationship between negative affect and abuse/hostility. In other words, when job resources are more available, it seems more likely that an increase in negative affect is translated into abuse/hostility, even though overall higher job resources are less likely to be related to abuse/hostility, as indicated by the negative main effect of job resources. This result is not new in the literature (see Fox et al., 2001) and has been discussed by Spector and Fox (2005); however, since in the current study it was not robust enough to reach significance, its potential implications will not be discussed in detail.

To conclude: We believe that this study makes an interesting contribution to the job stress literature by providing evidence for the potential applicability of the JD-R model outside the area of burnout research. Specifically, we have found that the health impairment process postulated by the model (Bakker & Demerouti, 2007) also emerges when using a different strain indicator, namely abuse/hostility CWB. Second, this study has found support for the notion that job-related negative and positive affective experiences, by mediating the effect of—respectively—the taxing and helping elements of the work environment, may play a crucial mediating role in the stress process. Third, whereas limited evidence in support of the buffering hypothesis of the JD-R model has been provided by previous research (Bakker et al., 2005; Xanthopoulou et al., 2007b), this study has strengthened this evidence by using a more parsimonious and methodologically sound procedure.

Limitations

The first and most important limitation of the present research is its cross-sectional nature, which entails that we cannot draw any conclusions regarding the direction of the causal flow between variables. However, evidence from longitudinal studies in the work stress area (see, e.g., Hakanen et al., 2008; Schaufeli et al., 2009) clearly shows that organizational factors such as workload, autonomy, and social support have causal effects on health outcomes such as burnout and work engagement. This means that we can be confident about the causal direction of some of the relationships tested (e.g., from job resources to work engagement). However, we are less confident about the more original relationships tested in the present study, such as those regarding the mediating role of job-related affect. Longitudinal data are needed for a robust test of the hypothesized mediation (see Taris & Kompier, 2006).

A second limitation of the present study is that all the data are self-reported, which may imply a bias due to common method variance (Podsakoff et al., 2003). Despite we have provided some evidence that common method variance may have not been a critical factor for the current findings, studies in which self-, other-, and objective reports are used are needed in this field: For example, studies in which observer or objective reports on job characteristics are related to self-reports on mediating and outcome variables.

A third important limitation of the present study is its lack of generalizability to the entire working population. We have focused on employees with nonmanagerial jobs in a public administration agency. The sample composition represented at least in part (i.e., by gender and type of job—see Method) the target population. Furthermore, the effective sample on which we tested our final model ($n = 630$) had similar characteristics to the overall sample (e.g., 48% were females) and included employees from all the organizational departments. Of course, we cannot generalize the obtained results to other organizations. It should be noted that we do not focus here on the generalizability of the effects of specific job demands and job resources, since in other occupations (perhaps even in other public administrations) other organizational factors may be salient—which is one of the central tenets of the JD-R model. Instead, we focus on the generalizability of the processes implied by the JD-R model, namely the health impairment process and the motivational process. There is a need to test the JD-R model comprising CWB and work engagement in different occupations, and to test the JD-R model by considering other outcomes (including other forms of CWB such as production deviance, withdrawal, etc.) and perhaps other mediating variables.

A final limitation of the present study is that it has not considered personal characteristics/resources, although there is evidence for their effect on both of the individual outcomes considered in this study, i.e., work engagement (Xanthopoulou et al., 2007b) and abuse/hostility (e.g., Penney & Spector, 2002). For example, CWB may be seen as a self-defeating behaviour (Renn, Allen, Fedor, & Davis, 2005) enacted when job demands deplete personal resources such as self-control, which would imply a critical mediating role for personal resources (see Cunningham, 2007). It is increasingly acknowledged by occupational health researchers (Cunningham et al., 2008; Warr, 2007) that, in a rapidly changing work environment, persons with certain stable traits (i.e., low neuroticism, conscientiousness, openness to experience) and more malleable characteristics (i.e., self-efficacy, self-monitoring) adapt more successfully. There is a need for further research to determine whether personal resources may increase the explanatory capacity of the JD-R model.

Practical implications

Our findings suggest that the JD-R framework may be applied for workplace interventions aimed at reducing the likelihood of abuse/hostility CWB and increasing the likelihood of having an engaged work force. CWB may entail extremely negative consequences for organizations (see Fox & Spector, 2005), for example high conflict levels triggered by abusive/hostile behaviour. In terms of primary prevention (Quick, Quick, Nelson, & Hurrell, 1997; Quick & Tetrick, 2003), abuse/hostility may be avoided by lowering job demands or by increasing job resources (which would also increase work engagement). Before every intervention, however, assessment should be made of the most critical job demands, as suggested by the JD-R model (Bakker & Demerouti, 2007). Also to be noted is that an increase in job resources might have a boomerang effect: Although the overall level of abuse/hostility is lower, it could become more likely that the experience of negative affect will be translated into abuse/hostility. Since it is impossible entirely to prevent job-related negative affect, secondary prevention (Quick et al., 1997; Quick & Tetrick, 2003) should ideally also be in place. In other words, organizations should become more sensitive to the (positive and negative) emotions of their employees. They could, for example, train their managers to identify and deal with the negative affective reactions of their employees and to foster positive affective experiences at work. They could also train employees to become more sensitive to their own affective experiences and perhaps able to manage them constructively and effectively. The role of emotions in the workplace has long been neglected; yet an increasing number of studies, including the present one, suggest that they

may be of crucial importance in determining both positive and negative outcomes at work.

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