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Challenge and hindrance appraisals of job demands: one man's meat, another man's poison?

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ABSTRACT

Background and objectives: Many job stress models assume that all workers experience a particular job demand in the same way – an assumption that may or may not be warranted and that has rarely been tested. Building on appraisal theory, we explore (a) how individuals appraise particular job demands (i.e., as a challenge or as a hindrance) and (b) how these appraisals affect the relationship between job demands and engagement/burnout.

Design and Methods: A multi-occupation cross-sectional study was conducted among 527 Chinese workers (321 females, 60.9%; $M_{\text{age}} = 32.74$, $SD = 6.70$). The data were analyzed using hierarchical multiple regression analysis.

Results: We found that the appraisal of job demands (time urgency, role conflict, and emotional demands) as a challenge moderated the associations between these demands and burnout/engagement. Generally, the results indicate that the presence of high job demands was associated with negative outcomes. However, these detrimental effects were weaker if workers appraised these characteristics as being high-challenge.

Conclusions: This study extends research on job demands within the challenge–hindrance framework by focusing on the moderating effects of appraisals. Given the important role of appraisal, we conclude that researchers should include appraisal more systematically in their theorizing and research on the effects of job demands on well-being.

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Introduction

Recent years have witnessed a growing conviction among researchers that job demands (defined as the “physical, social, or organizational aspects of the job that require sustained physical or mental effort”, cf. Demerouti, Bakker, Nachreiner, & Schaufeli, 2001, p. 501) are not all created equal (e.g., LePine, Podsakoff, & LePine, 2005). Yet, just how the differences between specific job demands influence workers' behavior and well-being is still unclear. Most of the early research on this issue used a priori categorization of a demand as either a challenge or a hindrance (e.g., Podsakoff, LePine, & LePine, 2007), which might be overly simplistic. Extending the challenge-hindrance framework, empirical studies have shown that job demands can be appraised as being both challenging and hindering at the same time (Webster, Beehr, & Love, 2011); even after accounting for the effects of demands, individual differences in the appraisal of these demands consistently explained unique variance in work outcomes (Searle & Auton, 2015). Appraisal refers to the subjective

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interpretation that particular job demands have the potential for personal gain, growth, or constraints (LePine, Zhang, Crawford, & Rich, 2016). However, despite the potential benefits of including appraisal in studying the effects of job demands on outcomes, scholars have not yet systematically included appraisal in their theoretical frameworks.

To date, researchers have largely considered appraisal as a mediator (e.g., Ohly & Fritz, 2010), arguing that appraisal is one of the main mechanisms linking job demands to outcomes (cf. Lazarus and Folkman's (1984) transactional stress theory). However, on the basis of the person–context interaction theory (Magnusson & Stattin, 1996), we propose that appraisal can also serve as a moderator of these relationships. This theory states that individual functioning is the result of the interplay of individual and environmental factors. Individuals may perceive (or *appraise*) job demands differently (that is, more as a hindrance, more as a challenge, or both), and it seems possible that such differences affect the nature and magnitude of the relations between job demands and work outcomes (e.g., well-being). Unfortunately, at present little research has addressed the possible moderation effect of appraisals in job demands research.

The current study aims to analyze the moderating role of the appraisal of job demands in the relationship with employee well-being. Accordingly, this study advances and refines our knowledge concerning the role of appraisals in the associations between demands and well-being, offering an alternative account of the inconsistencies in the literature regarding the possible differential effects of job demands on outcomes.

The challenge-hindrance demands framework

A large body of research has shown that high levels of job demands tend to be associated with (or even causally lead to) adverse outcomes, such as high levels of stress, strain and sickness absence (Lesener, Gusy, & Wolter, 2018; Schaufeli & Taris, 2014, for reviews). From a practical point of view, it is often assumed that poorly designed jobs or chronically high job demands exhaust employees' mental and physical resources and may therefore lead to health problems (Demerouti et al., 2001). However, some studies reported unexpected positive, rather than negative, relationships between job demands and outcomes such as work engagement (e.g., Bakker, Demerouti, & Schaufeli, 2005; Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010).

To account for these and other inconsistent results, scholars have argued that not all demands are created equal (LePine et al., 2005; Van den Broeck et al., 2010). Importantly, LePine et al. (2005) distinguished between two different kinds of job demands: hindrance versus challenge job demands. *Hindrance demands* are defined as demands or work circumstances that involve excessive or undesirable constraints that interfere with or inhibit an individual's ability to achieve valued goals (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). Examples are role conflict, role overload, and role ambiguity (LePine et al., 2005; Webster et al., 2011). Conversely, *challenge demands* refer to demands that cost effort but also present potential for personal growth and rewards (Podsakoff et al., 2007). Job demands that have been identified as challenges include workload, time pressure, and responsibility (LePine et al., 2005). Consistent with this reasoning, meta-analytical reviews have demonstrated that challenge demands are indeed positively associated with outcomes such as engagement (Lesener et al., 2018; Podsakoff et al., 2007) and that hindrance demands are negatively related to engagement (Crawford, LePine, & Rich, 2010).

Although the challenge-hindrance demands framework has advanced our understanding of the differential effects of demands on employee well-being, two criticisms have been made. First, the categorization of job demands into challenges versus hindrances has not always been consistent (Bakker & Sanz-Vergel, 2013). For example, some studies consider emotional demands as challenge demands (Bakker & Sanz-Vergel, 2013), while others consider these demands as hindrances (Albrecht, 2015; Van den Broeck et al., 2010). Similarly, role conflict has sometimes been classified as a challenge demand (Wincent & Örtqvist, 2011) but also as a hindrance demand (Crawford et al., 2010). Apparently, job demands are not always consistently categorized as either hindrances or challenges.

Second, although most research has used a-priori categorizations of the two types of demands (Searle & Auton, 2015), researchers have argued that classifying demands as either a challenge or a hindrance may be overly simplistic because any a-priori taxonomy of demands ignores the role of subjective individual appraisals (González-Morales & Neves, 2015; Parker, 2014). Individual appraisals determine the extent to which job demands are experienced as more or less hindering or challenging (Lazarus & Folkman, 1984; Van den Broeck et al., 2010). Indeed, Webster et al. (2011) has demonstrated that workers can appraise demands as *both* challenging and hindering. Thus, appraisal-based approaches can assess to what extent and why someone perceives a particular demand as a challenge and/or a hindrance (Parker, 2014), and also how this appraisal relates to possible outcomes.

In sum, both theory and empirical evidence underline the necessity to include appraisals in research on the effects of job demands on worker's outcomes. Therefore, the present study examines (a) how employees appraise three different job demands (time urgency, role conflict and emotional demands, respectively), and (b) whether and how the appraisal of these demands impacts the demands – well-being relationship. These three demands were selected because meta-analytic reviews have shown that they are well-established and important correlates (or even causal antecedents) of employee well-being (Alarcon, 2011; Crawford et al., 2010). Further, time urgency (Van den Broeck et al., 2010) has in previous research been assumed to be a challenge demand (for a review, see Crawford et al., 2010), whereas for emotional demands and role conflict the a-priori categorization as either a challenge or a hindrance has so far not been consistent (Albrecht, 2015; Crawford et al., 2010; Wincent & Örtqvist, 2011). Examining both ambiguous and conceptually clear demands allows us to test the robustness of a-priori categorizations of demands as either challenging or hindering and contributes to the understanding of the possible moderating role of the appraisal of both types of demands.

The moderation effects of appraisals on employee well-being

According to transactional stress theory (Lazarus & Folkman, 1984), the response to stressful events depends on how one appraises the situation. When confronted with an event, a person will evaluate how stressful the situation is (primary appraisal). Secondary appraisal occurs almost at the same time, and the basic question here is "Can I cope?" Here an individual assesses the extent to which his/her available resources are (in)sufficient to deal with the situation. Depending on the primary evaluation, the situation is perceived as more or less challenging or hindering; and drawing on the secondary evaluation, the outcome is perceived as either controllable or not (Lazarus & Folkman, 1984).

In the work context, researchers posit that two appraisals determine how individuals respond to different work demands: challenge appraisals and hindrance appraisals (LePine et al., 2005, 2016). Challenge appraisals are defined as an individual's subjective interpretation that particular demands have the potential for personal gain, growth, development, and well-being (LePine et al., 2016). Hindrance appraisals refer to an individual's subjective interpretation that these demands or work circumstances have the potential to interfere with or obstruct/thwart an individual to achieve valued goals (Cavanaugh et al., 2000; Searle & Auton, 2015). Note that *demands* are conceptually distinguished from their *appraisal*. While demands refer to the presence of particular physical, social, or organizational job requirements (cf. Demerouti et al., 2001), appraisals refer to an individual's subjective *interpretation* of these demands as having the potential for personal gain, growth, or constraints (LePine et al., 2016). Thus, a challenge demand is a demand that is appraised as being challenging, while a hindrance demand is a demand that is appraised as being hindering.

To date, research in the area of work and stress has provided some evidence for a mediating role of appraisal in the relationship between job demands and work outcomes. For instance, Webster et al. (2011) found that the primary appraisal of particular job demands (role ambiguity, workload, and

responsibility) partially mediated the relationship between these demands and work outcomes (i.e., emotional exhaustion, job dissatisfaction, and turnover intentions). Likewise, Searle and Auton (2015) demonstrated that job demands have indirect effects on outcomes via appraisals. Similar results were reported in other studies (among others, LePine et al., 2016; Liu & Li, 2018; Ohly & Fritz, 2010). Building on and extending these findings, we argue that appraisals can also serve as *moderators* of particular relationships. Specifically, individual differences in cognitive appraisals are likely to affect how employees perceive their job demands and, thus, what the effects of these demands will be. This argument is in line with the person–context interaction theory that individual behavior is the result of the interplay of individual differences and environmental factors (Magnusson & Stattin, 1996). If so, it seems plausible that appraisals will moderate the associations between particular job demands and outcomes.

Study hypotheses

Previous research has convincingly demonstrated direct relationships between high job demands and elevated levels of burnout (e.g., Bakker & Demerouti, 2017; Lesener et al., 2018; Schaufeli & Taris, 2014) and lower levels of engagement (Crawford et al., 2010; Van den Broeck et al., 2010). Thus, we hypothesize that job demands will be negatively related to engagement (*Hypothesis 1*) and positively to burnout (*Hypothesis 2*).

As aforementioned, appraisals will moderate the demands–well-being relationship, that is, the strength of these relationships will vary as a function of appraisal. Specifically, for workers who generally appraise a particular job demand as something that can be overcome and that may lead to growth and rewards (i.e., as a challenge, Podsakoff et al., 2007), the magnitude of the presumed adverse effects of this demand on burnout and engagement will be relatively small. Earlier studies examining moderators of the stressor – performance/emotional exhaustion relationship provide insight in the moderation role of appraisals on the demands – well-being relationship. For example, Hewett, Liefoghe, Visockaite, and Roongrerngsuke (2018) have shown that individuals who are subject to work-related bullying but who do not see themselves as being bullied, report higher levels of performance than others. Similarly, Koopmann et al. (2018) found that cognitive appraisal can mitigate the negative effect of prevention focus on emotional exhaustion. The reverse applies when workers appraise a particular demand as a hindrance (LePine et al., 2016): the potential for obstruction of goal attainment and thwarted growth will lead them to adopt an avoidance-oriented approach and increase stress (Lazarus & Folkman, 1984), and this would seem likely to amplify the hypothesized adverse effects of this demand on outcomes. Basically, we argue that appraisal may determine how employees react to a demand, and that this will affect the magnitude (and perhaps even the direction) of its associations with the study outcomes. Similarly, Li, Deng, Leung, and Zhao (2017) showed that appraisals of reward moderate the associations between perceived reward for creativity and creativity-related intrinsic motivation: the relationship of perceived reward for creativity with creativity-related intrinsic motivation was especially positive when challenge appraisal was high (Hewett et al., 2018; Koopmann et al., 2018, for similar findings). In sum, the moderating role focuses on individual differences in the appraisals affecting the extent to which job demands are related to well-being.

Our theoretical analysis as well as previous research suggests that challenge and hindrance appraisals will moderate the effect of job demands on well-being in opposite directions. Therefore, we hypothesize that challenge appraisals moderate the relationships between job demands and well-being, such that when challenge appraisal is high, the relationship between demands and engagement is less negative (*Hypothesis 3*) and the relation between demands and burnout is less positive (*Hypothesis 4*) than when challenge appraisal is low. Similarly, hindrance appraisal will moderate the relationship between job demands and well-being, such that when hindrance appraisal is high the relationship between demands and engagement is more negative (*Hypothesis 5*) and the relation between demands and burnout is more positive (*Hypothesis 6*) than when hindrance appraisal is low.

Method

Procedure

Data were collected by an external online survey company. The company's platform allows researchers to selectively sample participants with certain pre-specified characteristics (e.g., full-time employees in this study). To ensure the adequate size of the sample, an a-priori G*Power analysis showed that to obtain 95% chance of finding a moderate effect size of 0.5, we needed to have at least 103 participants. However, Marsh, Hau, Balla, and Grayson (1998) argued that "more is never too much" for the number of participants" in SEM/CFA, as generalizability is typically enhanced with larger samples of participants. Thus, we decided to collect data from at least 500 participants. This research was conducted in compliance with the principles of the Declaration of Helsinki. The cover letter explained the general purpose of the study and assured the voluntary participation and confidentiality of the responses. All participants read and clicked informed consent before submitting their data. Participants received the equivalent of €1.40 if they completed the questionnaire.

Participants

We sent the questionnaires to 1,720 Chinese employees, and received 535 completed questionnaires in return (overall response rate of 31.1%) in a week. Based on their response pattern, the data of eight participants were excluded from further analysis (seven of them used more than 4 h to finish their survey, and one used long strings of the same character in his/her responses i.e., a sequence of 17 "5"s; Curran, 2016). Thus, in total, data from 527 participants were used. Respondents were on average 32.74 years old ($SD = 6.70$), and had worked in their organization for 7.17 years ($SD = 5.85$); 60.9% were female; Most participants held a bachelor ($n = 408$, 77.4%) or master degree ($n = 50$, 9.5%). Employees worked in different industries, including E-commerce ($n = 91$, 17.3%), real estate/construction ($n = 63$, 12.0%), aerospace/energy ($n = 46$, 8.7%), transportation ($n = 41$, 7.8%), education/training ($n = 40$, 7.6%), communications/telecom operation ($n = 40$, 7.6%), entertainment/travel ($n = 32$, 6.1%), clothing/textile/leather ($n = 28$, 5.3%), medicine, financial, advertising, agriculture (in total $n = 65$, 12.3%), and others ($n = 81$, 15.4%).

Measurements

Since the survey was conducted in China, if possible existing Chinese translations of the study concepts were used. In most other cases, existing instruments were translated into Chinese by professional, bilingual translators using standard procedures (Brislin, Lonner, & Thorndike, 1973). Unless stated otherwise, items were scored on 7-point Likert scales ranging from 1 = "strongly disagree" to 7 = "strongly agree". The reliabilities of the study variables (Cronbach's alpha) are presented in Table 2.

Time urgency. Time urgency was assessed with four items. Three of these were adapted from Maruping, Venkatesh, Thatcher, and Patel (2015), including "I am often under a lot of pressure to complete my tasks on time". In an attempt to increase the reliability of this instrument a fourth item was taken from Rodell and Judge (2009), namely "I often experience time pressures in my work".

Role conflict. We measured role conflict with three items from the Cross-Cultural Role Conflict, Ambiguity, and Overload Scale (Peterson et al., 1995). A typical item is "In my job I receive incompatible requests from two or more people".

Emotional demands. This concept was assessed with four items from the Emotional job demands scale (Peeters, Montgomery, Bakker, & Schaufeli, 2005). An example is "Is your work emotionally demanding?" (1 = "never", 5 = "often").

Appraisals. We operationalized cognitive appraisal as how one judges, in general, a specific demanding situation by asking to what extent the employee appraises a specific hypothetical

situation that refers to the job demand at stake as challenging/hindering. To measure the challenge and hindrance appraisals we partly based our instrument on Searle and Auton's (2015) Challenge and Hindrance Appraisals scale. For each of the three demands included in our study, participants indicated to what degree they considered this specific demand a challenge or a hindrance. For each demand, challenge appraisal and hindrance appraisal were assessed with four items each. We developed the framing of the introduction of the challenge/hindrance scales to correspond with the items tapping the specific demand to be appraised with these scales. This approach was used because (a) it is important that the measurement of demands and appraisals refers to the same level (either very specific at the daily level, e.g., Ohly & Fritz, 2010; or more general). In this study, we aim to investigate how employees' appraisal of a specific demand *in general* (so not on a particular day, more about a *general belief*) will influence the demands-well-being relationship; and (b) the sample in the present study consists of employees from diverse organizations, and we did not have any information about the most relevant job demands. As a result, it is difficult to refer to current job demands and ask about the appraisal of these demands, because some employees might not face these specific job demands, or only to a very low extent. Referring to a hypothetical situation seems a good solution in such situation. To this aim we have measured both demands and appraisal at a similar general level. Taking time urgency as an example, to measure time urgency we asked the following question: "I am often under a lot of pressure to complete my tasks on time". The hypothetical framing read "Imagine the following situation: Chris says 'in my job, I am under a lot of pressure to complete my tasks on time. I have not much time to complete my tasks, and the amount of time provided to complete my tasks is short.'" The main question then was "In general, I believe that having a job like Chris's ...", which was followed by the two four-item sets tapping challenge appraisal (e.g., "... will help me to learn a lot") and hindrance appraisal (e.g., "... will hinder any achievements I might have"). Similar vignettes were developed for the two other job demands (i.e., role conflict and emotional demands). The complete scales are available upon request from the corresponding author.

Burnout. We assessed burnout with nine items measuring two dimensions (exhaustion and cynicism) of the Chinese version (Qiao & Schaufeli, 2011) of the Maslach Burnout Inventory General Survey (MBI-GS; Maslach, Jackson, Leiter, Schaufeli, & Schwab, 1986). These two subscales tap the core dimensions of burnout (Schaufeli & Taris, 2005). Items included "I feel used up at the end of a work day" (Emotional exhaustion) and "I doubt the significance of my work" (cynicism), with response options ranging from 0 ("never") to 6 ("every day").

Engagement. We measured engagement with the 9-item version of the UWES (Schaufeli, Bakker, & Salanova, 2006). The items of the UWES tap the three dimensions of engagement: Vigor (3 items), Dedication (3 items), and Absorption (3 items). An example item is "I am enthusiastic about my job" (0 = "never", 6 = "always").

Statistical analyses

Two sets of analyses were conducted. First, we conducted a preliminary set of confirmatory factor analyses (CFA) to test the measurement model for the study variables. Model fit was assessed using the following criteria: indices are between .05 and .08 for the RMSEA and SRMR (Hu & Bentler, 1999) and values above .95 for the confirmatory fit index (CFI) and Tucker-Lewis index (TLI) are generally recommended for good-fitting models (Hu & Bentler, 1999). Building on these findings, the second set of analyses focused on the regression relations among the study variables. Specifically, for each demand, separate hierarchical multiple regression analyses were estimated using SPSS with engagement/burnout as the criterion variable. In Step 1, control variables were entered (work time and education). In Step 2, predictor variables were entered (job demand, challenge and hindrance appraisal). The interaction variables were entered (two interactions between job demand and challenge/hindrance appraisal) in Step 3. We used centered variables to compute the interaction variables.

Results

Measurement model

Table 1 presents the fit indexes of several measurement models using CFA. First, we tested a model in which all items loaded on their corresponding hypothesized latent constructs. This 11-factor model (Model a: three job demands: emotional demands, role conflicts, and time urgency; six appraisals: challenge and hindrance appraisals of three demands respectively; engagement and burnout loading on distinct factors) provided favorable fit statistics, $\chi^2_{(1270)} = 2761.20$, $p < .001$; RMSEA = .047; CFI = .933; TLI = .927; SRMR = .041. The standardized factor loadings ranged from .71 to .93 (except for 2 items for the measurement of emotional demands, "Is your work emotionally demanding?" and "Are you confronted in your work with things that affect you emotionally?" with loadings of .43 and .64, respectively). We then compared this hypothesized model to four alternative measurement models (e.g., three challenge or hindrance appraisals forming a single factor). The results presented in Table 1 demonstrate that the best alternative model (i.e., Model d, in Model a three demands merged to form a single demand factor) also had poorer fit to the data ($\chi^2_{(1289)} = 35.9.00$, $p < .001$; RMSEA = .057; CFI = .900; TLI = .893; SRMR = .056) when compared to Model a, $\Delta\chi^2(19) = 747.80$, $p < .001$. These findings demonstrated that our focal constructs are distinct from each other.

Challenge and hindrance ratings of demands

Table 2 shows that the challenge-hindrance ratings of each of the three demands correlated negatively, with correlations ranging from $-.58$, $p < .001$, for time urgency demands, to $-.65$, $p < .001$, for emotional demands. Thus, participants who appraised a particular demand as a challenge were less likely to consider that demand as a hindrance, and vice versa. However, although these correlations are moderate to strong (Cohen, 1988), even the $-.65$ correlation for emotional demands implies that nearly 58% of the variance in the challenge (hindrance) rating for this demand is not accounted for by its hindrance (challenge) rating, meaning that challenge and hindrance ratings are not just each other's opposites. Further, one-sample chi-square tests for the variance indicated that the SDs of all appraisals differed significantly from zero ($p < .001$), with the average SD being 1.48 on a 7-point scale. This shows that employees differ quite considerably in their appraisals of these demands.

Direct relationship between job demands and burnout – engagement

We hypothesized that job demands are negatively related to engagement (Hypothesis 1) and positively to burnout (Hypothesis 2). As expected, Table 3, Step 2, shows that engagement was negatively associated with time urgency ($\beta = -.37$, $p < .001$), role conflict ($\beta = -.37$, $p < .001$), and emotional demands ($\beta = -.48$, $p < .001$) (Hypothesis 1 supported). Burnout was positively associated with

Table 1. Findings of a series of confirmatory factor analyses of the measurement models of demands, appraisals and well-being.

Model	Description	χ^2	df	RMSEA	CFI	TLI	SRMR
Model a	All eleven factors load on their corresponding latent construct (i.e., three demands: emotional demands, role conflicts, and time urgency; six appraisals: challenge and hindrance appraisals of three demands respectively; engagement and burnout)	2761.20	1270	.047	.933	.927	.041
Model b	Model a, combining three challenge appraisals as one factor	4462.52	1289	.068	.857	.848	.056
Model c	Model a, combining three hindrance appraisals as one factor	4751.56	1289	.071	.844	.834	.063
Model d	Model a, combining three demands as one factor	3509.00	1289	.057	.900	.893	.056
Model e	Model a, combining, three challenge appraisals as one factor, three hindrance appraisals as one factor, and three demands as one factor	8800.26	1322	.104	.664	.650	.142

Table 2. Means, standard deviations, and correlations among the study variables. Reliabilities (Cronbach's alpha) on the diagonal.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Education	1												
2. Worktime	.03	1											
3. Time urgency	-.01	.01	(.89)										
4. Role conflict	-.09	-.01	.45	(.81)									
5. Emotional demands	-.05	.01	.55	.50	(.76)								
6. Time urgency CA	-.05	-.12	.14	.16	.04	(.89)							
7. Time urgency HA	.09	.08	.14	.04	.18	-.58	(.89)						
8. Role conflict CA	-.13	-.09	.03	.28	.04	.60	-.41	(.91)					
9. Role conflict HA	.10	.11	.10	-.14	.09	-.39	.52	-.62	(.92)				
10. Emotional demands CA	-.11	-.05	.01	.14	.01	.47	-.30	.68	-.42	(.93)			
11. Emotional demands HA	.06	.05	.07	-.08	.05	-.35	.44	-.49	.65	-.65	(.92)		
12. Burnout	-.06	.14	.54	.37	.56	-.12	.30	-.18	.20	-.17	.19	(.94)	
13. Engagement	.06	-.04	-.34	-.26	-.47	.24	-.30	.29	-.20	.29	-.25	-.75	(.94)
<i>M</i>	2.95	41.42	4.05	3.77	2.80	4.77 [#]	3.67 [#]	4.12	4.22	3.74 [#]	4.43 [#]	3.04	4.53
<i>SD</i>	0.53	10.79	1.42	1.38	0.79	1.29	1.42	1.52	1.53	1.60	1.53	1.16	1.11

Note: $r \geq |.09|$, significant at $p < .05$; $r > |.13|$, significant at $p < .01$. CA = Challenge Appraisal, HA = Hindrance appraisal. [#] = the mean of the challenge rating for this demand differed significantly from the mean of the hindrance rating for this demand.

Table 3. Regression coefficients for the moderation of appraisals on the relationships between job demands and work engagement/Burnout.

Predictors	Step 1		Step 2		Step3	
	Burnout	Engagement	Burnout	Engagement	Burnout	Engagement
Work time	.15**	-.09	.08*	-.03	.06	-.02
Education	-.06	.07	-.07*	.08*	-.08*	.09*
<i>Time Urgency</i>			.54***	-.37***	.51***	-.33***
Challenge appraisals			-.05	.19***	-.08	.24***
Hindrance appraisals			.21***	-.14**	.24***	-.16**
Time urgency × TUCA					-.11*	.24***
Time urgency × TUHA					.13**	-.02
R ²	.03**	.01*	.40***	.23***	.44***	.29***
Work time	.15**	-.09	.10*	-.03	.08*	-.02
Education	-.06	.07	-.06	.08*	-.06	.09*
<i>Role conflict</i>			.46***	-.37***	.45***	-.36***
Challenge appraisals			-.22***	.38***	-.27***	.43***
Hindrance appraisals			.12*	-.02	.12*	-.02
Role conflict × RCCA					-.17**	.18***
Role conflict × RCHA					.08	-.06
R ²	.03**	.01*	.26***	.22***	.31***	.26***
Work time	.15**	-.09	.11**	-.04	.11**	-.04
Education	-.06	.07	-.06	.08*	-.05	.07*
<i>Emotional demands</i>			.58***	-.48***	.56***	-.46***
Challenge appraisals			-.10*	.25***	-.11*	.25***
Hindrance appraisals			.09*	-.06	.12*	-.09
Emotional demands × EDCA					-.11*	.15**
Emotional demands × EDHA					.03	-.01
R ²	.03**	.01*	.39***	.32***	.41**	.35***

Note: *** $p < .001$, ** $p < .01$, * $p < .05$. All data reported here are standardized results. CA = Challenge appraisal, HA = Hindrance appraisal, TU = Time urgency, RC = Role conflict, ED = Emotional demands.

time urgency ($\beta = .54$, $p < .001$), role conflict ($\beta = .46$, $p < .001$), and emotional demands ($\beta = .58$, $p < .001$) (Hypothesis 2 supported).

The moderation effects of appraisals

In Step 3, we tested the moderating effects of appraisals on the relationships between various job demands and work engagement/burnout (Hypotheses 3–6). Table 3 shows that the interactions of challenge appraisal on the one hand and time urgency ($\beta = .24$, $p < .001$), role conflict ($\beta = .18$, $p < .001$), and emotional demands ($\beta = .15$, $p = .003$) on the other predicted work engagement, such that the negative relations of these demands with engagement were less negative when this particular demand was appraised as a challenge. We plotted these moderation effects in Figure 1 (for brevity we only presented the time urgency × appraisal moderation effect, since the other significant moderation effects are very similar, and can be obtained from the first author). Follow-up simple slope tests showed that the regression coefficients of job demands on engagement were stronger when challenge appraisals were low (time urgency, $b = -.41$, $T = -9.37$, $p < .001$; role conflict, $b = -.43$, $T = -8.16$, $p < .001$; emotional demand, $b = -.84$, $T = -10.41$, $p < .001$) than when challenge appraisals were high (time urgency, $b = -.10$, $T = -2.01$, $p = .045$; role conflict, $b = -.15$, $T = -2.82$, $p = .005$; emotional demand, $b = -.45$, $T = -5.14$, $p < .001$). These results suggest that the detrimental effects of job demands on work engagement were weaker if a particular demand was appraised as being challenging than if it was not. Thus, Hypothesis 3 was fully supported.

Second, the interactions of challenge appraisal on the one hand and time urgency ($\beta = -.11$, $p = .02$), role conflict ($\beta = -.17$, $p = .001$), and emotional demands ($\beta = -.11$, $p = .02$) on the other predicted burnout. As expected, the positive relation of demands with burnout was weaker when challenge appraisal was high (see Figure 1). Specifically, the regression coefficients of job demands on burnout were stronger when challenge appraisals were low (time urgency, $b = .50$, $T = 12.1$, $p < .001$; role

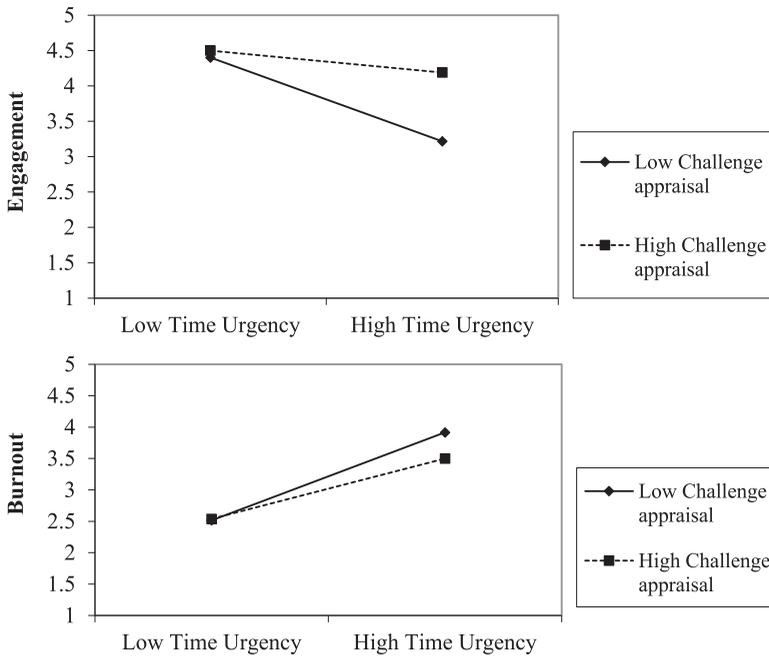


Figure 1. The interactions between job demands and challenge appraisals on engagement (top) and burnout (bottom).

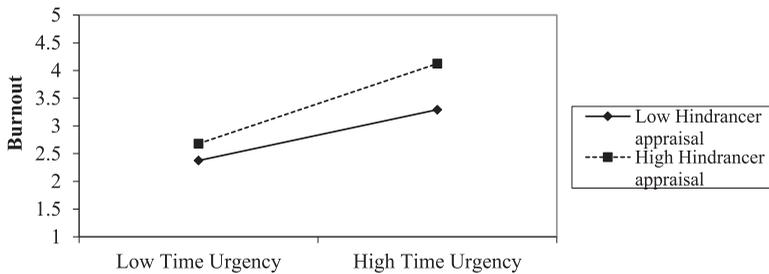


Figure 2. The interaction between time urgency and hindrance appraisals on burnout.

conflict, $b = .52$, $T = 9.74$, $p < .001$; emotional demand, $b = .99$, $T = 12.14$, $p < .001$) than when challenge appraisals were high (time urgency, $b = .34$, $T = 7.24$, $p < .001$; role conflict, $b = .25$, $T = 4.65$, $p < .001$; emotional demand, $b = .68$, $T = 7.69$, $p < .001$). These results suggest that the health impairment effects of job demands on burnout were stronger if workers appraised these demands as being low-challenge (Hypothesis 4 supported). Interestingly, no significant moderation effects of hindrance appraisal and job demands on engagement were found (Hypothesis 5 not supported).

Lastly, of the interactions between demands and hindrance appraisal on burnout, only time urgency had a significant effect ($\beta = .13$, $p = .007$). Specifically, the positive regression coefficient of time urgency on burnout was stronger when hindrance appraisal was low ($b = .33$, $T = 7.25$, $p < .001$) than when hindrance appraisal was high ($b = .51$, $T = 11.22$, $p < .001$) (See Figure 2). Thus, the negative effect of job demands on burnout was stronger if individuals appraised that demand as highly hindering (Hypothesis 6 partially supported).

Discussion

This study aimed to advance our understanding of the relationship between job demands and employee well-being by integrating cognitive appraisal theory and person–context interaction theory (Magnusson & Stattin, 1996) in the Challenge-Hindrance demands framework. We focused on three different job demands (time urgency, role conflict, and emotional demands) and their associations with burnout and engagement. We examined (1) how particular job demands are appraised by employees; and (2) the moderating role of appraisals.

The findings presented in this study suggest that not all demands are created equal. Whereas some demands (such as emotional demands) are primarily appraised as hindrances, other demands (time urgency) are predominantly considered as challenges. Role conflict could not unambiguously be classified as a challenge or a hindrance demand. This is largely in line with Webster et al. (2011) who reported that although workload, role conflict, and role ambiguity were primarily appraised as challenges or hindrances, they could also be perceived as being both to varying degrees. Similarly, Searle and Auton (2015) found that time pressure was appraised as a challenge to the same degree as it was appraised as a hindrance.

The moderation role of appraisals

In line with our predictions we found a positive link between demands (time urgency, role conflict, and emotional demands) and burnout, and a negative association between selected job demands and engagement, which is consistent with previous studies (e.g., Albrecht, 2015; Demerouti et al., 2001; Lesener et al., 2018).

In addition, our finding that workers differ in the way they appraise particular demands could mean that the effects of demands on outcomes such as work engagement and burnout differs across workers. Our findings supported this reasoning. As expected, high job demands were associated with high levels of burnout, but this association was weaker for those employees who appraise these demands as highly challenging. In the same vein, job demands were less negatively related to engagement for those who appraised the demands as high challenging. The present findings are consistent with Li et al. (2017) who showed that the relationship between perceived rewards for creativity and creativity-related intrinsic motivation was especially positive when this reward was considered a challenge. Thus, the current study confirms previous findings that challenge appraisal can act as a moderator of the association between demands and outcomes.

Overall, the results of the present study largely underline the merits of including appraisal (especially challenge appraisal) as a moderator in job demands research. When including the interactions of demands and appraisals in the explanation of burnout and engagement, we found that this interaction added unique explained variance on employee well-being.

However, the results varied for the three demands and the two types of appraisal included in this study. Specifically, while we consistently found significant moderation effects of challenge appraisals across the three demands, this was not the case for hindrance appraisals (with the exception of time pressure). A potential explanation is that since job demands are associated with physiological and psychological costs per definition (cf. Demerouti et al., 2001), demands *always* contain a certain “hindering” aspect. The appraisal of such demands as hindrances (which is congruent with the definition of demands as being associated with certain costs) does not add much and will not impact their well-being, since employees who consider demands as hindrances just see their demands for what they are. Conversely, the appraisal of a job demand that is *incongruent* with the basic nature of the demands concept (i.e., when employees consider a demand as challenging) may trigger an additional, positive process beyond the “exhausting” effect of that demand, partly mitigating its adverse effects on well-being. This is consistent with the “match/mismatch” argument (Folkman, 1984), which postulates that although appraising a stressful situation as uncontrollable is related to negative outcomes, these negative outcomes only occur if the reappraisal and coping do not

alter the meaning of the situation to the person (Folkman, 1984). People who discover something positive in a negative situation show less distress than those who not (Folkman, 1984; see for a review, Wortman & Silver, 1989). In line with this reasoning, an incongruent appraisal of job demands as challenging may alter the magnitude or basic nature of the relationship between demands (i.e., seeing a constraint as an opportunity) and well-being and how people to cope with such demand, partly mitigating the negative effect of job demands on employee well-being.

These results suggest that the mechanisms linking job demands to employee well-being are more complicated than has been assumed in the past. That is, the effects of job demands on well-being tend to vary as a function of type (challenge or hindrance) and individual variations in their appraisal, and the magnitude of these effects even seems to vary across different demands, namely, some demands (e.g., time urgency and emotional demands) could clearly be categorized as challenges/hindrances, while others could not (e.g., role conflict).

Theoretical contributions

The current study contributes to the literature by confirming and expanding previous research in several ways: First, we extend job demands research, and specifically the challenge-hindrance demand framework, by examining how employees appraise particular job demands. The findings presented here convincingly demonstrate that not all demands are perceived similarly by all workers. Insofar as the a-priori categorization of challenge-hindrance demand framework the causal relationships assumed in current work-psychological models (e.g., Job Demand-Resources theory, Demerouti et al., 2001; or the Job Demand-Control model, Karasek, 1979) hold up, our findings suggest that these models are perhaps need to consider the role of appraisals of job characteristics. Second, this research contributes to transactional stress theory (Lazarus & Folkman, 1984) and person-context interaction theory by examining cognitive appraisal, an individual characteristic, as a contextual factor on the relationship between job demands and employee well-being. While studies have reported cognitive appraisals as mediating mechanisms (e.g., LePine et al., 2016; Liu & Li, 2018; Webster et al., 2011), no studies have specifically examined how individual differences in appraisal impact the associations between job demands and employee well-being. Our study extends research in this area by providing evidence that appraisal is a major individual differences-factor (Li et al., 2017) that affects the associations between job demands and work “outcomes”; and including the interactions between job demands and challenge appraisals added unique explained variance on employee well-being. Therefore, our study opens a new domain of potential demanding work conditions (e.g., workload, job insecurity, role ambiguity) that may interact with cognitive appraisals in determining employee well-being. Finally, Folkman (1984) posits that the match/mismatch between a person’s appraisal of controllability in a stressful situation and the extent to which the outcome is actually controllable influences outcomes in the second appraisal process. Our study extends this argument by showing that in the primary appraisal process this match/mismatch (i.e., congruent/incongruent) between appraisal (i.e., challenge and hindrance) and the nature of a demanding situation influences employee well-being. It would seem interesting to examine this reasoning more thoroughly, checking how congruent and incongruent appraisal of job demands (or resources) influences employee well-being.

Study limitations and future research

Although our findings consistently showed that among three selected job demands challenge appraisals moderate the demand–well-being relationship, we are still unclear the exact role of appraisal in the relation between job demands and work outcomes (i.e., either a moderator or a mediator, or both). Our measurement of appraisals (i.e., we assessed participants’ general appraisal of particular job demands instead of measuring appraisals in reference to their current work experiences) precluded comparing the mediation and moderation role of appraisals (Hayes, 2013). Future longitudinal

designs and diary studies are needed to test how employees perceive their job demands in their daily working situation, and to compare the expected mediation associations and moderating roles of appraisals that found in the present study. Moreover, although in the present study we did not focus on appraisal as an antecedent or consequence of well-being, it could be interesting to examine in future research how appraisal and well-being influence each other. For instance, over time experiencing burnout or engagement may affect appraisal ratings as well.

The second limitation pertains to the self-reported measurement method. Given the nature of the current research topic (appraisals, engagement, and burnout), it is fairly common to use self-report methods (Yang & Caughlin, 2017). Admittedly, there is a possible influence of common method bias on the results given the same rater is used to report on both work characteristics and outcomes (De Lange, Taris, Kompier, Houtman, & Bongers, 2003). Williams, Hartman, and Cavazotte (2010) recommended confirmatory factor analysis to identify and control for method bias. In the current study, we compared several measurement models and the hypothesized model showed a good fit, which provides some confidence that our findings were not heavily biased. The use of different raters (e.g., one's supervisor or colleague) of work outcomes and objective measurements are recommended in order to draw more definitive conclusions of the effects of job demands on well-being and the role of appraisals implied in our study.

Finally, this study focused exclusively on job demands. We did not examine the effects of (the appraisal of) job resources on the study outcomes, or their potential buffering effect on the associations between job demands and outcomes. The present study showed that demands are perceived differently by workers, and there seems to be no reason to assume that such differences will be absent for job resources such as job control and social support (Alarcon, 2011). This suggests that for resources, similar processes may be present as found for job demands. For example, Folkman (1984) suggests that when the appraisal of control does not match reality, the risk of maladaptive outcomes should be greater. If this reasoning is correct, we would expect that for job resources, a "congruent" appraisal of a resource as a challenge should not affect employee well-being (i.e., should not moderate the association between that resource and well-being). Conversely, an "incongruent" appraisal of a resource as a hindrance (mismatch of a situation and appraisal) may well impact the association between that resource and the study outcomes. Future research can examine how work characteristics (both demands and resources) interact with cognitive appraisals in determining employee well-being, and how a congruent/incongruent appraisal influences the associations between job characteristics and employee well-being.

Practical implications

In spite of these limitations, our findings may have important practical implications. First, in a high-demand situation it is important to consider how employees appraise these demands. Employees benefit by appraising such demands as highly challenging (especially in demanding situations), and doing so may lead them to become more engaged in their work activities (Li et al., 2017). Managers and HRM departments may distinguish among employees with different appraisal dispositions and may encourage employees to consider job demands as challenges. For example, managers may emphasize the potential benefits and the opportunities for growth offered by particular demands when communicating with their subordinates. Second, when focusing on the selection process, it may be beneficial for organizations to hire employees who tend to appraise the specific demands that pertain to a particular job as a challenge. For example, if a job requires to work in a high time pressure context, recruiting individuals who tend to appraise time pressure as high challenging will benefit both the organization and the employee. Note that such measures (i.e., training programs and selection practices) should be part of the "bundle" of HRM tools, practices and strategies employed by an organization's HR department. Research has shown that such practices are most effective if they are part of an internally consistent HR bundle (MacDuffie, 1995). Thus, organizations are most likely to profit from such measures if they fit well with other HR tools used by the organization.

Conclusion

Our study extends research on the challenge-hindrance demands framework by adding appraisals, showing that workers may appraise demands as both challenges and hindrances, and examining the role of appraisals as moderator. Across three selected demands, we found consistent moderation effects of challenge appraisals, and demonstrated that the interaction of demands and their appraisal as a challenge or a hindrance often accounts for a unique part of the variance in this study's outcome variables. Apparently, one man's meat can indeed be another man's (or woman's) poison, since employees tend to appraise job demands differently. Therefore, we encourage future researchers to consider the moderation role of appraisal in their research on the effects of job characteristics as well as in the theories they develop.

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