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Job Resources and Regulatory Focus as Moderators of Short-Term Stressor-Strain Relations

A Daily Diary Study

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Abstract. By means of an eight-day daily diary study among 64 nursing home nurses, it was investigated whether within-person stress-buffering effects of job resources on the short-term relation between job demands and job strain were more likely to occur if (1) there was a match between job demands and job resources and (2) workers were predominantly promotion focused rather than predominantly prevention focused. Multilevel regression analyses revealed that there was neither support for the Demand-Induced Strain Compensation Model's matching hypothesis (Hypothesis 1) nor for the moderating effect of regulatory focus (Hypothesis 2) when studying within-person processes in the context of day-to-day working life.

Keywords: job demands, job resources, match, regulatory focus, job stress, daily diary study

There is mounting evidence that job demands are a major predictor of stress experiences at work (e.g., Bakker & Demerouti, 2007; de Lange, Taris, Kompier, Houtman, & Bongers, 2003). Job demands can be defined as work-related tasks that require effort, and vary from solving complex problems to dealing with aggressive clients or lifting heavy objects. If job demands persevere, initial stress experiences are likely to convert to chronic physical and psychological dysfunctioning, such as musculo-skeletal problems, cardiovascular disease, and burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Kivimäki et al., 2002; Larsson, Søgaard, & Rosendal, 2007).

Because job demands can often not be reduced, research in job stress has concentrated on identifying job characteristics that can diminish the deleterious effects of job demands on worker health and well-being. Against this background, several researchers have pointed out the stress-buffering effect of job resources (e.g., Demerouti et al., 2001; Karasek, 1979; Siegrist, 1996). Job resources are work-related assets (i.e., opportunities, data, people, things) that can be employed to deal with job demands. Examples of job resources are job autonomy, emotional support from colleagues, or technical equipment. In case of a stress-buffering effect of job resources, job resources moderate the relation between job demands on job strain, such that workers who are faced with high job demands and who have sufficient job resources to deal with these demands will experience less job strain than workers with the same level of job demands but insufficient job resources to deal with their demanding job (Cohen & Wills, 1985). Job resources may be particularly likely to operate as a stress buffer if workers use job resources that belong to the same domain of functioning as the type of job demands they need to deal with (e.g., Cohen & Wills, 1985; Cutrona & Russell, 1990). The idea that job resources should be *matched* to job demands in order to operate as a stress buffer is often referred to as the "matching hypothesis" (Cohen & McKay, 1984), and has become a central tenet of the Demand-Induced Strain Compensation (DISC) Model (de Jonge & Dormann, 2003, 2006). One of the main propositions of this job stress model is that job demands and job resources are primarily cognitive, primarily emotional, or primarily physical in nature, and that for stress-buffering effects of resources to occur, both demands and resources should belong to the same domain of functioning (i.e., they should both be either cognitive, emotional, or physical in nature). In this paper, the focus will be on the matching hypothesis as proposed by the DISC Model.

To this very moment, the DISC Model's matching hypothesis has been tested in studies investigating the *long-term* relation between job demands, job resources, and job strain (i.e., with respect to demand-resource-strain relations that develop over longer periods of time, such as weeks, months, or even years) (see Daniels & de Jonge, 2010; van den Tooren, de Jonge, & Dormann, 2011). What these studies do not allow for, however, is that job demands

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can also have an *immediate* effect on job strain (e.g., see Ilies, Johnson, Judge, & Keeney, 2011). That is, whereas it may sometimes take years before job demands result in job strain (e.g., cardiovascular disease), stressor-strain relations may also develop within one day (e.g., concentration problems). Since no studies have been conducted to test the DISC Model's matching hypothesis at day level, it is unclear whether specific types of job resources also operate as a stress buffer over a short period of time (i.e., within one day), and to what extent matching job resources are more functional resources than non-matching job resources to deal with job demands in the context of day-to-day working life. Moreover, although the development of job strain is a process that occurs *within* the individual, existing studies on the matching hypothesis typically have a *between-person* design. In other words, it is investigated whether workers who are faced with high job demands and who have insufficient job resources to deal with these job demands experience more job strain than workers who are confronted with the same amount of job demands but who have sufficient job resources at their disposal.

Because immediate stress reactions at work may have a great impact on workers' quality of life (cf. Almeida, 2005; Diener & Diener, 1996), the first aim of the current study is to examine *daily* job stress processes as they occur *within* the individual. More specifically, it will be examined whether within-person stress-buffering effects of job resources in the context of day-to-day working life (i.e., workers experience less job strain on days they encounter high job demands and high job resources than on days they are faced with high job demands and low job resources) are stronger in case of a match between job demands and job resources than in case of no such match.

In addition to the match between job demands and job resources, stress-buffering effects of job resources may also depend on workers' personal characteristics. Specifically, it has been argued that personal characteristics are likely to moderate the linkage between job conditions and job strain (Cooper, Dewe, & O'Driscoll, 2001). An individual characteristic that could particularly moderate the within-person stress-buffering effect of job resources is worker regulatory focus. One reason is that the activation of job resources during stressful situations at work requires self-regulatory behavior, and regulatory focus could play a decisive role in this behavior. Specifically, according to Regulatory Focus theory (Brockner & Higgins, 2001; Higgins, 1997), an individual's behavior is regulated by two distinct motivational orientations: a prevention focus or a promotion focus. If people are predominantly prevention focused, their self-regulatory behavior is characterized by avoidance strategies and a "conservative bias." Prevention focused individuals are sensitive to punishments that may result from poor performance, and therefore try to insure against losses and insure non-losses. In contrast, if people are predominantly promotion focused, their self-regulatory behavior is characterized by approach strategies and a "risky bias." Promotion focused individuals are sensitive to rewards that may be obtained from superior performance, and therefore try to insure gains and insure against non-gains. Because differences in regulatory focus have a different impact on self-regulatory behavior, these differences may also have a different impact on the activation of job resources in stressful situations at work. As will be explained later, we propose that prevention focused workers are less inclined to activate job resources than promotion focused workers.

Another reason why particularly regulatory focus could moderate the within-person stress-buffering effect of job resources is that differences in resource activation between prevention focused workers and promotion focused workers may be even more pronounced at day level. Specifically, in the context of day-to-day working life, a quick, almost impulsive course of action is expected to prevent strain from getting worse. Such quick decisions are less likely to be shown by workers with a conservative bias (i.e., prevention focused workers) than workers with a risky bias (i.e., promotion focused workers) (cf. Crowe & Higgins, 1997; Förster, Higgins, & Taylor Bianco, 2003).

To the best of our knowledge, the moderating effect of regulatory focus has not been tested before, either at day level, or with respect to the long-term relation between demands, resources, and strain. Given its potential impact on the stress-buffering effect of job resources in the context of day-to-day working life, the second aim of the present study is to examine the moderating effect of worker regulatory focus with respect to the short-term (i.e., day level) relation between demands, resources, and strain as it occurs within the individual.

Matching Hypothesis

According to the DISC Model's matching hypothesis, stress-buffering effects of job resources are most likely to occur if specific types of job resources are matched to specific types of job demands. As mentioned before, three specific types of job demands and job resources can be distinguished: cognitive, emotional, and physical (de Jonge & Dormann, 2003; Hockey, 2000). When the matching hypothesis is applied to the daily job stress process as it occurs within workers, it follows that workers who are faced with high cognitive job demands (e.g., solving complex problems) at a particular day are least likely to experience job strain (e.g., concentration problems) during that day if they have sufficient cognitive job resources (e.g., information from handbooks) to deal with their cognitively demanding job. Similarly, workers who are confronted with high emotional job demands (e.g., feeling threatened by aggressive patients) at a particular day are least likely to experience job strain (e.g., emotional exhaustion) during that day if they have sufficient emotional job resources (e.g., a listening ear from colleagues) to deal with their emotionally demanding job. Finally, if workers are faced with high physical job demands (e.g., moving heavy objects) at a particular day, they are least likely to experience job strain (e.g., back pain) during that day if they have sufficient physical job resources (e.g., a trolley) to deal with their physically demanding job (de Jonge & Dormann, 2003, 2006). This brings us to the following hypothesis:

Hypothesis 1: Within-person stress-buffering effects of job resources on the short-term relation between job demands and job strain are more likely to occur if there is a match between specific types of job demands and job resources than if there is a non-match between specific types of job demands and job resources.

Regulatory Focus

The match between demands and resources may not be the only mechanism underlying the within-person stress-buffering effect of job resources on the short-term relation between job demands and job strain. Another possible mechanism underlying the within-person stress-buffering effect of job resources in the context of day-to-day working life is that some workers are more hesitant about using job resources than others. More specifically, according to the Conservation of Resources (COR) theory (Hobfoll, 1989, 2001), in times of stress people strive to minimize net loss of resources. Any failure to "conserve" resources will lead to psychological stress (Hobfoll, 2001). In work settings, this implies that workers who are faced with high job demands will try to protect their job resources (e.g., workers who are faced with a physically strenuous task may not ask for physical help so that the physical power of their colleagues will not be depleted). However, due to differences in regulatory focus (Higgins, 1997), not all workers may be equally motivated to minimize resource losses. Prevention focused workers, for instance, are sensitive to punishments (e.g., psychological stress after resource loss) and will therefore be highly motivated to minimize resource losses. People in a promotion focus, however, are sensitive to rewards and particularly concerned with realizing gains and precluding non-gains. The failure to conserve job resources and the psychological stress that follows resource loss is therefore less likely to be an issue for them. Following this line of reasoning, we believe that in times of stress, those who are predominantly prevention focused are more likely to minimize resource losses – and thus less likely to use job resources – than those who are predominantly promotion focused. In other words, COR theory (Hobfoll, 1989, 2001) may especially apply to individuals with a prevention focus and to a lesser extent to individuals with a promotion focus.

Regulatory focus may be particularly likely to moderate the within-person stress-buffering effect of job resources at day level, because in case of short-term stressor-strain relations, a worker experiences job strain immediately after the stressor occurs, and hence needs to respond quickly in terms of resource investment to prevent strain from getting worse. As stated before, such ad hoc decisions are less likely to be shown by prevention focused workers (conservative bias) than by promotion focused workers (risky bias) (cf. Crowe & Higgins, 1997; Förster et al., 2003), implying that, in the context of day-to-day working life, those who are predominantly prevention focused are even more likely to minimize resource losses – and thus less likely to use job resources – than those who are predominantly promotion focused. Following this line of reasoning, it is hypothesized that:

Hypothesis 2: Within-person stress-buffering effects of job resources on the short-term relation between job demands and job strain are more likely to occur if workers are predominantly promotion focused than if workers are predominantly prevention focused (three-way interaction between job demands, job resources, and regulatory focus).

Method

Procedure

Mid-2009, two daily diary studies were conducted among nurses from two Dutch nursing homes. Participants were given a pocket computer, which they had to fill out for eight consecutive days. In this study, only data from working days were included. On these days, participants completed the diary after getting up (Measurement 1, abbreviated M1), after they had finished their shift (Measurement 2, abbreviated M2), and before bedtime (Measurement 3, abbreviated M3). Job strain was assessed at each measurement. Job demands and job resources were only measured at M2.

Because regulatory focus was considered to be a stable personal characteristic (cf. Kark & van Dijk, 2007), promotion focus and prevention focus were not measured at day level but taken from a baseline questionnaire survey that had been conducted in February 2009. Nurses could only participate in the diary study if they scored in the highest tertile of the promotion focus scale and the lowest tertile of the prevention focus scale, or vice versa. Nurses were selected on the basis of these two tertiles, as we were interested in nurses who were *predominantly* promotion focused or *predominantly* prevention focused, and we wanted to ensure that the findings in this study were not biased by respondents who were socialized with both types of regulatory focus or lacked both (cf. Knollmann & Wild, 2007). In total, we selected 50 nurses per nursing home who could either be categorized as (1) high promotion – low prevention focused or (2) high prevention – low promotion focused. In each nursing home, we aimed for about 20 participants per category (i.e., 40 participants per nursing home and 80 participants in total). Participants volunteered for the study and signed an informed consent after the instruction session. After they had finished the diary study, participants received a monetary reward of 15 euros each.

Participants

Of all nurses who received a pocket computer ($N = 77$), five nurses did not start or complete the diary study (response rate 93.5%). Reasons varied from noncompliance to technical problems with the pocket computer that could not be

solved immediately. Data from seven other nurses were excluded from the study because these nurses did not qualify for either regulatory focus category (they were not selected for the study but had changed places with nurses who were selected without informing the researchers). Finally, data from one nurse were excluded as this person only completed the diary study on nonworking days. Therefore, the final study sample consisted of 64 nurses. Mean age was 41.1 years (SD = 10.8), and 89.1% was female. Nurses worked 28.6 hr a week on average (SD = 6.3), and 85.9% worked in shifts (35.9% also did night shifts). Of all respondents, 33 nurses qualified as high promotion – low prevention focused and 31 nurses qualified as high prevention – low promotion focused.

Measures

Independent variables included in this study were cognitive, emotional, and physical job demands, corresponding types of job resources, and regulatory focus. Dependent variables were chosen from the same domain as job demands and job resources, resulting in cognitive, emotional, and physical job strain (cf. de Jonge & Dormann, 2006). It was decided to focus on strains measured at M2 (i.e., directly after participants had finished their shift), because strains measured before bedtime at M3 might have been affected by leisure time activities. Job strain measured at M1 (i.e., after getting up) was included as control variable. To keep the number of items in the diary survey as short as possible, all scales in the diary survey consisted of three items each. Table 1 shows the number of items, means, standard deviations, and zero-order correlations of all measures included. The reliabilities and example items of the scales are shown in Table 2.

Job Demands and Job Resources

Cognitive, emotional, and physical job demands and job resources were assessed with a Dutch version of the shortened DISC Questionnaire (DISQ-S 2.0, de Jonge et al., 2007). Items were scored on a 5-point agreement scale, ranging from 1 (*totally disagree*) to 5 (*totally agree*). Due to lower mean Cronbach's alphas, it was decided to use the best single item of the emotional demands scale and the cognitive resources scale. In addition, it was decided to use the best single item of the physical resources scale due to negative mean Cronbach's alphas for both the three-item scale and the two-item scale.

Strain

Cognitive strain refers to the extent workers experience deficits in attention, information processing, and (working) memory. Items were derived from a scale developed by Chalder et al. (1993) and were scored on a 5-point agreement scale, ranging from 1 (*totally disagree*) to 5 (*totally agree*). Emotional strain was assessed by an index of emotional exhaustion, which can be defined as a feeling of being emotionally wornout. Items were derived from the Utrechtse Burnout Scale (Schaufeli & van Dierendonck, 2000) and were scored on a 7-point frequency scale, ranging from 0 (*never*) to 6 (*always*). Finally, physical strain was assessed by an index of physical complaints (i.e., neck, shoulder, back problems). Items were derived from a scale developed by Hildebrandt and Douwes (1991). The possible responses were 1 (*to a great extent*), 2 (*to a moderate extent*), and 3 (*to a small extent*). Data were recoded, so the higher the score on this scale, the more physical complaints were experienced.

Regulatory Focus

Prevention focus and promotion focus were measured with six items each in a baseline questionnaire survey. Items were derived from two scales developed by Lockwood, Jordan, and Kunda (2002), and were scored on a 5-point agreement scale, ranging from 1 (*totally disagree*) to 5 (*totally agree*).

To justify the three-dimensionality of job demands, job resources, and job strain (i.e., cognitive, emotional, and

Table 1. Number of items, means, standard deviations, and Pearson correlations

	Items	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Cognitive demands	3	3.87	.61	–											
2. Emotional demands	1	3.81	.60	.60**	–										
3. Physical demands	3	3.58	.65	.16	.54**	–									
4. Cognitive resources	1	3.14	.77	−.39**	−.19	−.02	–								
5. Emotional resources	3	3.13	.56	.16	.19	.29*	.15	–							
6. Physical resources	1	2.44	.77	−.25	−.22	−.03	.49**	.27*	–						
7. Cognitive strain M1	3	1.98	.48	.06	.15	.39**	−.02	.34**	.06	–					
8. Emotional strain M1	3	1.95	.67	.03	.28*	.55**	−.03	.14	.01	.69**	–				
9. Physical strain M1	3	1.35	.46	-.05	.20	.37**	.04	.27*	.10	.21	.45**	–			
10. Cognitive strain M2	3	2.05	.48	.23	.22	.35**	−.14	.22	−.06	.84**	.63**	.10	–		
11. Emotional strain M2	3	2.13	.78	.13	.37**	.49**	−.16	.09	−.12	.62**	.89**	.37**	.60**	–	
12. Physical strain M2	3	1.40	.47	.02	.25*	.45**	−.04	.27*	−.01	.26*	.43**	.93**	.15	.37**	–

Notes. M1 = measurement 1; M2 = measurement 2; the Pearson correlations are based on average values across daily measurements. *p < .05; **p < .01.

Table 2. Reliabilities and example items of the scales

	Between-Person α		Within-Person α		
	Mean	Range	Mean	Range	Example items
Cognitive demands	.82	.72–.91	.61	.47–.77	*Today, I had to display high levels of concentration and precision at work*
Emotional demands	.51	.30–.72	.28	.12–.46	*Today, I had to do a lot of emotionally draining work*
Physical demands	.78	.64–.92	.56	.38–.79	*Today, I had to lift or move heavy persons or objects (more than 10 kg)*
Cognitive resources	.55	.24–.79	.31	.10–.56	*Today, I varied complex tasks with simple tasks*
Emotional resources	.67	.47–.81	.42	.23–.58	*Today, I got emotional support from others when a threatening situation at work occurred*
Physical resources	–	–	–	–	*Today, I took a physical break when things got physically strenuous*
Cognitive strain M1	.65	.38–.92	.42	.17–.80	*I have difficulty concentrating*
Emotional strain M1	.82	.65–.92	.61	.39–.79	*I feel emotionally drained from my work*
Physical strain M1	.76	.64–.89	.52	.37–.73	*I have trouble with my lower back*
Cognitive strain M2	.65	.36–.78	.44	.16–.54	*I have difficulty concentrating*
Emotional strain M2	.79	.54–.89	.57	.28–.72	*I feel emotionally drained from my work*
Physical strain M2	.77	.54–.86	.54	.28–.68	*I have trouble with my lower back*
Prevention focus	.79	n.a.	n.a.	n.a.	*In my work, I am more oriented toward preventing losses than I am toward achieving gains*
Promotion focus	.68	n.a.	n.a.	n.a.	*In my work, I am more oriented toward achieving success than preventing failure*

Notes. M1 = measurement 1; M2 = measurement 2; α = Cronbach's alpha; – = negative alpha; n.a. = not applicable.

physical demands, resources, and strain) and the two-dimensionality of regulatory focus (i.e., prevention focus and promotion focus), five Confirmatory Factor Analyses (CFAs) were conducted: one CFA for job demands, one for job resources (both a three-factor structure), two for job strain (i.e., M1 and M2, both a three-factor structure), and one for regulatory focus (two-factor structure). Error scores were allowed to correlate for demands, resources, and regulatory focus. To determine the overall fit of the models, we used a mixture of fit indices and their cut-off points, as recommended by Hair, Black, Babin, & Anderson (2010). Results of the CFAs are shown in Table 3 and indicate that the fit of the models was good (i.e., for each model, χ^2 was nonsignificant ($p > .05$), RMSEA < .10, NNFI > .90, and CFI > .90). Therefore, the three-dimensionality of job demands, job resources, and job strain as well as the two-dimensionality of regulatory focus appeared to be empirically justified.

Data Analysis

Data were analyzed with multilevel regression analyses using MLwiN 2.1 (Rasbash, Steele, Browne, & Goldstein, 2009). The predictor variables at day level (Level 1) were job demands, job resources, and outcome measures at M1. The predictor variable at the person level (Level 2) was regulatory focus. As we wanted to compare nurses who were *predominantly* promotion focused versus nurses who were *predominantly* prevention focused, this variable was dummy coded with high prevention – low promotion focus (vs. high promotion – low prevention focus) as reference category.

In line with de Jonge and Dormann (2006), Hypothesis 1 (the matching hypothesis) was tested by means of two separate analyses including either interaction terms between *matching* demands and resources or interaction terms between *non-matching* demands and resources. This resulted in six models – two for each type of outcome

Table 3. Results of Confirmatory Factor Analyses (CFAs)

	χ^2	RMSEA	NNFI	CFI
Job demands (three-factor structure)	28.91 ($df = 20$; $p = .09$)	.07	.95	.97
Job resources (three-factor structure)	32.88 ($df = 23$; $p = .08$)	.07	.90	.94
Job strain M1 (three-factor structure)	30.21 ($df = 24$; $p = .18$)	.06	.98	.98
Job strain M2 (three-factor structure)	22.67 ($df = 24$; $p = .54$)	.00	1.0	1.0
Regulatory focus (two-factor structure)	59.62 ($df = 47$; $p = .10$)	.07	.94	.96

measure – which will be referred to as Model 1. To test Hypothesis 2, regulatory focus was added to Model 1 as main term, and in combination with job demands (two-way interaction), job resources (two-way interaction), and job demands and job resources (three-way interaction). The six resulting models will all be referred to as Model 2. Results supported the moderating effect of regulatory focus if Model 2 showed a significantly better fit than Model 1, and within-person stress-buffering effects of job resources occurred more often if nurses were predominantly promotion focused than if nurses were predominantly prevention focused. The improvement of Model 2 above Model 1 was examined by computing the difference between the respective likelihood ratios. This difference follows a chi-square distribution, with the number of new parameters added to the model as degrees of freedom.

In multilevel modeling, predictor variables without meaningful zero point need to be centered (Luke, 2004). Accordingly, in line with Enders and Tofighi (2007), the Level-1 predictor variables outcome measure at M1, job demands, and job resources were group mean centered (i.e., centered around the person mean). The dummy variable regulatory focus was preserved in its natural metric. In each model, the random effects of the predictor variables (but regulatory focus) were allowed to vary at Level 2 (i.e., to differ across individuals).

Analyses including age, gender, contract hours a week, and shift work as control variables showed nearly identical results as analyses without them. For the sake of parsimony, we decided to omit these variables from further analyses.

Results

Testing Hypothesis 1, results showed no significant two-way interaction between matching demands and resources (Table 4), and one significant two-way interaction between non-matching demands and resources (Table 5). As shown in Figure 1, nurses experienced less emotional strain on days they were faced with high cognitive demands and high emotional resources than on days they were confronted with high cognitive demands and low emotional resources ($t = -2.03$; $p < .05$). Because results only revealed a single within-person stress-buffering effect of non-matching job resources, the findings are not in line with our predictions.

Table 4. Multilevel models of cognitive strain, emotional strain, and physical strain with moderating terms of matching job demands and job resources

	Cognitive strain M2				Emotional strain M2				Physical strain M2			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Intercept	2.08**	0.06	2.02**	0.09	2.14**	0.10	2.25**	0.14	1.40**	0.06	1.40**	0.08
Outcome M1	0.52**	0.11	0.55**	0.11	0.35**	0.13	0.37**	0.13	0.49**	0.18	0.51**	0.19
Cognitive demands	−0.05	0.08	0.05	0.11	0.13	0.08	0.15	0.12	0.03	0.03	−0.00	0.04
Emotional demands	0.05	0.06	0.02	0.09	0.11	0.06	0.14	0.08	0.02	0.02	0.06	0.03
Physical demands	0.15*	0.07	0.08	0.13	0.03	0.07	0.01	0.13	0.03	0.02	0.04	0.04
Cognitive resources	−0.04	0.05	−0.12	0.08	−0.09	0.05	−0.14	0.08	−0.02	0.02	−0.02	0.03
Emotional resources	0.07	0.09	0.14	0.10	−0.05	0.10	−0.22	0.15	0.01	0.02	−0.01	0.03
Physical resources	−0.06	0.06	0.04	0.11	−0.08	0.06	−0.06	0.09	0.00	0.02	−0.01	0.03
CD × CR	0.02	0.11	0.02	0.12	−0.22	0.11	−0.35**	0.12	−0.05	0.04	−0.03	0.04
ED × ER	−0.08	0.09	0.02	0.21	−0.19	0.15	0.06	0.25	−0.00	0.03	−0.03	0.08
PD × PR	−0.07	0.12	−0.62*	0.27	0.02	0.13	−0.08	0.27	−0.02	0.04	−0.06	0.09
Regulatory focus			0.11	0.12			−0.22	0.19			−0.01	0.12
CD × Focus			−0.29	0.18			−0.05	0.17			0.03	0.06
ED × Focus			0.07	0.12			−0.10	0.11			−0.06	0.04
PD × Focus			0.09	0.16			0.07	0.15			−0.01	0.05
CR × Focus			0.13	0.11			0.08	0.10			−0.01	0.04
ER × Focus			−0.13	0.14			0.29	0.20			0.04	0.05
PR × Focus			−0.05	0.14			0.03	0.13			0.01	0.04
CD × CR × Focus			0.01	0.32			0.65*	0.30			−0.07	0.11
ED × ER × Focus			−0.11	0.23			−0.36	0.31			0.03	0.08
PD × PR × Focus			0.73*	0.31			0.18	0.30			0.06	0.11
−2*LL	366.24		356.43		413.52		400.22		20.93		14.29	
Δ −2*LL (*df*)			9.81 (10)				13.30 (10)				6.64 (10)	
# daily measurements	215		215		214		214		213		213	

Notes. CD = cognitive demands; ED = emotional demands; PD = physical demands; CR = cognitive resources; ER = emotional resources; PR = physical resources; *B* = unstandardized coefficient; *SE* = standard error; −2*LL = log likelihood; *df* = degrees of freedom.

*$p < .05$; **$p < .01$.

Table 5. Multilevel models of cognitive strain, emotional strain, and physical strain with moderating terms of non-matching job demands and job resources

	Cognitive strain M2				Emotional strain M2				Physical strain M2			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Intercept	2.11**	0.06	2.01**	0.09	2.14**	0.10	2.28**	0.14	1.40**	0.06	1.41**	0.08
Outcome M1	0.51**	0.11	0.53**	0.11	0.31*	0.13	0.33**	0.13	0.47**	0.18	0.44*	0.18
Cognitive demands	−0.03	0.09	0.15	0.11	0.14	0.10	0.05	0.13	0.02	0.03	−0.01	0.04
Emotional demands	0.05	0.06	0.01	0.09	0.05	0.06	0.13	0.08	0.03	0.02	0.06	0.03
Physical demands	0.10	0.08	−0.02	0.12	0.10	0.08	0.05	0.14	0.01	0.02	0.05	0.05
Cognitive resources	−0.03	0.06	−0.10	0.07	−0.12*	0.06	−0.13	0.08	−0.03	0.02	−0.02	0.03
Emotional resources	0.08	0.08	0.23*	0.09	−0.03	0.10	−0.21	0.14	0.01	0.02	0.00	0.03
Physical resources	−0.09	0.07	−0.01	0.10	−0.03	0.07	−0.13	0.11	−0.00	0.02	−0.03	0.03
CD × ER	−0.25	0.20	−0.66**	0.24	−0.47*	0.23	−0.12	0.31	−0.01	0.07	0.03	0.09
CD × PR	0.29	0.24	−0.14	0.32	−0.10	0.20	0.25	0.32	0.01	0.06	0.06	0.09
ED × CR	−0.11	0.07	−0.01	0.15	0.14	0.10	−0.06	0.14	0.00	0.02	0.01	0.05
ED × PR	−0.15	0.11	0.02	0.16	−0.17	0.11	−0.28	0.17	0.02	0.03	−0.04	0.06
PD × CR	0.00	0.08	−0.35	0.18	−0.06	0.09	−0.02	0.20	−0.05	0.03	−0.04	0.07
PD × ER	−0.08	0.16	0.02	0.29	0.36	0.23	0.42	0.37	−0.04	0.05	−0.12	0.11
Regulatory focus			0.13	0.12			−0.27	0.19			−0.02	0.12
CD × Focus			−0.31	0.18			0.07	0.19			0.04	0.06
ED × Focus			0.05	0.12			−0.17	0.11			−0.05	0.04
PD × Focus			0.16	0.16			0.11	0.17			−0.05	0.06
CR × Focus			0.10	0.11			0.03	0.11			−0.02	0.04
ER × Focus			−0.23	0.14			0.32	0.19			0.02	0.05
PR × Focus			−0.04	0.13			0.13	0.14			0.04	0.04
CD × ER × Focus			0.38	0.46			−0.50	0.49			−0.05	0.16
CD × PR × Focus			0.65	0.46			−0.56	0.41			−0.03	0.13
ED × CR × Focus			−0.05	0.17			0.34	0.19			0.01	0.06
ED × PR × Focus			−0.17	0.22			0.19	0.20			0.09	0.07
PD × CR × Focus			0.39	0.20			0.01	0.22			−0.03	0.07
PD × ER × Focus			−0.07	0.35			−0.07	0.47			0.12	0.13
−2*LL	355.97		341.31		410.85		394.46		16.04		5.56	
Δ −2*LL (*df*)			14.66 (13)				16.39 (13)				10.48 (13)	
# daily measurements	215		215		214		214		213		213	

Notes. CD = cognitive demands; ED = emotional demands; PD = physical demands; CR = cognitive resources; ER = emotional resources; PR = physical resources; *B* = unstandardized coefficient; *SE* = standard error; −2*LL = log likelihood; *df* = degrees of freedom.
*$p < .05$; **$p < .01$.

As far as Hypothesis 2 is concerned, results in Tables 4 and 5 revealed that in neither analysis Model 2 showed a significantly better fit than Model 1. Because worker regulatory focus did not make a significant contribution to the prediction of job strain, there was no empirical support for Hypothesis 2.

Nearly identical results were found for Hypotheses 1 and 2 when data were re-analyzed with the original three-item scales for emotional job demands, cognitive job resources, and physical job resources. This indicates that the single items which had been used in favor of the study's internal consistency were a valid substitute for the multi-item scales.

Discussion

The aim of the current study was to investigate whether within-person stress-buffering effects of job resources on short-term stressor-strain relations (i.e., at day level) are more likely to occur if (1) there is a match rather than a non-match between job demands and job resources (Hypothesis 1), and (2) workers are predominantly promotion focused rather than prevention focused (Hypothesis 2). To examine our hypotheses, a daily diary study among 64 nursing home nurses was conducted. Results only revealed a single within-person stress-buffering effect of non-matching job resources. In addition, it was shown that worker regulatory focus did not make a significant contribution to the prediction of job strain. Based on these findings, it was concluded that there was neither support for the DISC Model's matching hypothesis (Hypothesis 1) nor for the moderating effect of regulatory focus (Hypothesis 2) when studying within-person processes in the context of day-to-day working life.

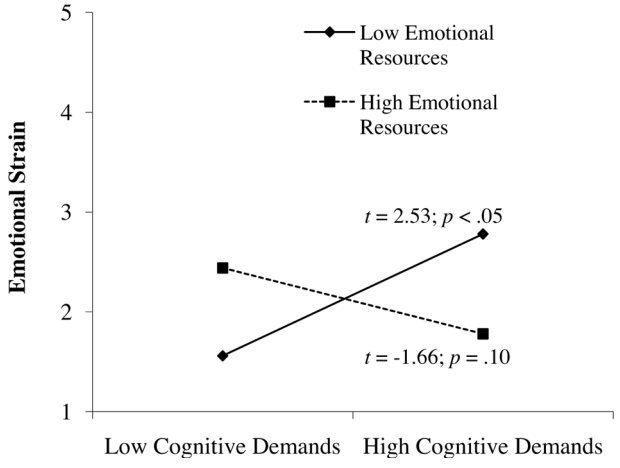

Figure 1. Emotional job resources moderate the relation between cognitive job demands and emotional strain.

Matching Hypothesis

Although there is a growing and sound body of empirical evidence for the DISC Model's matching hypothesis as regards the long-term relation between job demands, job resources, and job strain (van den Tooren et al., 2011), the current findings suggest that this matching hypothesis does not apply to the short-term relation between demands, resources, and strain as it occurs within workers. More specifically, when studying within-person processes in the context of day-to-day working life, we found no stress-buffering effect of matching job resources. One explanation for why the matching hypothesis was not supported may be that coping with stressful situations at work takes time, and that the time-span of this diary study was too short for adaptation to take place (cf. Kleber & van der Velden, 2003). For instance, if particular job demands originated at the time of the diary study, nurses may yet not have been capable of coping adequately with this type of job demands. When adaptation is ultimately completed, workers know, either explicitly or implicitly (cf. Smith, 2001), what kind of job resources they need to employ to realize an optimal match between job demands and job resources. However, if adaptation is not completed, as might have been the case in the current study, workers are less capable of selecting job resources that match the type of job demands concerned.

An alternative explanation may be that our daily demand and resource measures were too broad for the occupation under study. For instance, a recent study among firefighters has shown that an occupation-specific emotional resource (i.e., camaraderie) has more consistent protective effects against poor psychological health than global emotional resources (Tuckey & Hayward, 2011). Similarly, our results might have supported Hypothesis 1 if we would have included more occupation-specific measures, that is, cognitive, emotional, and physical job demands and job resources that are specific to the nursing profession.

Regulatory Focus

In the current study, results revealed that the short-term relation between job demands, job resources, and job strain as it occurs within individuals was not affected by worker regulatory focus. One explanation for this finding could be that, at day level, job demands might have served as situational cues that evoked a temporary regulatory focus in nurses (cf. Neubert, Kacmar, Carlson, Chonko, & Roberts, 2008). As this temporary state may differ from nurses' stable regulatory focus, temporary regulatory focus might have weakened the moderating effect of stable regulatory focus. In addition, as the mere perception that one has sufficient job resources to deal with job stressors (e.g., colleagues who can provide support) may already offset the impact of job demands (cf. Cohen & Wills, 1985), nurses who were predominantly prevention focused might not necessarily have had to activate available job resources to mitigate (or prevent) the adverse impact of job demands on their health and well-being. Finally, because regulatory focus was a dichotomous variable, power problems might explain why regulatory focus did not make a significant contribution to the prediction of job strain.

Study Limitations and Implications

A limitation of this study is that, due to a relatively small number of daily measurements, the relatively large number of main terms and interaction terms, the lower within-person reliabilities of the daily measures, and the inclusion of a dichotomous moderator, it is difficult to determine whether the null findings can be explained by a lack of relationship, or by a lack of statistical power. In addition, this study included a homogeneous sample (i.e., nursing home nurses), which poses questions about the study's generalizability to health care professions in general as well as to other service jobs.

With regard to the theoretical implications of this study, the current findings suggest that, to show within-person stress-buffering effects of job resources in the context of day-to-day working life, it makes no difference whether or not (1) specific types of job resources are matched to specific types of job demands and (2) individual differences in regulatory focus are taken into account.

From a practical point of view, it can be tentatively concluded that, to prevent job strain in the context of day-to-day working life, there seems no need for employers to provide workers exclusively with job resources that match job demands. In fact, results only revealed one stress-buffer effect of non-matching job resources; emotional job resources buffered the adverse impact of high cognitive job demands on emotional strain. Further, as far as personnel selection is based on immunity to daily job strain, there seems no need to address worker regulatory focus, as this personal characteristic does not seem to affect the investment of available job resources during stressful situations at work, at least not on a daily basis.

Nonetheless, to be able to draw firm, generalizable conclusions when examining the DISC Model's matching hypothesis and the moderating effect of worker regulatory focus with respect to the short-term relation between job demands, job resources, and job strain as it occurs within individuals, further daily (diary) research among nursing homes nurses and other service professions, as well as in multi-occupation samples is highly recommended.

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