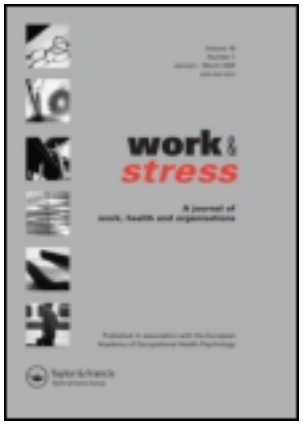

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Does dispositional capacity for self-control attenuate the relation between self-control demands at work and indicators of job strain?

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Does dispositional capacity for self-control attenuate the relation between self-control demands at work and indicators of job strain?

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This study examined whether the individual capacity for self-control (as a psychological resource) moderates (i.e., buffers) the adverse influences of self-control demands (as a psychological work stressor) on employees' perceived job strain and well-being. To our knowledge this relationship has not previously been studied. In line with the match principle proposed by de Jonge and Dormann (2006), it was assumed that this moderator effect was most likely to emerge in psychological outcomes, whereas physical outcomes were expected to reflect no equivalent relationships. Data collected from 249 health care workers employed in an area of Eastern Germany confirmed both hypotheses. Psychological outcomes (such as emotional exhaustion, depressive symptoms and sleep disorders) clearly indicated that the detrimental impacts of self-control demands are attenuated with an increase in self-control capacity. By way of contrast, musculoskeletal complaints as a physical outcome, which was mainly included as a control variable, failed to reflect any effects of both predictors. Our findings draw attention to the importance of improving the match between self-control demands and self-control capacity of service employees in order to make self-control demands less stressful.

Keywords: service jobs; self-control demands; resources; job strain; match principle; work-related stress

Introduction

For many jobs, particularly those in the service sector, self-control demands (SCDs) are an integral constituent of the work role (Cascio, 2003; Pulakos, Arad, Donovan, & Plamondon, 2000). Self-control involves inhibiting, modifying, or overriding spontaneous and automatic reactions, urges, emotions, and desires that would otherwise interfere with goal-directed behaviour and impede goal achievement (Baumeister, Heatherton, & Tice, 1994). Demands on self-control cause people to change the way they would spontaneously think, feel, or behave. For example, employees are required to engage in self-control when they have to follow certain rules, create specific impressions, or concentrate on complex tasks without allowing distraction.

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Despite the positive effects of self-control on personal success in many domains of life (Baumeister & Vohs, 2004) including job performance (VandeWalle, Brown, Cron, & Slocum, 1999), a growing body of evidence strongly suggests that exercising self-control is also associated with psychological costs that are manifested as psychological strain and impaired well-being (Baumeister, Vohs, & Tice, 2007; Muraven & Baumeister, 2000). Drawing on these results, some authors argue that dealing with SCDs might be a source of stress at work (Neubach & Schmidt, 2006). In support of this argument, recent results demonstrate that SCDs are significantly related to burnout, depressive symptoms, and absenteeism in various service professions (Diestel & Schmidt, 2009, 2011; Schmidt, 2010).

These observations raise the question as to whether factors could be identified in the work environment or in the person that might protect employees against the adverse effects of job-related SCDs. The identification of such protective factors, often labelled as "psychological resources" (Hobfoll, 1989, 2002), is a dominant topic in current stress research, not least due to their implications for job redesign, training or personnel selection. As such a potential resource, Tangney, Baumeister, and Boone (2004) have suggested that people differ in their capacity to exert self-control. In corroborating this idea, those authors developed a new measure of dispositional self-control capacity (SCC) showing good psychometric properties. Furthermore, this measure was found to be significantly linked to beneficial, positive outcomes across diverse domains of life (like better adjustment, better interpersonal skills, and more optimal emotional responses).

However, to our knowledge, no research does exist combining employees' dispositional SCC with job-related SCDs. Thus, to fill this gap, the main aim of the present study was to relate both types of concepts, self-control demands and self-control capacity, to job strain and well-being of service employees. Specifically, we expected that the individual capacity for self-control operates as a buffer against the detrimental effects of SCDs at work. Thus, we hypothesized interaction effects of SCDs and SCC on employees' strain and well-being.

In the following, we first review the literature on self-control. Then, the concept of dispositional SCC will briefly be discussed. Finally, we integrate both lines of research and develop the hypotheses in more detail.

Self-control demands as a work stressor

A growing body of evidence in basic research reveals that exercising self-control is stressful and can lead to impairments of cognitive as well as behavioural control and psychological strain (Muraven, Tice, & Baumeister, 1998; Schmeichel, Vohs, & Baumeister, 2003). In a series of experimental studies demanding two successive acts of self-control (e.g., suppressing emotions and thoughts, attention control), self-control of performance on the second act was consistently impaired even in a seemingly unrelated sphere of activity (see Hagger, Wood, Stiff, & Chatzisarantis, 2010, for a recent meta-analysis).

Whereas most of the studies on self-control focused on behavioural and cognitive performance, there is now also an increasing body of evidence suggesting that chronically high SCDs can lead to psychological strain and impaired well-being (Baumeister, Gailliot, DeWall, & Oaten, 2006). For example, Oaten and Cheng (2005) observed a significant increase in anxiety, emotional distress, and depressive

symptoms among students who suffered from academic stress over a month, as compared to a control group. Academic stress is characterized by high SCDs, such as resisting distractions or overcoming inner resistances. These findings were replicated in several longitudinal studies with longer time intervals (Oaten & Cheng, 2007).

Muraven and Baumeister (2000; see also Baumeister et al., 2007) proposed a model of self-control to account for these observations. According to this model, different forms of self-control draw on a common regulatory resource, or self-control strength, which is limited and consumed in the process of exerting self-control. Consequently, acts of self-control reduce the strength available for subsequent self-control efforts. Baumeister and colleagues coined the term of "ego depletion" to describe this state of diminished self-control strength. Self-control strength thus resembles a muscle which is exhausted during prolonged exertion. Furthermore, the model assumes that people who frequently need to exert self-control without being able to replenish their self-control strength are likely to be in a state of chronic self-control resource depletion and, in the long run, suffer from increased psychological strain and impaired well-being.

In line with this assumption and given the increasing relevance of self-control in modern work settings (Pulakos et al., 2000), Schmidt and Neubach (2007) identified and measured three forms of job-related SCDs and analysed their cumulative effects on job strain. First, impulse control refers to the demand to inhibit spontaneous, impulsive response tendencies and affect states associated with, for example, injudicious expressions. Second, resisting distractions involves the requirement to ignore and resist distractions evoked by task-irrelevant stimuli, which would otherwise interfere with a successful accomplishment of tasks. Third, overcoming inner resistances relates to the requirement of overcoming motivational deficits to complete unattractive tasks which cannot be postponed and evaded.

In longitudinal studies, Schmidt and Neubach (2010) have shown that the three forms of SCDs are relatively stable over time (12 and 24 months), indicating that SCDs constitute stable characteristics of a given job. In addition, after controlling for biographical and sample attributes, all three SCDs have been found to explain additional amounts of variance in burnout and other indicators of strain over and beyond that accounted for by some established work stressors, such as workload, role ambiguity, and lack of social support (Diestel & Schmidt, 2009; Schmidt & Neubach, 2007, 2010). Finally, and consistent with the idea of a limited regulatory resource, the relation of SCDs to burnout was found to be moderated (amplified) by the reported frequency of self-control problems in daily life (Schmidt, Neubach, & Heuer, 2007). Accordingly, the increase of burnout with job-related SCDs was comparatively higher for those employees who were increasingly required to exert self-control in other domains of life.

Self-control capacity as an individual trait

Whereas the strength model focuses on acute and chronic state depletion of self-control resources, there are also some indications of substantial individual differences in people's self-control resource (Baumeister et al., 1994, 2006; Tangney et al., 2004). Some people are obviously better able than others to manage their emotions, hold their tempers, fulfil their promises, or resist temptations, to name but

a few examples. Accordingly, self-control can also be conceptualized as a dispositional, trait-like construct that differs across individuals.

In view of some shortcomings of earlier measures of individual differences in self-control capacity (SCC), Tangney et al. (2004) developed a new questionnaire scale for assessing that construct. The scale addresses various domains of self-control, such as control of thoughts, emotions, impulses, and performance. Data revealed that the resulting trait measure is one-dimensional in nature and has a good internal consistency and inter-individual stability (Bertrams & Dickhäuser, 2009; Tangney et al., 2004). Furthermore, the data provided strong support for the assumption that high SCC is linked to a broad range of positive outcomes. For example, people with high SCC have better grades as compared to people with a low level of self-control. They show fewer impulse control problems, report better psychological adjustment (as assessed by a measure of psychopathological symptoms including depression, anxiety, and hostile anger), and have higher self-acceptance or self-esteem. High SCC also correlates with better interpersonal relationships, better perspective-taking and less proneness to wallow in personal distress. Finally, people with high SCC report less anger and better management of anger when they get annoyed (Tangney et al., 2004). There are good reasons to believe that all these positive outcomes would be beneficial in work settings as well.

The present study

Going beyond previous research and connecting the domains of SCC and SCDs, we argue that the capacity for self-control is a psychological resource that helps employees to deal effectively with their job-related demands on self-control. Based on the assumptions that (a) SCDs are a source of stress at work drawing on and depleting a common regulatory resource, and (b) people differ regarding their personal self-control capacity, we expect SCDs to interact with SCC in the prediction of indicators of job strain and well-being. More specifically, the adverse impact of SCDs is hypothesized to be attenuated (buffered) as a function of increasing levels of SCC. The theoretical rationale behind this prediction is that employees with high levels of dispositional SCC should have a greater resource at their disposal. Consequently, in case of high SCDs their capacity should be less impaired or depleted compared with individuals with low SCC.

This prediction is in line with the so-called match principle proposed by de Jonge and Dormann (2006). According to this principle, resources (like SCC) are most likely to be successful in buffering against the adverse impact of job stressors (like SCDs) if stressors and resources match, that is, address similar domains of human functioning (like self-control). In addition to that match between stressors and resources, the match principle also implies that the third component of the stressor-resource-strain link (i.e., the strain component) needs to be considered as a source of match or non-match as well. For instance, psychological types of resources (like SCC) and psychological types of stressors (like SCDs) are proposed to cause psychological types of strain or dysfunction (like burnout), whereas less psychological areas of strain (like physical complaints) are not a likely consequence (see also Daniels & de Jonge, 2010; de Jonge, Le Blanc, Peeters, & Noordam, 2008).

Following this line of reasoning, the present study examines the interplay of SCDs and SCC (as matching stressors and resources) in relation to both matching

and non-matching indicators of job strain and well-being. As matching indicators of psychological strain, the present study includes three outcomes. The burnout dimension of emotional exhaustion was chosen because past research has repeatedly found SCDs to exert positive influences on exhaustion (Diestel & Schmidt, 2009, 2010, 2011; Schmidt, 2010). To explain this effect, authors have argued that this burnout dimension is especially sensitive to resource depletion (Lam, Huang, & Janssen, 2010; Maslach, Schaufeli, & Leiter, 2001). Research on organizational stress has also focused on depressive symptoms as a potential psychological strain outcome of SCDs (Schmidt & Neubach, 2007, 2010). According to the control theory of depression (Hyland, 1987), depressive symptoms result from chronic self-control failures in goal-directed behaviour which, in turn, reflect decrements in the regulatory resource (see Baumeister & Vohs, 2004). Finally, the third psychological outcome addresses sleep disorders. Sleep problems or sleep disorders are usually defined as comprising three elements: (a) subjective sleep complaints, (b) associated negative daytime dysfunction, and (c) severe distress or impairment in social, occupational, and other vital areas of functioning (American Sleep Disorders Association, 1997). A growing body of evidence within and outside the service sector strongly suggests that (among many other factors) psychosocial work stressors (like SCDs) may contribute to the development and maintenance of sleep disorders (see Akerstedt et al., 2002; Jansson & Linton, 2006). On the other hand, sufficient sleep is discussed as one means by which self-control resources can be replenished (see Barber, Munz, Bagsby, & Powell, 2010). Consequently, the first hypothesis proceeds from the following prediction:

> *Hypothesis 1*. Over and above main effects, the interaction between SCDs and SCC is expected to contribute to the prediction of indicators of psychological job strain and well-being (burnout, depressive symptoms and sleep disorders). More specifically, it is expected that high levels of employees' SCC will attenuate the adverse effects of SCDs on these psychological outcomes.

As a non-matching outcome, musculoskeletal complaints complete the range of criterion measures considered in the present study. Although such complaints may be influenced by psychosocial factors of work, the strength of relationships is generally lower than for psychological forms of job strain (see, for an overview, Bongers, Kremer, & ter Laak, 2002). Consequently, the second hypothesis assumes the following:

> *Hypothesis 2:* In contrast to indicators of psychological strain and well-being, musculoskeletal complaints as a physical (non-matching) indicator of job strain will reflect no, or weaker, interactive effects of SCDs and SCC.

Both hypotheses were tested on the basis of an overall measure of SCDs (rather than faceting specific measures). This procedure was guided by two related arguments. First, although SCDs constitute a multidimensional construct (Schmidt & Neubach, 2010), different forms of self-control demands are theoretically thought to draw on and deplete a common limited regulatory resource (Baumeister et al., 2007). Consequently, their integrative measurement covers the total or cumulative demands on that limited resource (Diestel & Schmidt, 2011). Second, SCC is theoretically conceptualized and was found to be one-dimensional in nature (Bertrams &

Dickhäuser, 2009), reflecting a homogeneous capacity of self-control. Thus, both theory and evidence suggest combining SCC with an overall measure of SCDs.

Method

Participants and procedures

A cross-sectional survey study was conducted among health care workers employed in an organization for residential elderly care with five locations in an urban area of Eastern Germany. All these workers were involved in patient or client work. Participants were recruited through announcements at staff meetings and memos sent jointly by the managers of the homes and local members of work council. A total of 249 out of 315 employees followed the invitation to participate in the study (participation rate 79%).

Study variables were assessed with a questionnaire completed during normal working hours in small groups of about 10 persons. During the group sessions, a member of the research team was present who collected the completed questionnaires. Participants were assured that completing the questionnaire was voluntary and that their data would remain confidential. The data were collected and analysed anonymously. Demographics showed that 85.5% of participants were female. The mean age was 38.2 years ($SD = 10.9$) with a range from 20 to 62 years. 31.7% worked full-time (i.e., 37.5 hours per week).

Measures and instruments

Self-control demands. This measure comprises 15 items from the instrument developed by Neubach and Schmidt (2007) that covers three facets of SCDs: impulse control (e.g., "My job requires me never to lose my temper"), resisting distractions (e.g., "In order to achieve my performance goals, I must not let myself be distracted"), and overcoming inner resistances (e.g., "Some of my tasks are such that I really need to force myself to get them done"). All items are scored on a five-point rating format ranging from 1 (*not at all*) to 5 (*a great deal*). Following Diestel and Schmidt (2011), the item scores were averaged to form an overall measure of job-related SCDs. The average scale reflects the cumulative extent to which a given job causes employees to engage in self-control. Cronbach's alpha for this measure was .83.

Self-control capacity. SCC as an individual trait was measured with the self-control scale developed by Tangney et al. (2004). The scale covers various spheres of self-control, in particular control over thoughts, emotional control, impulse control, performance control, and habit breaking. Exemplary items are "People would describe me as impulsive" and "I often interrupt people." All items are rated on a five-point response format running from 1 (*not at all*) to 5 (*very much*). Responses are scored such that higher values indicate a higher individual SCC. Item scores were averaged to generate an overall measure of SCC (Bertrams & Dickhäuser, 2009). Cronbach's alpha for this measure was .86.

Indicators of job strain. For assessing psychological job strain and well-being, the following measures were included. *Emotional exhaustion* as core dimension of

burnout was measured by the Maslach Burnout Inventory (Maslach & Jackson, 1986) in a German translation by Büssing and Perrar (1992). Emotional exhaustion refers to feelings of being emotionally overextended and drained by contacts with other people one is working with. A typical item is "I feel emotionally drained by my work." All nine items are scored on a six-point frequency scale ranging from 1 (*not at all*) to 6 (*very often*). The exhaustion measure revealed an internal consistency of $\alpha = .85$.

Depressive symptoms were assessed with a shortened version of the Beck Depression Inventory (Beck, Steer, & Garbin, 1988) in a German translation by Schmitt and Maes (2000). The 15 items address various depressive states like reduced initiative, irritation, sadness, and tiredness. Intensity/severity of symptoms is rated on a six-point response format with anchors ranging from 0 (*never*) to 5 (*very often*). Cronbach's alpha of the depression measure was .93.

Sleep disorders were measured by the "daytime dysfunction" – subscale of the Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman, & Kupfer, 1989), one of the most often used and validated instruments in applied sleep research (Carpenter & Andrykowski, 1998). Each of the seven subscales of the PSQI has been found to address a particular aspect of the same overall construct, viz., sleep disorders. The two items of this subscale ask respondents to report on the severity of problems they had during the past month "to stay awake while engaging in daily routines (like driving, eating meals, etc.)," and "to keep up enough enthusiasm to get things done." The response format covers a range from 0 (*no problem at all*) to 3 (*a very big problem*). In the present sample, item scores correlated with .72, indicating a sufficient degree of reliability.

The physical (non-matching) criterion of *musculoskeletal complaints* was assessed with the complaints list developed by von Zerssen (1976). The items of the corresponding subscale ask for the severity of complaints in various body regions such as neck/shoulder, back and upper extremities. Responses are scored on a four-point response format running from 0 (*not at all*) to 3 (*a great deal*). The resulting measure revealed an internal consistency of $\alpha = .80$.

Control variables

To control for the possibility that biographical differences in the predictor or criterion measures might lead to spurious relationships, the following biographical background variables were assessed for each respondent: gender (1 = male; 2 = female), age (in years), and work schedule (1 = part-time; 2 = full-time).

Statistical analyses

Before testing the hypotheses, Confirmatory factor analyses (CFAs) were performed informing on the psychometrical distinctiveness of (a) the main predictor variables (SCDs, SCC), and (b) the four outcome measures. The corresponding measurement models were evaluated on the basis of conventional fit indices (see Schermelleh-Engel, Moosbrugger, & Müller, 2003). Then, for answering the question whether SCDs and SCC interact in the prediction of exhaustion, depressive symptoms, sleep disorders, and musculoskeletal complaints, a latent moderated structural equation model (LMS; Dimitruk, Schermelleh-Engel, Kelava, & Moosbrugger, 2007; Klein &

Moosbrugger, 2000) was specified and tested. In the respective moderated SEM, gender (1 = male; 2 = female), work schedule (1 = part-time; 2 = full-time) and age were defined to predict the four latent outcomes. To analyse main effects, we specified direct paths from both predictors SCD and SCC to all dependent variables. As known from moderated regression analysis (Aiken & West, 1991), latent product terms of the hypothesized interacting variables (SCD and SCC) were computed and specified to predict all outcomes. As normal distribution of the latent dependent variables cannot be assumed when interaction effects are predicted (Kelava, Moosbrugger, Dimitruk, & Schermelleh-Engel, 2008), no χ2-values and fit indices are provided by the LMS method. Alternatively, the log-likelihood difference test (Δ −2LL; Dimitruk et al., 2007) validates the improvement in model fit of the moderated SEM as compared to a linear SEM without interaction terms. All parameter specifications and estimations of the SEM were conducted with Mplus 5.1 (Muthén & Muthén, 2007). Recent studies on occupational health have shown that the LMS-method provides valid results on interaction effects (Diestel & Schmidt, 2009; Kelava & Brandt, 2009).

To reduce measurement errors of the indicators, all items for assessing the study variables were aggregated into parcels, each representing a manifest variable for the respective latent constructs. The parcelling procedure based on the item-to-construct balance placing lower-loaded items with higher-loaded items, thus minimizing the loading differences among the manifest variables (see Little, Cunningham, Shahar, & Widaman, 2002).

Results

Descriptive statistics

Descriptive statistics and intercorrelations of all study variables are presented in Table 1. As to be seen, some of the demographic background variables were significantly related to some of the criterion measures of strain. For example, age was positively associated with emotional exhaustion and musculoskeletal complaints. Female staff members reported higher levels of musculoskeletal complaints than male persons. Furthermore, the association of SCDs with dispositional SCC was moderate (−.33), but significant. As expected, SCDs were positively related to all criterion measures considered, whereas SCC revealed significant negative associations.

Measurement models

Confirmatory factor analysis provided support for the differentiability between SCDs and SCC as main predictors. The proposed 2-factor model yielded a very good data approximation (χ^2 (4) = 4.89, *ns*, Root-Mean-Square Error of Approximation (RMSEA) = .03 (90% CI = .00 – .10), Comparative Fit Index (CFI) = 1.00, Standardized Root Mean Residual (SRMR) = .02, Gamma Hat = 1.00; SCD: Average Variance Extracted (AVE) = .68; SCC: AVE = .60). The fit indices of an alternative 1-factor model combining all items showed an insufficient data approximation. On the outcome side, a 4-factor model also yielded a good data approximation (χ^2 (29) = 41.54, *ns*, RMSEA = .04 (90% CI = .00 – .07), CFI = .99,

Table 1. Descriptive statistics and intercorrelations of all study variables.

	Scale		Intercorrelations								
	M	*SD*	1	2	3	4	5	6	7	8	9
1. Age	38.17	10.88	–								
2. Gender[a]	1.86	0.35	.16*	–							
3. Work schedule[b]	1.32	0.47	.23**	−.04	–						
4. Self-control demands	2.91	0.57	.03	.02	−.03	–					
5. Self-control capacity	3.70	0.70	.09	.00	−.10	−.33**	–				
6. Emotional exhaustion	2.53	0.81	.14*	.03	−.01	.44**	−.34**	–			
7. Depressive symptoms	1.13	0.82	.05	.10	.08	.41**	−.44**	.67**	–		
8. Sleep disorders	0.98	0.74	−.02	.07	.02	.43**	−.31**	.57**	.72**	–	
9. Musculoskeletal complaints	1.41	0.75	.26**	.25**	.10	.14*	−.15*	.41**	.39**	.37**	–

Notes: $N = 249$. [a]gender (1 = male, 2 = female); [b]work schedule (1 = part-time, 2 = full-time).
* $p < .05$; ** $p < .01$.

Table 2. Unstandardized parameter solution of the latent moderated structural equation model testing the main effects of control variables and main and interaction effects of self-control demands and self-control capacity on indicators of strain.

	Criterion variable			
Predictor variable	Emotional exhaustion	Depressive symptoms	Sleep disorders	Musculoskeletal complaints
γ: Age	.01**	.00	.00	.02*
γ: Gender	−.01	.22*	.12	.35**
γ: Work schedule	−.09	.06	.03	.06
R^2	.02	.02	.01	.17
γ: Self-control demands	.40**	.45**	.48**	.07
γ: Self-control capacity	−.27**	−.52**	−.18*	−.13
R^2 (ΔR^2)	.35 (.32)	.36 (.34)	.36 (.34)	.21 (.05)
ω: Interaction	−.31**	−.54**	−.34**	−.12
R^2 (ΔR^2)	.39 (.04)	.42 (.05)	.40 (.04)	.21 (.00)
Δ − 2LL (df diff)	1916.80 (2)**			

Note: γ = estimated parameter of linear relations; ω = estimated parameter of interaction effects. $N = 249$. *$p < .05$; **$p < .01$.

SRMR = .02, Gamma Hat = .99; exhaustion: AVE = .67; depressive symptoms: AVE = .83; sleep disorders: AVE = .53; musculoskeletal complaints: AVE = .59). Again, other models showed a worse fit. In the best-fitting models, all standardized factor loadings (> .67; $p < .01$) and AVE values indicated adequate, valid, and reliable measurement models.

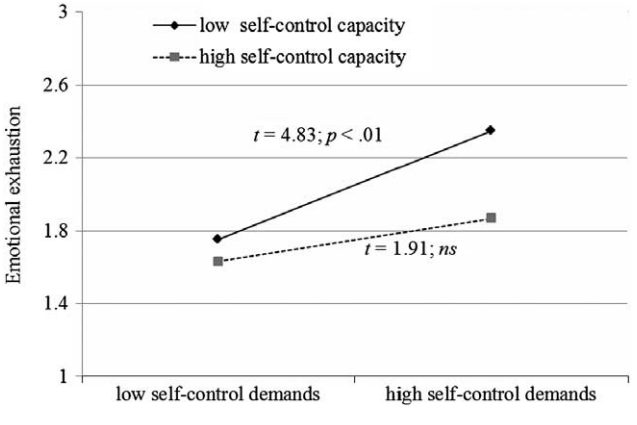

Figure 1. Interaction effect of self-control demands and self-control capacity on emotional exhaustion.

LMS analysis

The parameter solution of the latent moderated structural equation model is given in Table 2. After controlling for biographical data (age, gender, and work schedule), SCD and SCC were found to explain a significant amount of incremental variance in exhaustion, depressive symptoms, and sleep disorders, whereas musculoskeletal complaints remained unaffected. The positive paths from SCDs to exhaustion, depressive symptoms, and sleep disorders were significant, indicating that an increase in SCDs is associated with augmented levels of these psychological strain measures. These three measures also reflected significant main effects of SCC as well, with signs corresponding to expectations.

Moreover, and theoretically more important, significant interaction effects of SCD and SCC were identified to result in higher proportions of explained variance in exhaustion, depressive symptoms, as well as sleep disorders than accounted for by the main effects. The incremental amounts of variance explained by the interaction effects were 4% (exhaustion, sleep disorders) and 5% (depressive symptoms), respectively. The signs of the parameters indicate that the positive relations of SCD to these three measures were attenuated as a function of SCC. By way of contrast, musculoskeletal complaints failed to reflect a significant interaction. In support of Hypothesis 1, the log-likelihood difference test confirmed interactive effects between SCD and SCC in the underlying population.

Visualization of interaction effects and simple slope analyses

To facilitate the interpretation of the findings, interaction plots were generated and simple slope analyses were conducted using the method recommended by Aiken and West (1991). As to be seen in the figures, compared to employees with low levels of SCC (one SD below the mean), the adverse effects of SCD on exhaustion (Figure 1), depressive symptoms (Figure 2), and sleep disorders (Figure 3) were much weaker when high levels of SCC (one SD above the mean) were reported. As can be seen from the respective regression lines, the simple slope analyses show that the positive relations of SCD to exhaustion and to depressive symptoms were only significant at

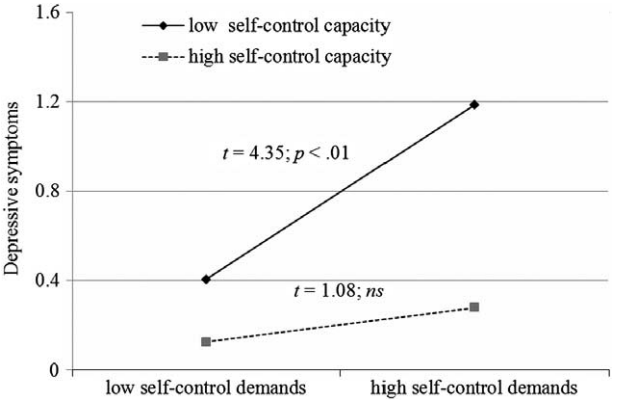

Figure 2. Interaction effect of self-control demands and self-control capacity on depressive symptoms.

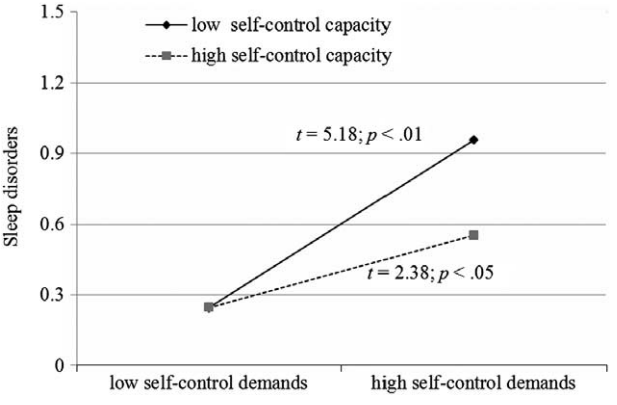

Figure 3. Interaction effect of self-control demands and self-control capacity on sleep disorders.

low levels of SCC, whereas the path coefficients were insignificant when persons reported high SCC. For sleep disorders, both regression lines were significant. In sum, with high levels of SCC, the adverse effects of SCD on exhaustion and depressive symptoms were indeed eliminated.

Discussion

In view of the prevalence of self-control demands in many jobs, especially in the service sector, the main objective of the present study was to test the assumption that the individual capacity for self-control functions as a psychological resource supporting service employees in their efforts to deal with SCDs that they are faced with on a daily basis. This assumption is in line with the general notion that in order to demonstrate such moderator or buffer effects of resources, stressors and resources need to match, addressing similar domains of human psychological functioning (de Jonge & Dormann, 2006). Consequently, we hypothesized that employees' capacity for self-control moderates (buffers) the relationship between SCDs and indicators of job strain and well-being. This hypothesis was expected to be particularly valid for psychological (matching) outcomes such as emotional exhaustion, depressive symptoms, and sleep disorders. By way of contrast, musculoskeletal complaints as a physical (non-matching) outcome were hypothesized to reflect no corresponding effects of SCDs and SCC.

The present study provides support for both hypotheses. The findings lend credence to the notion that SCC functions as a psychological resource in the relationship between SCDs and indicators of psychological strain and well-being. Emotional exhaustion, depressive symptoms, and sleep disorders did indeed reflect significant interactive effects of SCDs and SCC in such a way that the adverse effects of SCDs were attenuated with increasing levels of SCC. In contrast, musculoskeletal complaints as a physical (non-matching) outcome did not reflect any effects of both predictors.

The present study contributes to the literature in several ways. First, we theoretically and empirically integrated two issues of research on self-control that have recently been discussed in the literature: adverse effects of high demands on self-control and beneficial effects of high capacity for self-control. Although the self-control model proposed by Muraven and Baumeister (2000) suggests such an integration, the exact interplay between both concepts has not been made explicit on a profound theoretical level, nor has it been tested empirically so far. Second, the findings support the hypothesis that the capacity for self-control can be regarded as a valuable psychological resource that buffers the adverse effects of SCDs on psychological strain and well-being. Third, these effects on psychological outcomes were contrasted with corresponding effects on a non-matching physical strain measure (musculoskeletal complaints), which mainly served to reflect any artificial influences of e.g. common method variance or cognitive bias on the relationships examined (Podsakoff, MacKenzie, Podsakoff, & Lee, 2003). Finally, the observed differential effects of SCDs and SCC on psychological outcomes on the one hand and physical strain on the other supported the general notion of matching stressors, resources, and strain as a prerequisite for finding interactive effects of both predictors on strain (de Jonge & Dormann, 2006).

Limitations

The present study is not without limitations that need to be addressed. First, the cross-sectional design does not allow for any firm conclusions on the direction of causality. Although a particular causal order of the variables was supposed, other causal directions or even reciprocal relations could be possible as well. For example, the prediction of reverse causality may rely on the notion that high levels of experienced strain let employees perceive SCDs as more threatening than employees experiencing less strain. However, several longitudinal studies have provided strong empirical arguments against this hypothesis (for an overview, see Zapf, Dormann, & Frese, 1996). For example, drawing on cross-lagged panel analyses, Schaufeli, Bakker, and Van Rhenen (2009) as well as Diestel and Schmidt (2011) have found job demands, such as self-control demands and emotional labour, to predict burnout and absenteeism over longer periods. However, the lagged effects of burnout and absenteeism on job demands at a later point in time failed to reach significance, in both studies. In addition, one might argue that service employees suffering from high levels of strain experience themselves as low in self-control, compared to colleagues experiencing less strain. However, in view of the descriptive nature of the items of Tangney et al.'s (2004) self-control scale, this interpretation would be rather unlikely. Nevertheless, the design of the current study does not allow determining definitely how the underlying causal chain is composed. Consequently, our results await further examinations in longitudinal studies.

Second, all data were assessed by self-reports. Therefore, the present results might be contaminated by common method variance or a self-report bias (Podsakoff et al., 2003). However, the differential effects of SCDs and SCC across matching and non-matching outcomes are unlikely to be attributable to common method variance because such variance tends to blur differential relationships (Demerouti, Verbeke, & Bakker, 2005).

Third, in recent years, several studies have provided evidence on the moderating role of other coping strategies. For example Pugh, Groth, and Hennig-Thurau (2011) found that self-efficacy buffers the adverse effects of emotional labour on exhaustion. Given the diverse body of findings on coping strategies, the question rises whether SCC is related to individual differences in coping strategies, such as self-efficacy, or it is just "another "coping strategy. Drawing on Hobfoll's concept of resource (1989; Hobfoll & Freedy, 1993) and recent findings on self-control (Stumm, Thomas, & Dormann, 2010; Tangney et al., 2004), SCC is considered as a core psychological resource in such a way that a high regulatory capacity underlies several personal factors, such as self-efficacy (Muraven & Baumeister, 2000) and that processes of self-control are inherently involved in many coping strategies, such as recovery activities (McCullough & Willoughby, 2009)). Thus, our study not only tests another personal resource, but also focuses on a central function of human being that influences many forms of personal resources and coping strategies.

Finally, one may argue that the lack of effects on the musculoskeletal complaints is determined by self-report biases of this measure (Podsakoff et al., 2003). However, self-report measures of somatic complaints have been repeatedly revealed to strongly relate to physical symptoms that are clinically assessed, such as low back symptoms (Koloska, Rehm, & Fichter, 1989; Michalski & Hinz, 2006). Thus, biasing effects of self-report measures seem rather unlikely.

Practical implications

The current findings have some practical implications for service employees as well as service organizations. Health care workers, as a typical example of service employees who are often confronted with high SCDs and at the same time have low personal resources such as a limited capacity for self-control are, as demonstrated, at risk for high psychological job strain and impaired well-being. Since SCDs are an integral constituent of health care work and as such cannot (and should not) be reduced immediately, other strategies are needed to counter the adverse effects of dealing with high SCDs. One possible and more adequate preventive strategy for service organizations might be enhancing job control (Schmidt & Diestel, 2011) and affective commitment (Schmidt, 2007) or providing emotional job resources (de Jonge et al., 2008) that have been repeatedly found to buffer the adverse effects of work stress, especially in the health care work.

Although self-control capacity is a relatively stable disposition, it can nevertheless be improved by training efforts. Indeed, recent studies have revealed that the ability to engage in self-control can be developed considerably through its repeated exertion (for review, see Baumeister et al., 2006). For example, Oaten and Cheng (2007) had participants enter a four-month monitoring programme that was intended to train self-control. After that programme, participants showed significant improvements in self-control as indicated by enhanced performance in laboratory self-control tasks. A key finding was that this improvement is not restricted to the trained self-control domain, but generalizes across a wide range of other domains such as, for example, emotion control. A control group, in contrast, showed no signs of improvement over the same time span. Building on these results, the development and evaluation of training programmes tailored to

the specific SCDs in service jobs would be a promising avenue for future research. Finally, the fit between job demands and personal resources could also be improved by assigning employees with low levels of SCC to job tasks with low SCDs or by recruitment strategies that prevent especially vulnerable employees from taking jobs that require high self-control. In conclusion, the present study combines two concepts (job-related self-control demands and dispositional self-control capacity) that are of increasing relevance in various areas of human resource management.

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