

Self-Control Demands

From Basic Research to Job-Related Applications

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Abstract. Recent theoretical developments and findings in basic research suggest self-control demands (SCDs) to be a unique job stressor. A series of studies in different work settings have corroborated this view. The results show that different forms of SCDs (impulse control, resisting distractions, overcoming inner resistances) (a) contribute significant portions of unique variance to the prediction of various measures of job strain, (b) mutually strengthen each other in their effects on strain, and (c) interact with other forms of SCDs. Furthermore, the relation of SCDs to strain is moderated by various resources like job control, affective organizational commitment, and self-control capacity. Finally, SCDs mediate the relationship between workload and strain.

Keywords: control resource, job strain, self-control strength, well-being

Today's work organizations are characterized by changing, highly dynamic structures and environments in which adaptability, flexibility, and self-regulation of employees have become increasingly important. Because of the shift from manufacturing-oriented businesses to service-oriented and technically challenging businesses, employees are increasingly faced with demands for being flexible, responsive service providers who can effectively anticipate and fulfill changing customers' needs and being adaptive, creative, and innovative in applying new technologies (Pongratz, 2004).

Such demands of today's work cannot be met by automated and rigid patterns of behavior. Rather, they call for considerable self-control at work. Drawing on the influential distinction between automated and controlled processes (e.g., Shiffrin & Schneider, 1977), automatic processes are stimulus-driven, inflexible, and effortless, whereas (self-) controlled processes are top-down-regulated, flexible, and effortful. According to a widespread notion, self-control can be defined as overriding or inhibiting automatic, habitual, or spontaneous action tendencies, urges, emotions, or desires that would otherwise interfere with purposeful, goal-directed behavior (see Baumeister, Vohs, & Tice, 2007). Thus, 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.

Although self-control is related to personal success in many domains of life (Baumeister & Vohs, 2004), a

growing body of evidence in basic research strongly suggests that exercising self-control is also associated with psychological costs that are manifested as impaired performance and well-being (Hagger, Wood, Stiff, & Chatzisarantis, 2010). In contrast to this expanding line of basic research, aspects of self-control have only recently received attention in the literature on job-related stress and health. The main aim of the present paper is thus to outline and summarize these first steps of applying the concept of self-control to real-world work settings. The job-related application of self-control research includes (a) the development of an instrument to assess self-control demands in work settings, (b) the analyses of adverse effects of those demands on employees' psychological well-being, (c) the identification of boundary conditions, which might strengthen or weaken the relationship of that stressor with indicators of job strain and well-being, and, finally, (d) the role of self-control as a mediator in the relationship of other job demands with psychological strain. In the following, we will preface our review by briefly discussing empirical evidence from basic research on the costs of self-control.

Psychological Costs of Self-Control

The most important finding on self-control in basic research is that exercising self-control can lead to impairments in cognitive and behavioral control and cause psychological strain (Muraven, Tice, & Baumeister, 1998). In a series of experimental studies that demanded

two successive acts of self-control, self-control performance on the second act was consistently impaired. The impairment was found even when quite different domains of self-control were involved. In these studies, acts of self-control involved regulating emotions and affective states, suppressing spontaneous and habitual impulses, overcoming inner motivational resistances, resisting interfering distractions, and updating working memory. For example, in an affect-regulation study, both trying to suppress and to amplify one's emotional response to an upsetting movie was followed by a decrement in physical endurance on a fatiguing and painful handgrip task (Muraven et al., 1998). The exercise of thought suppression had quite similar effects, which became manifest in the subsequent tendency to give up quickly on unsolvable anagrams (see Hagger et al., 2010, for a meta-analysis).

In experimental studies, acts of self-control were more often found to cause increases in self-reported effort, tiredness, and exhaustion (Muraven et al., 1998), as well as increases in sympathetic arousal (Robinson & Demaree, 2007). In addition, the exertion of self-control was observed to cause reductions in blood glucose levels (Gailliot, Plant, Butz, & Baumeister, 2007), and increases in blood pressure and heart rate variability indicating typical stress responses (Segerstrom & Solberg Nes, 2007).

There is by now also an increasing body of evidence which suggests that chronically high self-control demands can lead to psychological strain and impaired well-being. For example, Oaten and Cheng (2005) observed a significant increase in anxiety, emotional distress, and depressive symptoms among students who suffered from high levels of academic stress, as compared to a group of students reporting low stress levels. Academic stress is characterized by high self-control demands, such as resisting distractions or overcoming inner resistances (see for an overview Baumeister, Gailliot, DeWall, & Oaten, 2006).

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 depleted 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 "ego depletion" to describe this state of diminished self-control strength. Thus, self-control strength resembles a muscle that is exhausted during prolonged exertion. Furthermore, Muraven and Baumeister (2000) have also proposed that people who frequently need to exert self-control without being able to replenish their self-control strength are likely to fall into a state of chronic self-control resource depletion and, as a result, suffer from chronically high psychological strain and impaired well-being.

Inspired by this model, a variety of forms of self-control behavior in everyday life have also been found to draw on and deplete the limited control resource such as, for example, managing one's impression and self-presentation, suppressing stereotypes and prejudice, restraining anger and aggression, managing emotions, overcoming unwanted impulses, or managing one's intake of food and alcohol

(for an overview see Baumeister et al., 2007). Despite the growing body of evidence on everyday life self-control and its potential role as a source of stress in work settings, self-control demands have only received little attention in the literature on job-related stress and health.

Self-Control as a Source of Stress at Work

To fill this gap and provide insight into the role of self-control demands (SCDs) in work settings, Schmidt and Neubach (2007) developed a self-report instrument focusing on three forms of job-related SCDs. These three forms of SCDs capture specific control functions, which (a) have been thoroughly examined in experimental research, (b) have been found to be effortful and straining, and (c) should have increasing relevance in modern work settings (especially in the services sector). The items of the instrument are presented in Appendix. First, impulse control refers to the demand to inhibit spontaneous, impulsive response tendencies, and affective states associated with, for example, injudicious expressions. Second, resisting distractions involves the requirement to ignore or 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 to overcome motivational deficits to complete unattractive tasks that cannot be postponed or evaded. All three scales are designed to assess situational SCDs that cause employees to engage in self-control.

The three scales have been repeatedly shown to cover factorially distinct, moderately correlated forms of job-related SCDs (Neubach & Schmidt, 2007; Schmidt & Neubach, 2009, 2010) and show satisfactory internal consistencies ($\alpha > .80$; Schmidt & Neubach, 2007). Furthermore, in longitudinal studies, the measured SCDs have been found to be very stable over 12 and 24 months, indicating that they are stable characteristics of a given job (Schmidt & Neubach, 2010). In addition, all scales have been proven to be sufficiently sensitive to discriminate professional groups with different levels of SCDs. Finally, after controlling for biographical and sample attributes, SCDs explained additional amounts of variance in various indicators of strain (i.e., burnout, depressive symptoms, absenteeism) over and beyond that accounted for by other well-established work stressors, such as workload, role stress, and lack of social support (Schmidt & Neubach, 2007, 2009).

Figure 1 gives an example of the found relationships. Here, absence data (sum of days absent, absence frequency) from nurses for older people are depicted in dependence on the median-split composite score of SCDs. Both absence measures were drawn from personal records and covered a time period of 12 months after answering the SCDs questionnaire. Figure 1 reveals that nurses reporting low levels of SCDs are on average 17 days absent from work per year, whereas under conditions of high SCDs, 25 days of absence are to be observed. In the frequency measure, the difference in SCDs results in an increase from 2.5 up to 3.1 absence events per person and year (Schmidt, 2010).

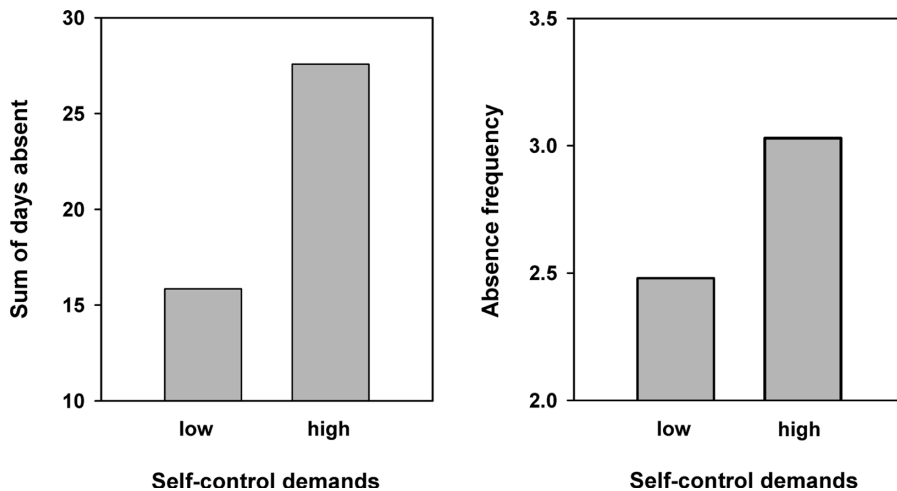


Figure 1. Absence measures in dependence on levels of self-control demands.

The relationship of SCDs with indicators of job strain and well-being raises, of course, the question as to whether factors could be identified in the work environment or in the person that might strengthen or weaken the adverse influences of SCDs on psychological well-being. The identification of such boundary conditions is a dominant topic in stress research, not least due to their implications for job redesign, training, or personnel selection. In the following section, we will first elaborate on three boundary conditions, which have been found to strengthen the adverse effects of SCDs on strain and well-being. Subsequently, three effect-weakening boundary conditions will be discussed before, at the end, results are reported providing insight into the role of self-control as a mechanism in the positive relationship of other job demands with psychological strain. Figure 2 gives an overview of our research efforts.

Effect-Strengthening Boundary Conditions

Simultaneous Coping With Different Forms of SCDs

As mentioned above, the model of self-control strength expects different forms of SCDs to draw on and deplete a common limited regulatory resource. This theoretical notion suggests the prediction that if two different forms of SCDs have to be met simultaneously, the resulting level of psychological strain should be higher than the sum of their additive effects. In particular, the frequent coping with simultaneously occurring SCDs can be thought to overtax the limited resource and prevent recovery of the impaired regulatory resource (Baumeister et al., 2006). Consequently, the positive relation of one form of SCD to job strain should be amplified as a function of another, simultaneously occurring form of SCD. Data collected among a large sample of employees of a public administration supported the predicted interactive effects of simultaneously invested self-control efforts on burnout (emotional exhaustion, depersonalization) and depressive symptoms as strain outcomes (Neubach & Schmidt, 2008).

On the basis of the same theoretical rationale, Diestel and Schmidt (2011a) predicted comparable interaction effects between SCDs and emotional dissonance (as a distinct facet of emotional labor, see Hochschild, 1983). Research on emotional labor has repeatedly demonstrated that employees suffer from psychological strain when they have to display emotions which they do not truly feel. The perceived discrepancy between emotions felt and those required by the display rules of a given job role is commonly referred to as emotional dissonance (ED; Abraham, 1998). Several scholars have considered the adverse effects of ED from the perspective of self-control. Accordingly, portraying certain emotions, which are not genuinely felt, represent a form of response-focused emotion regulation (Gross, 2001). According to theoretical arguments developed by Schmeichel, Vohs, and Baumeister (2003), response-focused emotion regulation is an act of self-control that aims at resolving the discrepancy between felt and required emotions. Consequently, if ED involves exerting self-control in the form of response-focused emotion regulation, and thus consumes a limited regulatory resource, ED and SCDs are proposed to exert interactive effects on job strain.

Longitudinal data (with a 24-month time interval) collected among a sample of employees of a large tax and revenue office provided strong support for this prediction (Diestel & Schmidt, 2011a). After partialling out the influence of demographic characteristics, outcome stability, and main effects of ED and a composite measure of SCDs, both stressors were found to exert significant lagged interactive effects not only on burnout (exhaustion, depersonalization), and depressive symptoms, but also on a measure of absence behavior. Figure 3 shows that – as predicted – the positive longitudinal relations of one stressor to all four outcomes were amplified as a function of the other stressor.

The interactions of ED and SCDs lend empirical support to the notion that ED indeed involves exerting self-control in the form of response-focused emotion regulation (Schmeichel et al., 2003) and as such consumes the same regulatory resource as other forms of self-control. Together with the study conducted by Neubach and Schmidt (2008),

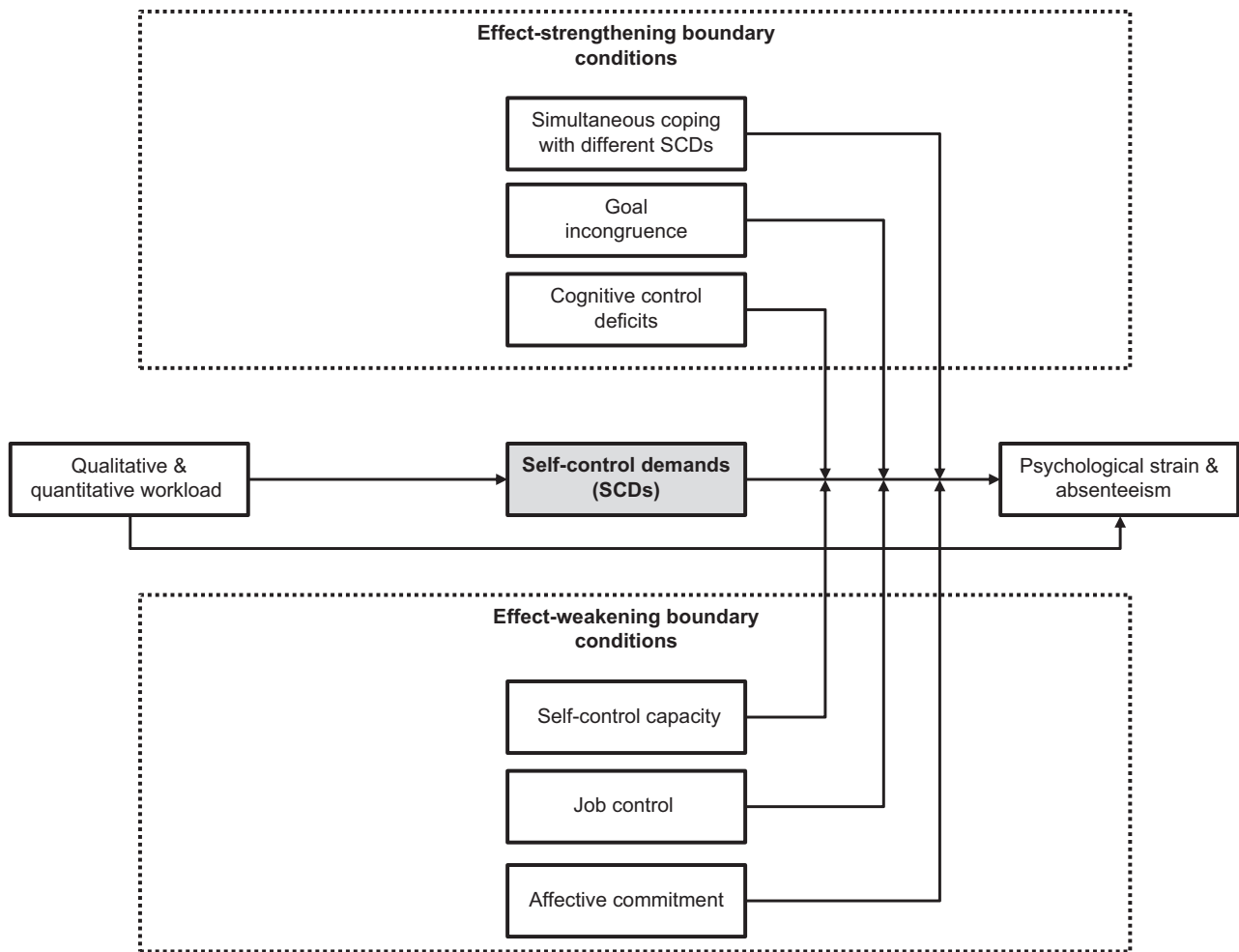


Figure 2. Overview of job-related self-control research.

Diestel and Schmidt's (2011a) results are in line with the model of self-control strength according to which different forms of self-control draw on a common control resource which is limited and consumed in the process of exerting self-control.

Although the next analyzed effect-strengthening boundary condition, the perceived incongruency between personal and organizational goals, has traditionally been linked to another line of research, namely the person-organization (P-O) fit literature, it can also be conceptualized as a form of self-control demand (as demonstrated below). However, due to its theoretical roots in P-O fit research, goal incongruency as boundary condition of the adverse effects of SCDs is discussed separately in the following section.

Goal Incongruency and Self-Control

P-O fit research has emerged as one of the most stimulating lines in the literature examining the causes and consequences of the "compatibility between people and the organizations in which they work" (Kristof, 1996, p. 1).

Whereas the majority of studies focused on value congruence, Schneider's (1987) attraction-selection-attrition (ASA) framework ascribed the strongest impact on a broad spectrum of work-related attitudes and behaviors to goal congruence. The ASA framework bases on the premise that people are attracted to and selected by organizations whose goals are similar to their own and will enable them to attain their personal goals. Accordingly, goal congruence is defined as the degree of fit between personal and organizational goals.

Recent meta-analyses have demonstrated consistently that an increasing mismatch between personal and organizational goals goes along with a decrease in job satisfaction and organizational commitment as well as increasing intentions to quit (Kristof-Brown, Zimmermann, & Johnson, 2005). Furthermore, goal incongruence was found to be negatively related to job performance and organizational citizenship behaviors and positively related to turnover (Hoffman & Woehr, 2006). However, little is known about the mechanisms underlying that relationship.

In the literature, two theoretical explanations are discussed. The first proposes that the adverse effects of

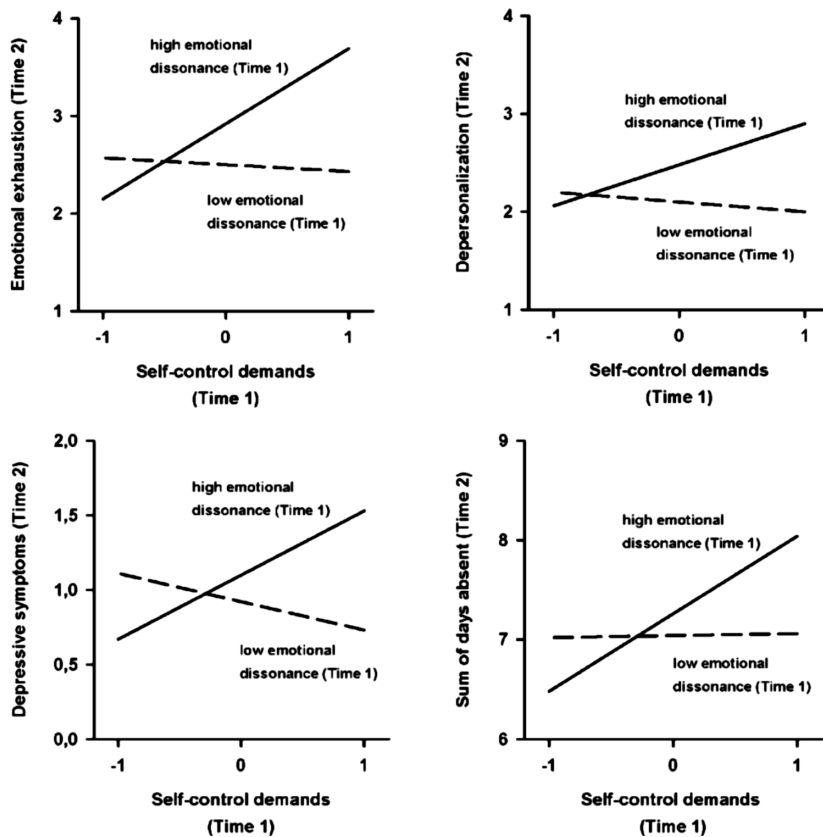


Figure 3. Lagged interaction effects of emotional dissonance and self-control demands on burnout, depressive symptoms, and absence behavior.

incongruent personal and organizational goals are due to and mediated by negative emotional states such as, for example, tension or frustration, which immediately result from the perceived mismatch (Edwards, 1996). Kehr (2004) has provided an alternative explanation. He argued that incongruent goals may lead to psychological conflict and that a resolution of this conflict requires self-control efforts consuming and depleting a limited control resource. Since employees usually try to achieve organizational goals, because they expect to receive positive outcomes in return, they are expected to resolve the conflict by suppressing their personal goals and simultaneously compensating for their insufficient extrinsic motivation for pursuing the goals of the organization.

Kehr's (2004) notion that the adverse effects of incongruent personal and organizational goals are due to conflict-resolving self-control efforts suggests that perceived goal incongruence interacts with situational SCDs (such as impulse control or resisting distractions) in predicting psychological strain. The rationale behind this prediction is again that both stressors (goal incongruence and situational SCDs) draw on and compete for the same limited control resource.

Data collected among staff members of nursing homes of a municipal organization for residential elderly care confirmed this prediction. The adverse effects of increasing situational SCDs were boosted with increasing goal discrepancies. The predicted interactive relations did emerge in both self-report measures of strain (exhaustion,

depersonalization, psychosomatic complaints) and a measure of absenteeism (Schmidt, 2010).

Cognitive Control Deficits as a Personal Vulnerability Factor

A growing body of evidence on self-regulatory functioning suggests that daily cognitive control deficits (CCDs) in the form of frequent failures in perception, action, self-regulation, and affective control represent a valid, though distal indicator for the individual capacity of the control resource (Larson, Alderton, Neideffer, & Underhill, 1997). For example, specific concentration problems, like the inability to be focused during a conversation, as well as emotion control problems, like affective huffiness or injudicious expressions, are typical behavioral manifestations of CCDs, which are frequently measured with a self-report instrument developed by Broadbent, Cooper, FritzGerald, and Parkes (1982). A high interindividual stability of CCDs has repeatedly been observed and most researchers concur in the notion that these deficits constitute a person-related trait reflecting interindividual differences in self-control strength.

If this notion is valid, employees with high CCDs can be expected to be more susceptible to the adverse influences of job-related SCDs and, thus, experience higher levels of strain than those with low deficits. Consequently, CCDs can be thought to be a personal vulnerability factor that strengthens the relation of situational SCDs to strain. And

this is exactly what Schmidt, Neubach, and Heuer (2007) found among a heterogeneous sample of staff members of a municipal administration. For employees with a high level of CCDs, the adverse impact of job-related SCDs was much more pronounced than for employees suffering less from control deficits. In a similar vein, Diestel and Schmidt (2011b) found CCDs to amplify also the positive relation of emotional dissonance to burnout and indicators of absenteeism. These results were obtained both cross-sectionally and longitudinally and confirm again the theoretical notion that emotional dissonance involves exerting self-control in the form of response-focused emotion regulation (see also Schmidt & Diestel, 2014).

In addition to these effect-strengthening boundary conditions, some other moderators have been identified so far that contribute to a weakening of the adverse effects of job-related SCDs. Such kinds of boundary conditions are often labeled as “psychological resources” (Hobfoll, 2002). The following section is devoted to three effect-weakening moderators of the relations of SCDs to indicators of job strain and well-being.

Effect-Weakening Boundary Conditions

Self-Control Capacity as a Personal Resource

Complementary to cognitive control deficits as a personal vulnerability factor (and distal indicator of the individual capacity for self-control), more proximal and direct measures of that kind of capacity can be expected as well to moderate the detrimental effects of SCDs. A self-report instrument developed by Tangney, Baumeister, and Boone (2004) allows getting immediate access to assess the individual capacity for self-control. The scale addresses various domains of self-control, such as control of thoughts, emotions, impulses, and performance. Similar to the measure of CCDs, the trait measure of self-control capacity (SCC) is one-dimensional in nature and has high interindividual stability (Tangney et al., 2004).

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, SCC can be expected to interact with SCDs in predicting indicators of job strain and well-being. More specifically, the adverse impact of SCDs is hypothesized to be attenuated as a function of increasing levels of SCC. The theoretical rationale behind this prediction is that employees with high levels of SCC should have a greater resource at their disposal to cope with SCDs.

A study conducted by Schmidt, Hupke, and Diestel (2012) among a sample of health care workers provided support for this prediction. Emotional exhaustion, depressive symptoms, and sleep disorders (as strain outcomes) did indeed reflect interactive effects of SCDs and SCC in such a way that the adverse effects of SCDs were weakened with increasing levels of SCC. These findings draw attention to the importance of improving the match between SCDs and SCC of employees in order to make self-control demands less stressful.

Job Control as a Situational Resource

Karasek's (1979) job demands-control model of job strain suggests job control to function as a potential situational resource which may protect employees against the detrimental effects of SCDs. According to this model, the degree of control employees have over their tasks and behaviors in performing their daily work is hypothesized to buffer or moderate the adverse effects of high job demands.

Neubach and Schmidt (2006) argued that employees, who are faced with SCDs, may profit in a particular way from high situational control opportunities at work. Because high levels of situational control offer employees the chance, for example, to prevent external events from being a disturbing distractor or to start with challenging working tasks only when they are in a state of high self-control strength. And indeed, Neubach and Schmidt (2006) observed that among employees who reported low levels of control, SCDs were positively associated with emotional exhaustion, psychosomatic complaints, and absenteeism as well as negatively related to job satisfaction. By way of contrast, there were less adverse effects of SCDs on job strain for those who perceived high levels of job control. Quite similar buffering effects of control were found in the relation of emotional dissonance as stressor and burnout (Freund, Diestel, & Schmidt, 2012). In both studies, a measure of control was applied that focused on the way of how performing tasks and did not encompass elements such as skill use and task variety which have been frequently included in other tests of Karasek's (1979) model (see Schmidt & Diestel, 2011).

Affective Organizational Commitment as a Protective Attitudinal Resource

Given the adverse effects of self-control demands, recent basic research activities have focused as well on mechanisms that might have the potential to prevent ego depletion, when exerting self-control. Since the control resource obviously does not remain depleted forever, Tice, Baumeister, Shmueli, and Muraven (2007) have raised the question how people can recover from ego depletion and replenish their self-control strength. Drawing on Fredrickson's broaden-and-build theory of positive emotions (e.g., Fredrickson & Joiner, 2002), which proposes that positive emotions broaden people's thought-action-repertoires and thus facilitate coping with stress, Tice et al. (2007) argued that positive emotions may help people regain their self-control strength.

Results from four experimental studies clearly confirmed this notion. After an initial act of self-control, participants who watched a comedy video or received a surprise gift performed just well on various self-control tasks as nondepleted participants and significantly better than participants who experienced a sad mood, a neutral mood, or a brief rest period (Tice et al., 2007).

The observed laboratory findings on the beneficial function of positive mood and emotions have led Schmidt

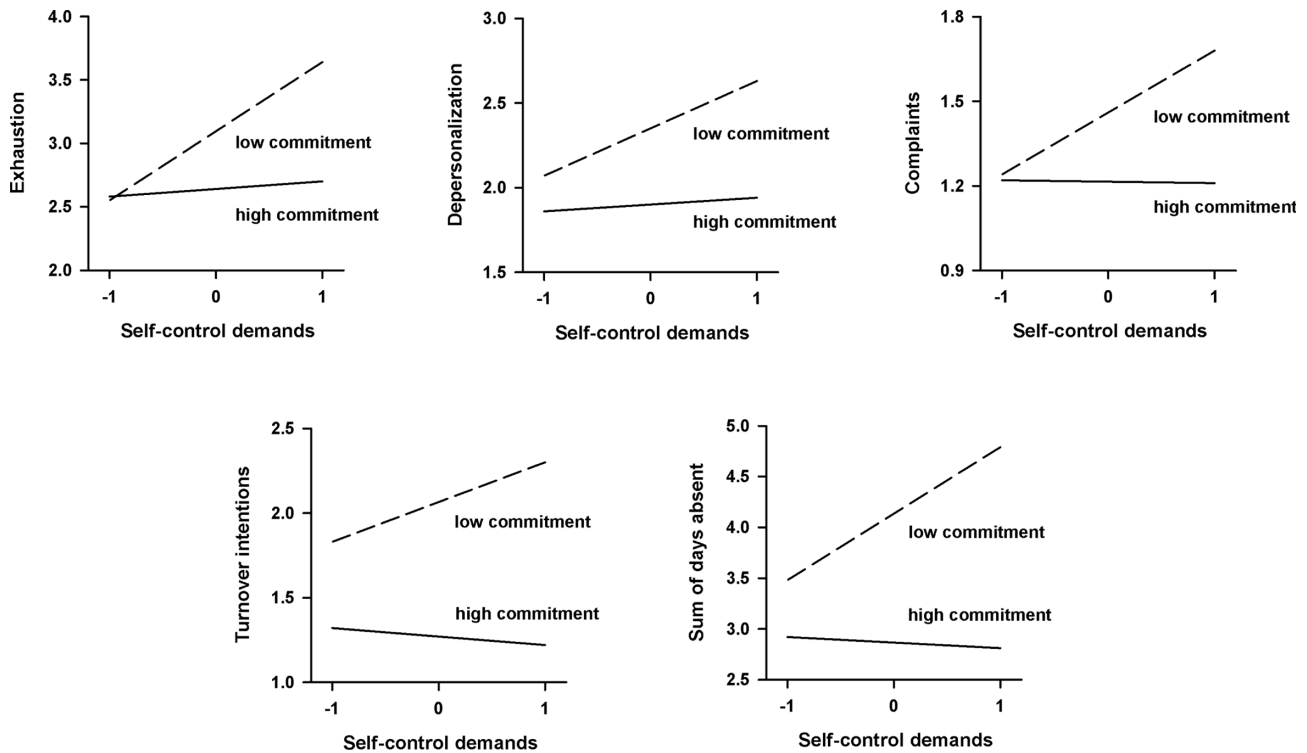


Figure 4. Interaction effects of self-control demands and affective organizational commitment on indicators of psychological strain (sum of days absent indicate square root transformed data).

and Diestel (2012) to suggest that affective organizational commitment – a work-related attitude with strong affective roots – could play a similar buffering role in work contexts. In a social psychological context, Antonovsky (1979) argued in a similar vein that affective organizational commitment as a psychological bond or link of the individual to the organization gives employees a sense of emotional stability and security compensating for the adverse effects of work stressors.

Schmidt and Diestel (2012) provided evidence for this notion. Data obtained from a sample of nurses revealed positive relationships of SCDs and negative relationships of affective organizational commitment to a broad spectrum of strain indicators. In addition, the results confirmed the buffer hypothesis of commitment. Figure 4 shows, that the positive relations of SCDs to burnout, complaints, turnover intentions, and sum of days absent are attenuated as a function of affective commitment.

Self-Control as a Mechanism in the Relationship of Other Job Demands With Psychological Strain

Although in several of the above-mentioned studies the influence of SCDs was analyzed after partialling the effects of other, well-established job demands and resources, the role of SCDs in the interplay with those demands and

resources has remained rather unclear so far. More especially, as employees are increasingly facing high workload (time pressure and concentration requirements) combined with high demands on self-control, the question arises how both demands combine to influence strain.

According to a widely-known conceptualization of stress, workload is defined as a regulation problem that impairs goal-directed behavior (e.g., Sonnentag & Frese, 2003). This definition draws on action-regulation-theory (Frese & Zapf, 1994), which implies that – in case of high workload – demands on speed (time pressure or work volume) and intensity (concentration requirements due to complex tasks) can exceed and overtax employees' abilities to achieve their job goals. Thus, high workload exerts its influence on psychological strain through overtaxing regulation of goal-directed behavior. In support of this notion, Van der Linden, Frese, and Meijmann (2003) reported that high task-related demands on speed and intensity of action regulation result in elevated levels of strain.

In extending the theoretical view on goal-directed action regulation, research on volitional self-control provides insights into the processes involved in overtaxing regulation and may thus explain why high workload leads to psychological strain (e.g., Robinson, Schmeichel, & Inzlicht, 2010). Accordingly, the exercise of action regulation is based on different executive (self-)control processes, like, for example, ignoring irrelevant information or interfering distractions, inhibiting response impulses, overriding inner resistances, or updating working memory. However, as

suggested by self-control research, these different self-control processes are assumed to draw on and deplete a common resource capacity, leading to regulatory failures and strain. Thus, if workload in terms of high demands on speed and intensity of action regulation requires volitional effort to achieve task-related goals, workload will cause employees to engage in self-control. In line with this reasoning, Diestel and Schmidt (2012) expected SCDs to mediate the relation of workload to psychological strain.

Drawing on two German longitudinal samples, Diestel and Schmidt (2012) used structural equation modeling and cross-lagged panel designs to test this hypothesis. And indeed, SCDs were found to mediate the longitudinal relationship between workload and exhaustion, anxiety, and sum of days absent at a later point in time, after controlling for other job characteristics (emotional dissonance, and job resources, such as job control and social support). The use of two longitudinal samples from different occupational settings as well as different time intervals between the waves (12 and 24 months) provided evidence for the generalizability of the results.

Discussion and Avenues for Future Research

The main aim of the present paper was to outline and summarize recent research efforts on applying the concept of self-control to real-world work settings. Inspired by current changes in work demands, especially those in the services sector, and novel theoretical developments and empirical findings in basic research, self-control demands (SCDs) were suggested to be a unique, yet often neglected job stressor. And, indeed, SCDs in the form of impulse control, resisting distractions, and overcoming inner resistances jointly contributed significant portions of unique variance to the prediction of various measures of psychological strain and well-being (Schmidt & Neubach, 2007, 2010).

Furthermore, and in line with the theoretical notion that different forms of SCDs draw on and deplete a common limited control resource, the measured SCDs were hypothesized and found to interact in the prediction of indicators of strain. That is, the positive relation of one form of SCD with strain was amplified as a function of another, simultaneously occurring form of SCD. Quite similar interactive effects resulted from the combination of SCDs with emotional dissonance on the one hand and with perceived incongruences between personal and organizational goals on the other. These observations suggest that, like other SCDs, both emotional dissonance and incongruent goals lead employees to exert self-control, which depletes and overtaxes a limited resource (Diestel & Schmidt, 2011a; Schmidt, 2010).

Whereas the model of self-control strength 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 (Tangney et al., 2004). Accordingly, self-control can also be conceptualized as a dispositional, trait-like construct that differs across

individuals. If this is true, individuals having a greater resource at their disposal should suffer less from the adverse effects of self-control demands as compared with those with smaller resources.

Two studies using different approaches to measure the individual control resource provided support for this hypothesis. In one study, the individual self-control resource was operationalized by a measure of cognitive control deficits reflecting the frequency of everyday cognitive failures (Schmidt et al., 2007), the other study based on a more direct measure of self-control capacity as hypothesized moderator (Schmidt et al., 2012). As expected, the findings indicate that cognitive control deficits strengthened the adverse influence of SCDs on strain, whereas self-control capacity served as a stress buffer.

Besides the individual self-control capacity, two further resources were identified which buffer against the adverse influences of SCDs. The first one is situational in nature and comprises job control, which is defined as the extent of influence employees have on their tasks and behaviors in performing their daily work. In line with Karasek's (1979) job demands-control model, job control was found to mitigate the positive relations of SCDs to various measures of strain (Neubach & Schmidt, 2006).

Drawing on the central notion of Fredrickson's broaden-and-build theory of positive emotions (e.g., Fredrickson & Joiner, 2002) that positive emotions broaden people's thought-action repertoires and thus facilitate coping with demands, affective organizational commitment was suggested as a work-related counterpart fulfilling similar functions. And indeed, affective commitment did act as a moderator in the relation of SCDs to strain in such a way that commitment counteracts the adverse influences of SCDs (Schmidt & Diestel, 2012). Consequently, affective organizational commitment qualifies as further protective resource in coping with SCDs.

Whereas the above-mentioned effect-strengthening and effect-weakening moderators contribute to identify the boundary conditions of applying the concept of self-control to work settings in more detail, a further line of job-related self-control research has shed some light on the mechanisms involved in the adverse effects of other, more established job stressors. In accordance with action-regulation-theory (Frese & Zapf, 1994), Diestel and Schmidt (2012) have found SCDs to mediate the relationship between workload as a "classical" stressor and measures of strain. Consequently, workload seems to draw on a single resource that is depleted by self-control acts.

The three forms of job-related SCDs identified by Schmidt and Neubach (2007) do not claim to be an exhaustive list of self-control requirements in work settings. The selection of these forms was rather guided by demand characteristics evolved in basic research on self-control on the one hand and their increasing relevance in real-world contexts on the other and marks only a first step in applying the concept of self-control to work settings. Future research is reserved to expand this list by other forms of job-related SCDs.

The studies reviewed are characterized by various features, which deserve special attention. The studies (1) were

based on both cross-sectional and longitudinal data, (2) used a broad spectrum of measures of strain and well-being as outcomes (including absence data), and (3) used samples from different occupational settings. These features do not only contribute to the generalizability of the observed relations, but strengthen as well their validity and allow causal inferences.

Although most of the study variables were operationalized through self-report measures and thus common method variance or a self-report bias might have contaminated the relations found, using absence measures, which reflected similar patterns of relations as did the self-report measures of strain, largely limited the risk of mutual contamination of the constructs (Diestel, Wegge, & Schmidt, 2014). This is especially true when absence measures were used in combination with panel data.

Employees who are often confronted with high SCDs are, as demonstrated, at risk for high psychological job strain and well-being. Since SCDs are an integral constituent of many jobs, especially those in the service sector, and as such cannot be reduced immediately, other strategies are needed to counter the adverse effects of dealing with high SCDs. The identified effect-weakening boundary conditions of the relationship of SCDs with strain (such as job control, affective organizational commitment) would offer a good starting point for developing such preventing strategies.

Our present review is based on studies which were conducted in organizations and thus, draw on the conceptual proposition that the effects of SCDs on well-being are quite similar to those examined in experimental settings. Whereas results on self-control capacity and affective commitment lend support to this proposition, field studies also provide additional theoretical insights into psychological processes and mechanisms of the effects of SCDs on well-being. For example, the buffering effect of job control has been not considered in basic research and its explanation is mainly rooted in action-regulation-theory (Hacker & Richter, 1990).

According to this theory, job control is a situational resource and refers to the degree of individual's opportunity to determine the scheduling of his or her work behavior, and freedom of choice in how to carry out given tasks. High job control has been found to buffer the negative impacts of various stressors on strain (Schmidt & Diestel, 2011). The buffering effect of job control is explained by the notion that high job control implies opportunities to adjust to demands according to employees' skills and circumstances. That is, increased control allows individuals to face demands when they are best able to do and in ways they find most acceptable (Schmidt & Diestel, 2011). Although control can be studied in both field and laboratory settings, field studies offer the opportunity to analyze naturally occurring levels of job control.

In addition, while empirical evidence on SCDs at work mainly draws on large-scale between-subject designs, the model of self-control strength strongly suggests that SCDs have immediate effects on psychological well-being and thus, considerably fluctuate during a course of a day or a

week. That is, psychological mechanisms and processes, which determine the adverse effects of SCDs on well-being, are day-specific or event-related and call for an experience sampling methodology or an experimental design (Ohly, Sonnentag, Niessen, & Zapf, 2010). Consequently, future research should conduct diary studies, to analyze intra-individual relationships between day-specific SCDs and well-being. For example, the notion that SCDs draws on and depletes a limited control resource may raise the question as to whether psychological mechanisms can be identified that might contribute to the recovery of that resource, at the day-level. Psychological detachment as an experienced state through which employees physically and mentally disengage from work (Sonnentag & Bayer, 2005) would be a promising candidate of such kinds of mechanisms, which help replenishing exhausted resources. Consequently, psychological detachment (during off-job time) can be expected to buffer the adverse impact of day-specific SCDs on day-specific strain and well-being (see Rivkin, Diestel, & Schmidt, in press).

The identification of cognitive control deficits and self-control capacity as moderators of the demands-strain relationships may not at least contribute to further theoretical and methodological developments in basic research. Here, interindividual differences in self-control have gained, if at all, less attention so far. The inclusion of trait measures of self-control in experimental studies can be expected to improve our understanding on how demand-induced self-control processes may be modulated by more or less limited control capacities.

Finally, although self-control capacity is a relatively stable disposition, it can nevertheless be improved by training efforts. Indeed, recent experimental studies revealed that the ability to execute self-control can be enhanced through the repeated exertion of self-control (for review, see Baumeister et al., 2006). For example, Oaten and Cheng (2007) had participants enter a four-month monitoring program that was intended to train self-control. After that program, 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. In contrast, a control group failed to improve their self-control ability over the same time span. Building on these results, the development and evaluation of training programs tailored to the specific SCDs in service jobs would be a further promising avenue for future research.

In conclusion, SCDs represent a unique and often neglected job stressor, which raises new challenges for human resource managers, occupational health professionals, and supervisors. As suggested by the results of our studies on boundary conditions of the SCDs-strain relations, these challenges can be met effectively by strengthening resources such as job control, affective organizational commitment, and self-control capacity. The strengthening of these resources is especially to recommend when employees have to face different SCDs simultaneously.

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Appendix

Questionnaire for Measuring Self-Control Demands at Work

Impulse Control

My job requires me never to lose my temper.
Even if I sometimes feel very irritated, I am not allowed to show that by any means.
I am never allowed to become impatient at work.
My work demands me to weigh every word before saying something.
I am never allowed to lose my self-control at work.
At work, I am under no circumstances allowed to give way to any spontaneous reactions.

Overcoming Resistances

Dealing with unattractive tasks requires of me a high amount of willpower.
In terms of some of my tasks, I really need to restrain myself from leaving them undone in favour of more attractive tasks.
Starting off with certain tasks sometimes costs me a considerable amount of willpower.
Some of my tasks are such that I really need to force myself to get them done.
Some of my tasks I can only get done against inner obstacles.

Resisting Distractions

In order to achieve my goals at work, I am not allowed to let myself be distracted.
My work requires me to resist distractions.
In order to cope with my workload, I must force myself not to waste my time on unimportant things.
If I want to get my work done successfully, I must not give in to any distractions.