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The recovery paradox: Portraying the complex interplay between job stressors, lack of recovery, and poor well-being

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ABSTRACT

Job stressors such as time pressure, organizational constraints, and interpersonal conflicts matter for individual well-being within organizations, both at the day level and over longer periods of time. Recovery-enhancing processes such as psychological detachment from work during nonwork time, physical exercise, and sleep have the potential to protect well-being. Although the experience of job stressors calls for effective recovery processes, empirical research shows that recovery processes actually are impaired when job stressors are high (recovery paradox). This article presents explanations for the recovery paradox, discusses moderating factors, and suggests avenues for future research.

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Research on job stress has a long tradition in organizational research (Bliese, Edwards, & Sonnentag, 2017). This research has identified various types of job stressors (Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Katz & Kahn, 1978), has studied how job stressors relate to employee health and well-being (Ganster & Rosen, 2013; Sonnentag & Frese, 2012) with a particular emphasis on identifying causal pathways (Ford et al., 2014), and has examined how organizations can counteract the potentially negative effects of job stressors (Richardson & Rothstein, 2008).

More recently, organizational scholars have extended the scope of research on job stress by not only examining individuals' reactions to job stressors, but by also addressing recovery processes (i.e., unwinding and recuperation) that have the potential to alleviate the negative impact to job stressors (Sonnentag, Venz, & Casper, 2017). Although recovery is a physiological necessity after an organism has been exposed to a stressor (McEwen, 1998), empirical research suggests that recovery processes are impaired when individuals are facing a high level of job stressors (Bennett, Bakker, & Field, 2018) – an observation that points to a "recovery paradox".

In this article, I develop in detail the argument that job stressors and recovery-enhancing processes are linked in a paradoxical way. I start with describing core concepts of organizational research on stress. I review research on the relationship between job stressors (job demands, hindrances, interpersonal stressors) and individual well-being, and research on the relationship between recovery-enhancing processes (psychological detachment from work, physical activity, sleep) and individual well-being. I introduce the concept of the recovery paradox, review research on the relationship between job stressors and recovery-enhancing processes, discuss potential factors that can explain the recovery paradox, and describe some of its boundary conditions. In the discussion section, I focus on directions for future research.

Core concepts

Stress is a broad concept that can refer to events or more enduring characteristics of the environment, a person's reaction to these events or enduring characteristics, and the interplay between the person and the environment (Kahn & Byosiere, 1992). To avoid ambiguities, organizational researchers try to be more specific and use the terms "stressors" and "strains". Stressors are work characteristics and work events that individuals experience as taxing and that elicit strain reactions (i.e., physiological and psychological responses that may lead to negative implications for health and well-being; Ganster & Rosen, 2013; Griffin & Clarke, 2011; Kahn & Byosiere, 1992). These strain reactions include short-term responses such as cardiovascular activation, negative activated affect (e.g., anger), and fatigue, as well as more longer-term outcomes such as burnout or psychosomatic complaints. These longer-term outcomes often are experienced as impaired subjective well-being (Tenney, Poole, & Diener, 2016).

Recovery can be seen as a process opposite to the strain process (Craig & Cooper, 1992) during which short-term strain reactions are alleviated so that they will not result in more longer-term impairment of well-being. Recovery can be elicited by recovery-enhancing processes, namely specific subjective experiences (e.g., psychologically detaching from work during nonwork time), leisure-time activities, and fundamental physiological processes occurring during sleep.

Job stressors and well-being

Meta-analytical evidence

Literally hundreds of empirical studies have examined the relationship between job stressors on the one hand and health and well-being on the other hand. Several meta-analyses have summarized the findings from the primary studies (e.g., Crawford, LePine, & Rich, 2010; Nixon, Mazzola, Bauer, Krueger, & Spector, 2011). These meta-analyses cover a broad range of health and well-being outcomes comprising psychological indicators (e.g., exhaustion, depression) and physical indicators (e.g., backache, eyestrain). Overall, there is clear meta-analytical evidence that persons who are exposed to a higher degree of job stressors report poorer health and well-being than persons not exposed to such high levels of job stressors.

These meta-analyses cover three different types of job stressors: high job demands, hindrances, and factors in the social environment. High job demands are often conceptualized as challenge stressors and comprise stressors such as a high workload or time pressure (Cavanaugh et al., 2000; LePine, Podsakoff, & LePine, 2005). In addition, long work hours or high physical demands fall into this category. Hindrances refer to stressful factors that are threatening and impede task accomplishment such as role ambiguity, role conflict, or organizational constraints (Cavanaugh et al., 2000; LePine et al., 2005). Because of its threatening nature, job insecurity can also be seen as a hindrance stressor (Shoss, 2017). Finally, factors in the social environment comprise workplace discrimination, harassment, or destructive leadership. Factors in the social environment may hinder task accomplishment as well. However, because of their strong interpersonal aspect, they constitute a separate category.

With respect to job demands, observed correlations with poor health and well-being range between $r = |.01|$ and $r = |.40|$, and correlations corrected for statistical artefacts range between rho = |.00| and rho = |.51| (Table A1 in Appendix). Observed correlations lower than $r = |.10|$ are found for long work hours and physical demands only. Observed correlations referring to a high workload are typically in the range of $r = |.20|$ and $r = |.40|$. With respect to hindrance stressors, observed correlations with poor health and well-being range between $r = |.12|$ and $r = |.42|$, and correlations corrected for artefacts range between rho = |.16| and rho = |.56| (Table A2 in Appendix). Correlations are typically relatively low for physical health and well-being, whereas correlations are higher for psychological indicators, including exhaustion and depression. With respect to factors in the social environment, observed correlations with poor health and well-being range between $r = |.13|$ and $r = |.37|$, and correlations corrected for artefacts range between rho = |.16| and rho = |.36| (Table A3 in Appendix). Again, correlations are typically relatively low for physical health indicators. Taken together, there is clear evidence that job stressors are associated with poor health and well-being. Generally, correlations are higher for psychological strain indicators than for physical strain indicators (Ford et al., 2014).

Because in most studies both job stressors and strain indicators were assessed with self-report measures, the correlations might be inflated by common-method variance (Podsakoff, MacKenzie, & Podsakoff, 2012). Particularly, trait negative affectivity might have inflated the correlations between self-report stressor and strain measures (Brief, Burke, George, Robinson, & Webster, 1988; Burke, Brief, & George, 1993). Studies that used observational measures for assessing job demands, however, tended to find significant associations between stressors and strains as well (Greiner & Krause, 2006; Schuller, Roesler, & Rau, 2014). Moreover, although in some studies that used self-report measures, but controlled for negative affectivity, the size of the correlations between job stressors and strains was reduced substantially (Chen & Spector, 1991), job stressors remained significantly related to strain symptoms (Brown, Duck, & Jimmieson, 2014; Perrewé et al., 2004; Zohar, 1997). Overall, this research suggests that the association between self-reported stressors and poor well-being outcomes cannot be explained by common method variance alone.

Longitudinal research

Many of the individual studies summarized in the meta-analyses relied on employees' perceptions of job stressors and often used cross-sectional designs. Accordingly, these findings do not allow any conclusions about causality. Cross-sectional correlations between job stressors and strain indicators may be attributed to various underlying causal patterns such as job stressors causing change in strain symptoms, strain symptoms causing changes in job stressors, and third variables explaining the empirical association between job stressors and strain symptoms (Zapf, Dormann, & Freise, 1996). Meta-analyses of longitudinal studies, however, show that job stressors indeed predict strain indicators such as physical symptoms (Ford et al., 2014; Nixon, Mazzola, Bauer, Krueger, & Spector, 2011), psychological strain symptoms (Ford et al., 2014), and poor mental health (Nielsen & Einarsen, 2012), even when adjusting for the baseline level of the strain indicator (Ford et al., 2014; Lang et al., 2012). In addition, job stressors in combination with other adverse circumstances such as low job control (Madsen et al., 2017) or low rewards (Rugulies, Aust, & Madsen, 2017) are associated with depressive symptoms over time. Importantly, studies found that job stressors predicted change in strain symptoms, even when controlling for baseline levels of strain indicators *and* for trait negative affectivity (Sonnentag, Binnewies, & Mojza, 2010) or for baseline levels of strain indicators *and* for social desirability (Nahum-Shani & Bamberger, 2011).

Meta-analyses that have addressed the reverse causal pathway from strain indicators to job stressors also revealed that persons with higher physical or psychological strain symptoms at baseline reported an increase in job stressors over time (Ford et al., 2014; Nielsen & Einarsen, 2012). These findings suggest that not only job stressors impair health and well-being over time, but that also poor health and well-being make it more likely to experience a higher degree of job stressors over time, resulting in reciprocal relationships between job stressors on the one hand and poor health and well-being on the other hand.

Day-level research

Daily survey studies provide a more nuanced picture of how job stressors unfold their impact during the workday. These studies typically assess day-specific job stressors and strain indicators every day over a period of one or two workweeks. The studies show that on days when employees experience a higher level of job stressors than they normally do, they respond with negative affective reactions such as negative activation or fatigue (Pindek, Arvan, & Spector, 2018). For instance, research showed that day-specific job demands (Rodell & Judge, 2009), day-specific hindrances (e.g., organizational constraints; Sonnentag & Starzyk, 2015), and day-specific interpersonal stressors (e.g., customer mistreatment; Liu et al., 2017) predict negative affective states over the course of the workday. Overall, this research shows that when employees are facing job stressors, their strain levels increase and their affective states are impaired rather quickly. A recent meta-analysis based on a total of 55 samples revealed that the correlations between stressors and strains tended to be stronger when strains were assessed some time after job stressors had been measured than when job stressors and strains were assessed concurrently (Pindek et al., 2018), thus arguing against the possibility that perceptions of job stressors are just a reflection of a high day-specific strain level. This meta-analysis did not identify any differences in within-person effect sizes between different kinds or stressors. Also, the differences in within-person effect sizes of various affective and physical strain indicators were negligible. Finally, studies not just looked at negative indicators of stain (e.g., anger, fatigue), but also included positive affective states as potential consequences of day-specific job demands. This research showed that job stressors such as day-specific time pressure and day-specific workload were associated with attentiveness as a positive affective state (Rodell & Judge, 2009), feelings of vigor and the experience of engagement (Garrick, Mak, Cathcart, Winwood, Bakker, & Lushington, 2014; Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012), whereas hindrance stressors were not (Sonnentag, Mojza, Demerouti, & Bakker, 2012). Most probably, high demands can have an energizing component – particularly when looking at shorter-term processes occurring at the day level.

Summary

There is clear evidence that job stressors are related to poor well-being, with long work hours and physical demands showing smaller effect sizes than other types of stressors. Cross-sectionally, associations between job stressors and physical symptoms are relatively small. In longitudinal studies, however, differences in the effect sizes for psychological and physiological strain indicators tend to disappear: job stressors show small – albeit significant – lagged relationship with both psychological and physiological indicators of poor well-being (Ford et al., 2014). At the day level, persons react rather quickly to job stressors and show elevated strain symptoms. These primary symptoms, however, are relatively short lived and fluctuate from day to day. Over time, however, these primary symptoms may accumulate and result in more persistent impairments of well-being (Ganster & Rosen, 2013).

Recovery and well-being

Recovery processes are essential for individual well-being. With respect to recovery-enhancing processes during waking time, research has differentiated between specific recovery activities and recovery experiences that may occur during many different activities (Sonnentag & Fritz, 2007). Recovery activities refer to what people are doing during their leisure time (e.g., physical exercise, reading poems); recovery experiences refer to what people are experiencing while performing the activities (e.g., psychological detachment from work while exercising or relaxation while reading poems). In addition, sleep is important for recovery (Fritz & Crain, 2016). In this section, I will summarize research on psychological detachment from work as a crucial recovery experience, physical exercise as an effective recovery activity, and the role of sleep, discussing each of their associations with individual well-being.

Psychological detachment from work as an important recovery experience

Sonnentag and Fritz (2007) described psychological detachment, relaxation, mastery, and control as four distinct recovery experiences that may help employees to unwind from stressors experienced on the job. Over the years, psychological detachment from work during nonwork time received most research attention and was found to be a particularly important recovery experience (Bennett et al., 2018). Psychological detachment from work refers to "an individual's sense of being away from the work situation" (Etzion, Eden, & Lapidot, 1998, p. 579) and implies not only refraining from performing job-related tasks, but also mentally disconnecting from the job during nonwork time. Although the content from which one disconnects during psychological detachment from work may not necessarily be negative or troublesome, lack of detachment correlates with negative thoughts about work (Meier, Cho, & Dumani, 2016), suggesting that when people do not detach from work they are mainly occupied with negative work-related thoughts.

Empirical studies show that psychological detachment from work during nonwork time is associated with good well-being. Meta-analyses reported observed correlations between psychological detachment and indicators of poor well-being (i.e., exhaustion, physical discomfort, fatigue) ranging between $r = -.23$ and $r = -.42$ (Bennett et al., 2018; Wendsche & Lohmann-Haislah, 2017). Interestingly, the observed correlation with vigor as an indicator of energetic well-being is somewhat smaller in size ($r = .12$; Bennett et al., 2018), suggesting that psychological detachment might be powerful in preventing negative states, but might be less effective in promoting positive, energetic states. Unsurprisingly, the overall effect sizes were larger for cross-sectional designs than for longitudinal or diary designs (Wendsche & Lohmann-Haislah, 2017). It is important to note that the empirical associations between lack of detachment and poor well-being cannot be solely attributed to common method variance. For instance, studies that assessed either well-being (Fritz, Yankelevich, Zarubin, & Barger, 2010) or psychological detachment (Sonnentag, Kuttler, & Fritz, 2010) with reports from others continued to find significant associations between low detachment and impaired well-being.

Longitudinal evidence about longer-term well-being outcomes of detachment from work is mixed. Some studies found that lack of detachment predicted a decrease in well-being over time (Söderström, Jeding, Ekstedt, Perski, & Akerstedt, 2012; Sianoja, Kinnunen, Mäkikangas, & Tolvanen, 2018; Sonnentag, Binnewies et al., 2010), while other research did not (Kinnunen & Feldt, 2013; Sonnentag, Arbeus, Mahn, & Fritz, 2014). Possibly, longer-term outcomes of lack of detachment are contingent on additional factors such as specific job characteristics or individual differences. In addition, there might be reciprocal relationships between detachment from work and well-being. Lack of detachment might not only impair well-being; poor well-being (e.g., high exhaustion) might make it more difficult to find mental distance from work resulting in low levels of psychological detachment (Sonnentag et al., 2014).

Diary studies found that lack of detachment from work during the evening was related to a low level of positive emotions in the evening (Rodríguez-Muñoz, Sanz-Vergel, Antino, Demerouti, & Bakker, 2018), high evening strain (Debrot, Siegler, Klumb, & Schoebi, 2018), evening energetic depletion (Germeys & De Gieter, 2018) and other negative states at bedtime (Garrosa-Hernández, Carmona-Cobo, Ladstätter, Blanco, & Cooper-Thomas, 2013; Sonnentag & Lischetzke, 2018) and during the next morning (Sonnentag, Binnewies, & Mojza, 2008), even when controlling for previous negative states (Garrosa-Hernández et al., 2013; Sonnentag et al., 2008; Sonnentag & Lischetzke, 2018). Other diary studies did not find direct associations between lack of detachment and negative states at bedtime (Haun, Nübold, & Bauer, 2018) or during the next morning (Park, Fritz, & Jex, 2018). The benefits of detachment, however, became more evident on days when employees had experienced a high level of distress at their jobs (Park et al., 2018). Thus, psychological detachment from work seems to be particularly helpful after having experienced stressful days at work.

Physical exercise as an effective recovery activity

Physical exercise does not only have health benefits (Rhodes, Janssen, Bredin, Warburton, & Bauman, 2017), but also plays an important role in the context of recovery from job stressors. Evidence comes from experimental studies with students and other samples in which researchers compared affective states of an exercise group with a control group that did not engage in physical exercise and from studies that compared pre-exercise affect with post-exercise affect. Overall, aerobic exercise resulted in an immediate increase in activated positive affect with a corrected effect size of $d = .47$ (Reed & Ones, 2006). Similarly, aerobic exercise was found to be associated with various indicators of increased positive well-being and decreased psychological distress (Elkington, Cassar, Nelson, & Levinger, 2017). These benefits of physical exercise seem to be due to both neurophysiological (e.g., endocrinological) and psychological processes (e.g., positive self-perceptions; Biddle & Mutrie, 2008; Sonstroem & Morgan, 1989; Wegner et al., 2014).

Importantly, the benefits of acute physical exercise are not only found in research conducted in laboratory settings, but also become evident in people's daily life (Kanning, Ebner-Priemer, & Schlicht, 2013; Liao, Shonkoff, & Dunton, 2015; Wiese, Kuykendall, & Tay, 2018). Daily-survey studies with employee samples showed that engagement in physical exercise is associated with activated positive states (e.g., high positive affect, vigor), even when controlling for pre-exercise positive states, suggesting that physical exercise is associated with an increase in positive states (Feuerhahn, Sonnentag, & Woll, 2014; Jeckel & Sudeck, 2017; Oerlemans & Bakker, 2014).

Moreover, physical activity is not only directly related to subsequent affect, but may also alleviate the strain response to a stressor. For instance, a large-scale diary study demonstrated that, on days when study participants were physically more active they showed a smaller increase in negative affect during stressful days than when they were less active (Puterman, Weiss, Beauchamp, Mogle, & Almeida, 2017).

In addition to research that has examined the immediate affective benefits of physical exercise, studies have revealed that regular physical exercise is related to psychological well-being over longer periods of time. More specifically, meta-analytical evidence summarizing intervention research demonstrates that people who exercise regularly have a higher level of positive activated affect than control groups ($d = .51$), whereas the differences in positive affect before the onset of the exercise program were negligible (Reed & Buck, 2009). Moreover, meta-analytical research documented that exercise interventions are associated with reduced anxiety levels and reduced levels of depressive symptoms (Conn, 2010a, 2010b; Rebar et al., 2015). In a large-scale study with Israeli employees, Toker and Biron (2012) showed that physical activity attenuated the health-impairment process of employees who suffered from burnout and depression. While an increase in burnout over several years predicted a subsequent increase in depressive symptoms for employees who were not physically active, the association between increase in burnout and increase in depressive symptoms was attenuated by high levels of physical exercise.

Sleep

Sleep is essential for human health and well-being. Although the ultimate function of sleep is still the subject of a lively debate, sleep seems to enable important restorative processes in humans and other mammals (Borbély, Daan, Wirz-Justice, & Deboer, 2016; Krueger, Frank, Wisor, & Roy, 2016). Research in the organizational context has shown that good sleep has the potential to counteract self-regulatory and performance deficits that occur as a consequence of preceding strain processes (Barnes, 2012). Numerous studies have shown that sleep quality and sleep quantity are related to indicators of psychological and physical well-being. A meta-analysis reported observed correlations between sleep quality and symptoms such as anxiety, depression, fatigue, and general strain that range between $r = -.29$ and $r = -.48$, and that correlations corrected for artefacts range between rho = −.31 and rho = −.54. Observed correlations between sleep quantity and these psychological symptoms range between $r = -.11$ and $r = -.23$, and correlations corrected for artefacts range between rho = −.14 and rho = −.24 (Litwiller, Snyder, Taylor, & Steele, 2017). Usually, these studies assessed sleep by self-report measures, but more recently actigraphy technology provides a more objective way to assess indicators of sleep quality and quantity (Ganster, Crain, & Brossoit, 2018; Sadeh, 2011).

Of course, the correlational findings reported by Litwiller et al. (2017) do not necessarily imply that poor sleep is the cause of poor well-being, because sleep problems often are a consequence or by-product of poor psychological well-being (Sivertsen et al., 2012). Longitudinal research, however, suggests that poor sleep contributes to an increase in job-related strain symptoms over time. For instance, in a prospective study, Armon, Shirom, Shapira, and Melamed (2008) found that insomnia predicted burnout symptoms 18 months later. Söderström et al. (2012) reported that sleep duration of less than six hours per night predicted the development of clinical burnout over a two-year time period. Jansson-Fröjmark and Lindblom (2010), however, reported that insomnia did not predict the onset of exhaustion symptoms over a one-year time period. When employees, however, were already exhausted, insomnia predicted the persistence of exhaustion systems over the one-year time period, suggesting that poor sleep prevents people to recover from job-related strain symptoms. A large-scale multi-wave study with more than 2000 participants from the Swedish Longitudinal Occupational Survey of Health showed that sleep disturbances predicted an increase in depressive symptoms two years later (Magnusson Hanson, Chungkham, Åkerstedt, & Westerlund, 2014). Meta-analytical evidence suggests that persons who experience insomnia have a more than two-fold risk of developing depression than persons who sleep well (Baglioni et al., 2011; Li, Wu, Gan, Qu, & Lu, 2016). Overall, good sleep is a protective factor that helps to reduce the risk of impaired well-being.

Importantly, good sleep is not only crucial for long-term health and well-being, but is associated with shorter-term benefits as well. Experimental research documented a dramatic detrimental effect of sleep deprivation on mood (Goldstein & Walker, 2014; Pilcher & Huffcutt, 1996). Moreover, sleep deprivation leads to a lower threshold for perceiving stress when facing demands (Minkel et al., 2012). In addition, fluctuations in sleep during people's daily life are associated with fluctuations in positive and negative affective states. Particularly for subjective sleep quality, there is consistent evidence that good sleep quality is associated with increased levels of positive affect and low levels of negative affect (Scott & Judge, 2006; Sin et al., 2017; for a review, Konjarski, Murray, Lee, & Jackson, 2018). Sleep duration was found to be associated with high subsequent positive affect and low subsequent negative affect in some studies, but not in others (Konjarski et al., 2018).

Summary

To sum up, psychological detachment from work, physical exercise, and good sleep are important for recovery and related to favorable well-being outcomes. Physical exercise and good sleep show both short-term and longer-term associations with both positive and negative indicators of well-being. With respect to psychological detachment from work, the (negative) associations with indicators of poor well-being are stronger than the (positive) associations with indicators of positive well-being, suggesting that detachment alone is not sufficient for promoting positive states. Although systematic research on interaction effects is still in its infancy, it seems that recovery processes are particularly beneficial when job stressors are high (Park et al., 2018; Puterman et al., 2017).

The recovery paradox

Research summarized so far shows that the exposure to job stressors is associated with poor well-being, both at the day level and over longer periods of time. In addition, specific recovery experiences (i.e., psychological detachment from work), specific recovery activities (i.e., physical exercise), and sleep are associated with improved well-being. Accordingly, initiating processes that foster recovery is a promising approach for counteracting the negative effects of job stressors. Thus, from a rational perspective, individuals should prioritize recovery when being exposed to job stressors. The notion that recovery should be beneficial when facing a high level of job stressors is also reflected in research on the relationship between job stressors and need for recovery. Need for recovery is the subjectively experienced urge to recuperate from the effort spent at work (van Veldhoven & Broersen, 2003). It is characterized by "temporary feelings of overload, irritability, social withdrawal, lack of energy for new effort, and reduced performance" (p. i3). High job stressors, particularly high job demands are associated with a high need for recovery (Rivkin, Diestel, & Schmidt, 2015; Siltaloppi, Kinnunen, & Feldt, 2009; Sluiter, Frings-Dresen, van der Beek, & Meijman, 2001), most probably because these stressors are experienced as exhausting (Xanthopoulou, Bakker, Oerlemans, & Koszucka, 2018).

Although the exposure to job stressors makes recovery necessary in an objective way and increases people's subjective need for recovery, empirical evidence however suggests that job stressors are not associated with a higher – but a lower – likelihood of recovery-enhancing processes: When people experience a high level of job stressors, they tend to detach less from their jobs during nonwork time (Wendsche & Lohmann-Haislah, 2017; Bennett et al., 2018), they engage less in physical activity (Stults-Kolehmainen & Sinha, 2014), and their sleep quality is impaired (Litwiller et al., 2017; Nixon et al., 2011). This overall picture of high job stressors, high need for recovery, and a low actual propensity to recover refers to a paradoxical situation. I call this tension between the necessity to recover when job stressors are high and the reduced likelihood to actually recover under these circumstances the "recovery paradox".

In this section, I will review empirical evidence that recovery-enhancing processes become less likely when job stressors are high. I will discuss possible mechanisms underlying this recovery paradox, and will discuss factors that may attenuate the recovery paradox.

Stressors and recovery

Despite the need to recover well when facing job stressors, recovery-enhancing processes tend to suffer when job stressors are high. Empirical studies using diverse study designs show that this

applies to psychological detachment from work as a crucial recovery experience, physical exercise as an important recovery activity, as well as sleep as a fundamental physiological recovery process.

Stressors and psychological detachment from work

Empirical evidence accumulated during the past ten to fifteen years suggests that job stressors impede the detachment process. Meta-analytical evidence mainly based on cross-sectional research revealed a correlation of $r = -.25$ between a composite measure of job stressors and psychological detachment from work during nonwork time (Wendsche & Lohmann-Haislah, 2017). The negative correlation between stressors and detachment is stronger for challenge demands (Bennett et al., 2018) such as quantitative demands ($r = -.28$; Wendsche & Lohmann-Haislah, 2017) than for hindrance demands ($r = -.18$, rho $= -.21$; Bennett et al., 2018), with non-overlapping 95% confidence intervals for challenge versus hindrance stressors (Bennett et al., 2018). For social conflicts, Wendsche and Lohmann-Haislah (2017) reported an effect size of $r = -.25$. As job resources only show very small correlations with detachment of $r = .03$ (Bennett et al., 2018) and $r = .10$ (Wendsche & Lohmann-Haislah, 2017), respectively, it seems that it is not the work situation as a whole that matters for a person's degree of psychological detachment from work during nonwork time. Job stressors and particularly challenge stressors, such as a general high level of workload and time pressure, as well as interpersonal stressors such as social conflicts, seem to be crucial job factors that make psychological detachment from work difficult.

Longitudinal research suggests that specific job stressors are not only cross-sectionally correlated to poor detachment, but that they indeed might reduce detachment from work over time. Using data from a survey study with a time lag of one year, Kinnunen and Feldt (2013) found that high job demands (i.e., time pressure, decision-making demands, long work hours) predicted a decrease in psychological detachment over time. Furthermore, a five-wave short-term longitudinal study with time lags of two months between the measurement points showed that a high workload at time t predicted a low level of psychological detachment from work at time t + 1 (controlling for the detachment level at time t; Meier & Cho, 2018). This study found no evidence for reverse causation; that is, low detachment predicting an increase in workload. Moreover, workplace incivility at time t did not predict detachment at time t + 1 when controlling for detachment at time t. Using more sophisticated designs, these two longitudinal studies are in line with the mostly cross-sectional evidence summarized in meta-analyses (Bennett et al., 2018; Wendsche & Lohmann-Haislah, 2017) that show particularly high quantitative demands to be detrimental for psychological detachment from work.

Day-level studies showed that on days when people experience high stress during the workday they are less likely to detach from work at night (Debrot et al., 2018). When examining specific types of stressors, day-level within-person findings tend to differ from between-person findings. Although quantitative job demands such as day-specific workload or day-specific time pressure have rarely been studied as predictors of day-specific detachment from work, in the few day-level studies that did address these quantitative job demands, such as time pressure, these stressors showed no bivariate association with psychological detachment (Haun et al., 2018; Sonnentag & Bayer, 2005). Other day-specific stressors such as negative work events (Bono, Glomb, Shen, Kim, & Koch, 2013), high self-control demands (Germeys & De Gieter, 2018), and interpersonal stressors such as bullying and interpersonal conflicts (Rodríguez-Muñoz, Antino, & Sanz-Vergel, 2017; Volmer, Binnewies, Sonnentag, & Niessen, 2012), however, have been associated with low levels of psychological detachment from work during evening hours. Thus, from the available evidence it seems that high quantitative job demands during the workday may not impede detachment from work, but hindrance stressors that threaten goal process and consume self-regulatory resources as well as interpersonal stressors may be more detrimental for psychological detachment.

Stressors and physical exercise

Studies in various academic fields have addressed the questions of if and how the exposure to stressors at work are associated with physical activity during nonwork time. Overall, people who are exposed to stressors tend to be less physically active (Stults-Kolehmainen & Sinha, 2014). More specifically, research with large cohort studies showed that employees working in high-strain jobs (i.e., high job demands and low job control) engaged less in physical exercise than employees working in jobs with more favorable conditions (low demands and high control), also when controlling for individual-difference variables such as gender, age, and socio-economic status (Fransson et al., 2012; Oshio, Tsutsumi, & Inoue, 2016). Interestingly, when using time-lagged data, Fransson et al. (2012) found that people who were initially physically active became less physically active over time when they worked in high-strain or passive jobs (i.e., low job demands and low job control) than when they worked in low-strain jobs (i.e., low job demands and high job control). Thus, for staying physically active, job control seems to matter more than job demands, possibly because job control enhances feelings of self-determination that in turn helps with physical exercise (Häusser & Mojzisch, 2017).

A few studies have looked at the association between job stressors and physical activities at the within-person level and examined if employees tend to exercise during times when they experience more job stressors. Obviously, working long hours on a day was associated with the tendency to exercise less on that specific day (Jones, O'Connor, Conner, McMillan, & Ferguson, 2007; Nägel, Sonnentag, & Kühnel, 2015). The picture for other job stressors, however, is mixed. Whereas Steptoe, Lipsey, and Wardle (1998) did not find any differences in exercise behavior when comparing more stressful with less stressful weeks, Sonnentag and Jelden (2009) reported that employees exercised less on days when they faced a high level of situational constraints. Experiencing time pressure or role ambiguity, however, was not associated with less exercise behavior. It seems that particularly physically active people do *not* exercise *less* when facing stressors (Nägel et al., 2015); they may even use exercise as a coping behavior (Stults-Kolehmainen & Sinha, 2014).

Stressors and sleep

When experiencing job stressors, sleep is particularly important. However, empirical research provides evidence that job stressors are negatively related to good sleep. Meta-analyses based on predominantly cross-sectional studies showed small, but significant observed correlations between workload and sleep disturbances of $r = .14$ (Nixon et al., 2011) and between workload and sleep quality of $r = -.15$ (Litwiller et al., 2017), respectively (rho $= -.16$; Litwiller et al., 2017). The observed correlation between workload and sleep quantity was $r = -.10$ (rho $= -.11$; Litwiller et al., 2017). Meta-analytical observed correlations between other stressors (interpersonal conflicts, organizational constraints, role conflict) and sleep disturbances were $r = .22$, $r = .17$, and $r = .13$, respectively (Nixon et al., 2011). Role ambiguity was not significantly related to sleep disturbances ($r = .04$; Nixon et al., 2011).

While this cross-sectional evidence cannot rule out the interpretation that poor sleep leads to the perception of more intense job stressors, longitudinal studies are better able to address the underlying causal patterns. Two systematic literature reviews

summarizing longitudinal research on job stressors and sleep concluded that high job demands are associated with an increase in sleep problems over time (Linton et al., 2015; Van Laethem, Beckers, Kompier, Dijksterhuis, & Geurts, 2013). A similar picture of high job demands predicting an increase in sleep problems also emerged in more recent studies not yet included in the systematic literature reviews (Magnusson Hanson et al., 2014). The rather consistent evidence supporting a causal path from job demands to poor sleep, however, does not rule out the possibility of a more complex reciprocal pattern between job stressors and sleep problems (Törnroos et al., 2017).

Findings from day-level studies examining if stressors experienced on the day at work are associated with sleep during the subsequent night are mixed. It seems that interpersonal stressors such as interpersonal conflicts (Brisette & Cohen, 2002) or social exclusion (Pereira, Meier, & Elfering, 2013) as well as stressors that threaten a person's self-esteem (Pereira, Semmer, & Elfering, 2014) increase the likelihood of sleep disturbances. Stressors referring to quantitative overload (Jones & Fletcher, 1996; Pereira et al., 2014) or overall stressfulness of the day (Sin et al., 2017) are not substantially related to subsequent sleep. Thus, at the day level, interpersonal and self-relevant stressors seem to be more influential when it comes to sleep than are other stressors such as high quantitative job demands.

Summary

Overall, empirical studies have revealed that job stressors are associated with impaired recovery processes. Interestingly, the relevance of different types of stressors seems to vary somewhat across various study designs and the temporal patterns they strive to capture. Whereas cross-sectional studies found correlations between various types of job stressors and recovery-enhancing processes, with only small differences between the various types of job stressors (e.g., Bennett et al., 2018; Nixon et al., 2011), longitudinal studies highlight the importance of high quantitative job demands (Kinnunen & Feldt, 2013; Magnusson Hanson et al., 2014; Meier & Cho, 2018; Oshio et al., 2016), sometimes in combination with low job control (Fransson et al., 2012; Oshio et al., 2016), suggesting that high quantitative job demands may undermine recovery over longer periods of time. When it comes to day-level processes, quantitative demands seem to play a minor role (Haun et al., 2018; Payne, Jones, & Harris, 2010; Pereira et al., 2014; Sonnentag & Jelden, 2009) – except the obvious result that long work hours reduce the likelihood of engaging in physical activity (Jones et al., 2007). Hindrance stressors that deplete self-regulatory resources (Germeys & De Gieter, 2018; Häusser & Mojzisch, 2017; Sonnentag & Jelden, 2009) as well as interpersonal stressors (Pereira et al., 2014; Rodríguez-Muñoz et al., 2017) seem to be more relevant when it comes to day-specific problems with psychological detachment from work, physical exercise, and sleep.

Mechanisms explaining the recovery paradox

How can one explain that people detach less from work during nonwork time, engage less in physical exercise, and experience poorer sleep quality when being exposed to job stressors – regardless of the fact that they have a higher need for recovery and that their well-being would likely increase if they experienced psychological detachment, were physically more active, and had a good sleep quality? This paradoxical tension between job stressors and recovery can be explained by several mechanisms: high negative activation, depletion of energetic resources, and constant connectivity to work caused by job stressors, as well as individual and organizational factors that influence both job stressors (and the perception thereof) and recovery-enhancing processes.

Negative activation (high state negative affect)

High negative activation is a crucial factor that can undermine recovery processes when job stressors are high. Facing job stressors is associated with negative arousal and is reflected in negative affective states such as irritation, tension, anger or irritation (Hoppe, 2011; Kabat-Farr, Cortina, & Marchiondo, 2018; Sanchez & Brock, 1996). These affective states make recovery processes more difficult, particularly via low psychological detachment from work and a lack of restorative sleep.

The reduced likelihood to detach from work when experiencing negative activation can be explained by the mood-congruency hypothesis (Bower, 1981; Judge & Ilies, 2004). More specifically, being in a negative affective state makes negative cognitions more accessible in memory. For instance, when job stressors have elicited anger, one is more likely to continue thinking about negative features of the job, contributing to a low level of psychological detachment from work (Sonnentag & Fritz, 2015). Although this assumed association between negative activation and lack of detachment has not received much research attention to date (Sonnentag & Lischetzke, 2018), studies on rumination demonstrate that high negative state affect indeed predicts rumination (Pavani, Le Vigouroux, Kop, Congard, & Dauvier, 2016; Wiese, Heidemeier, Burk, & Freund, 2017). Thus, when negative activation is high, it is more difficult to gain mental distance to negative events experienced at work.

Negative activation matters for sleep as well. Negative affective states such as irritation, tension or anger are characterized by high arousal that has a detrimental impact on sleep (Riemann et al., 2010). For instance, Brisette and Cohen (2002) showed that negative state affect predicted increased sleep disturbance during the subsequent night, partially mediating the relationship between interpersonal conflict and sleep disturbance. In a daily-survey study with bus drivers, Wagner, Barnes, and Scott (2014) found that anxiety experienced at the end of the work shift predicted insomnia during the subsequent night. Slavish et al. (2018) reported that a person's average level of negative affect, as well as the day-specific level of negative affect, predicted poor sleep quality and difficulty falling asleep.

Sin et al. (2017), however, found no evidence for high negative day-specific affect predicting poor sleep during the subsequent night. Thus, it might not be the negative affect alone that impairs sleep, but specific negative cognitions that often occur in connection to negative affect. In particular, persons who tend to ruminate about their work report sleep problems (Demsky, Fritz, Hammer, & Black, 2018; Querstret & Cropley, 2012). Day-level studies suggest that worry and rumination about work have a rather immediate impact on sleep: On days when people worry or ruminate in a negative way they have lower sleep quality (Flaxman et al., 2018; Slavish et al., 2018). It seems to be the negative valence that impairs sleep (Loft & Cameron, 2014), positive thinking about work appears unrelated to sleep (Flaxman et al., 2018).

When it comes to negative activation and physical exercise, findings are somewhat mixed (Jones et al., 2007; Jones, Taylor, Liao, Intille, & Dunton, 2017; Schwerdtfeger, Eberhardt, Chmitorz, & Schaller, 2010). Possibly, the arousal aspect of negative activated affect increases the likelihood to be more active, whereas the negatively-valenced mood reduces the positive expectations typically associated with the initiation of physical activity, leading to inconsistent findings. In addition, individual differences could play an important role here (Stavrakakis et al., 2015) because some people might use physical activities as a means to cope with negative activated affect. Thus, increased state negative activated affect probably is not the core mediator that links job stressors to reduced level of physical exercise. Possibly, the decrease in positive affect, that may occur when experiencing job stressors (Tadić,

Bakker, & Oerlemans, 2015), undermines engagement in physical exercise (Liao et al., 2015).

Depletion of energetic resources

In addition to negative activation that might impede recovery, depletion of energetic resources resulting from job stressors may also hinder effective recovery. Depletion of energetic resources becomes evident in the subjective experience of exhaustion and fatigue (Zohar, Tzischinski, & Epstein, 2003) and in problems sustaining self-control processes (Lian, Yam, Ferris, & Brown, 2017). Experiencing job stressors is associated with increased levels of exhaustion and fatigue, both when looking at longer-term processes unfolding over months and years (Dicke, Stebner, Linninger, Kunter, & Leutner, 2018) and when addressing shorter-term day-level fluctuations (Zohar et al., 2003). Depletion of energetic resources caused by job stressors should be particularly relevant for physical exercise, but might also play a role for psychological detachment from work and for sleep.

The link between depletion of energetic resources and failure to engage in physical exercise seems obvious. Because physical exercise requires effort investment, it is more difficult to initiate and maintain physical activity when energetic resources are already depleted. Using both self-report and objective actigraphy data in a daily-diary study, Niermann, Herrmann, van Haaren, van Kann, and Woll (2016) reported that high levels of fatigue and low levels of vigor in the afternoon predicted a reduced likelihood to engage in physical activity after work. Similarly, Schöndube, Bertrams, Sudeck, and Fuchs (2017) demonstrated that depletion of self-regulatory resources negatively predicted the amount of time spent in physical exercise. Dunton, Atienza, Castro, and King (2009, page 251), however, found that not fatigue per se, but the lack of confidence to be able to engage in effortful physical activity predicted actual physical activity. Possibly, depletion of energetic resources had reduced the confidence to succeed in effortful physical activity.

Although people with rather depleted energetic resources can be physically active when supported adequately (Lindegård, Jonsdottir, Börjesson, Lindwall, & Gerber, 2015), physical activity and their short-term effects might be more aversive for them. For instance, muscular recovery seems to be impaired in people experiencing chronic stress (Stults-Kolehmainen, Bartholomew, & Sinha, 2014), contributing to sensations of pain after having engaged in physical activity. Thus, physical activities might be less rewarding when energy resources are already depleted, leading to a decrease in overall physical activity over time (Liao, Chou, Huh, Leventhal, & Dunton, 2017). In fact, de Vries et al. (2016) examined work-related exhaustion and time spent on physical leisure activity in a large sample of Dutch employees and found that exhaustion predicted a decrease in the amount of physical activity one year later. Isoard-Gautheur, Scotto-di-Luzio, and Ginoux, and Sarrazin (2018) reported a similar finding over a time lag of two months.

Though depletion of energetic resources will be most important for physical exercise as an important recovery activity, it might also play a role in psychological detachment. When energetic resources are depleted it will be more difficult to control one's thought processes and emotional reactions to events happening during the day. Accordingly, when being exhausted one will be less successful in directing his or her cognitions away from work and in stopping ruminative thoughts. Thus, psychological detachment from work tends to be impaired (Germeys & De Gieter, 2018).

Depletion of energetic resources is a consequence of poor sleep (Christian & Ellis, 2011), and it seems obvious that when people are fatigued and exhausted they want to sleep. However, depletion of energetic resources may also impair sleep, particularly through behaviors that impede a good sleep. Sleep benefits from so-called sleep hygiene behaviors such as refraining from consuming caffeinated or alcoholic beverages, using specific electronic devices (e.g., smartphones and tablet computers) or watching TV (Lanaj, Johnson, & Barnes, 2014). When being exhausted and when self-regulatory resources are depleted, it might be difficult to refrain from these sleep-debilitating behaviors because they require response inhibition – a reaction that is impeded when self-regulatory resources are depleted (Diamond, 2013).

Currently, self-control processes are intensely debated (Friese, Loschelder, Gieseler, Frankenbach, & Inzlicht, in press). Future studies may want to address the question of whether the failure to initiate and maintain self-control in the context of recovery is only a consequence of limited self-control resources or if it can be explained by a lack of motivation as well (Inzlicht & Schmeichel, 2012).

Constant technological connectivity to work[1]

The nature of work is changing and the boundaries between people's work and nonwork lives have become more and more permeable. By using mobile devices and other job-related technologies, people stay permanently connected to their jobs, even when being at home and/or spending leisure time with friends and family (Ferguson et al., 2016) This "constant connectivity" (Mazmanian, 2013, p. 1225) may threaten recovery processes in a substantive way. Empirical studies have shown that using job-related communication technology at home is associated with low levels of psychological detachment from work, both at the person level (Park, Fritz, & Jex, 2011) and at the day level (Derks, van Mierlo, & Schmitz, 2014; Van Laethem, Van Vianen, & Derks, 2018). Even when not actually working, but when just having to be available for eventual work duties, psychological detachment from work seems to be harmed (Dettmers, 2017; Mellner, 2016). Moreover, using mobile technology and responding to job-related email during the evening impairs sleep (Braukmann, Schmitt, Ďuranová, & Ohly, 2018; Lanaj et al., 2014). Taken together, staying connected to work during nonwork time seems to undermine processes that are important for recovery, mainly psychological detachment from work and sleep.

Of course, there are multiple reasons why people stay technologically connected to work during nonwork time. High job stressors constitute a likely reason for staying online. When facing high job stressors, particularly high job demands, people may feel that they need to spend more time and effort on work, resulting in an escalation of commitment (Staw, 1981). Accordingly, it is more likely that people in stressful jobs continue to work beyond formal work hours (Braukmann et al., 2018) and that they also turn to their mobile devices to get some additional work done (Barber & Santuzzi, 2015; Gadeyne, Verbruggen, Delanoeije, & De Cooman, 2018). Similarly, also in job situations characterized by high uncertainty, employees may check their smartphones at a higher rate. Thus, using mobile devices during nonwork time and continuing working constitutes a behavioral pathway that links high job stressors with low psychological detachment from work and poor sleep.

Explanations referring to third variables

In addition to negative activation, depletion of energetic resources, and constant connectivity that constitute a possible link between job stressors and failure to take advantage of recovery-enhancing processes, the recovery paradox might be also explained by organizational and individual factors as common causes of both high job stressors and lack of recovery.

[1] I am grateful to Barry Staw for suggesting to explicitly address the changing nature of work and constant connectivity.

With respect to organizational factors, organizational climate may play a role. For instance, organizational climate emphasizing productivity and high efficiency (i.e., pressure to produce; Patterson et al., 2005) while neglecting employee welfare focuses on performance outcomes at the expense of employee health and well-being. In such a climate, job stressors will be high and no attention will be devoted to processes that could enable recovery. Because of the high performance pressure, employees will continue thinking about work during nonwork time, will not allocate time on physical exercise, and their sleep quality may suffer.

In addition, stable individual-difference factors may also explain why recovery processes are impaired – although (perceived) job stressors are high. For instance, persons high on neuroticism or trait negative affectivity will perceive high levels of job stressors (Spector & O'Connell, 1994) and at the same time will find it difficult to recover well from work (Hintsanen et al., 2014; Moreno-Jiménez, Rodrígez-Munoz, Pastor, Sanz-Vergel, & Garrosa, 2009). This interpretation implies that being high on neuroticism or trait negative affectivity would be the common cause of both perceived job stressors and poor recovery processes.

Furthermore, individual states experienced on specific days or during specific weeks may be a reason that lack of recovery occurs in conjunction with high job stressors. For instance, when "waking up on the wrong . . . side of the bed" (Rothbard & Wilk, 2011, p. 959) and being in a more negative mood than usual, a person might perceive a higher level of job stressors, might feel less capable in dealing with the stressors, and might even end up stimulating interpersonal conflicts. Negative mood may impair recovery-enhancing processes as well, particularly psychological detachment from work and sleep. Accordingly, negative mood might be a third variable underlying the association between high job stressors and impaired recovery.

Boundary conditions of the recovery paradox

Not everyone will experience the recovery paradox to the same degree. People who do not react to job stressors with high negative activation (i.e., high state negative affect), high depletion or increased technological connectivity to work, will be less likely to face the recovery paradox. As described above, negative activation (i.e., high state negative affect) is an important linking mechanism between the experience of job stressors and a reduced likelihood of recovery processes, particularly psychological detachment from work and sleep. Of course, not everyone reacts to job stressors in the same way. Individual and job factors moderate the association between job stressors and affective reactions to these stressors. With respect to individual factors, trait neuroticism and trait negative affectivity appear to be important. Generally, persons high on neuroticism and trait negative affectivity focus more on negative stimuli (Hampson, 2012; Watson & Clark, 1984), have a more negative perspective on their jobs (Kammeyer-Mueller et al., 2013), respond more negatively to job stressors and other negative events (Parkes, 1990; Zautra, Affleck, Tennen, Reich, & Davis, 2005), and tend to engage more in rumination (Muris, Roelofs, Rassin, Franken, & Mayer, 2005). Accordingly, persons high in neuroticism and high trait negative affectivity react more strongly to job stressors with high negative activation that makes it particularly difficult for them to detach from work and to sleep well. In contrast, persons low on neuroticism (i.e., persons high on emotional stability), are less likely to be affected by job stressors (Kammeyer-Mueller, Judge, & Scott, 2009), making it easier for them to initiate and maintain processes that enhance recovery. Thus, the recovery paradox may be most obvious for persons high on neuroticism and trait negative affectivity while persons low on neuroticism and high on positive affectivity will be more able to avoid it because they will be more able to initiate and maintain processes that enhance recovery – even when facing a high degree of stressors at work.

In addition to such individual factors, job factors are also assumed to moderate the association between job stressors and negative activation. Particular aspects within the work situation such as job control should facilitate coping with high stressors (e.g., Karasek, 1979), helping to prevent people from reacting to job stressors with high negative activation, and thereby enabling recovery processes (Park & Kim, 2018).

Depletion of energetic resources is a second important linking mechanism between the experience of job stressors and a reduced likelihood of recovery processes. People who are less likely to react to job stressors with depletion of energetic resources should be less negatively affected by high job stressors. Thus, while people with high chronic exhaustion levels are prone to respond strongly to work demands (Bakker & Costa, 2014; Trougakos, Beal, Cheng, Hideg, & Zweig, 2015), people with a high level of energetic resources may encounter job stressors without becoming easily depleted. They will be able to benefit from leisure-time activities that are both demanding and effective (e.g., physical exercise). In addition, a person's implicit theory of being able to exert self-control (Job, Dweck, & Walton, 2010) may counteract the link between high job stressors and depletion of energetic resources. Moreover, job factors that reduce the self-control burden at work (e.g., a climate of authenticity; Grandey, Foo, Groth, & Goodwin, 2012) could work against the depletion of energetic resources when confronting high job stressors.

Finally, staying technologically connected to work during nonwork hours is a third mechanism that links high job stressors to poor recovery. Individual and organizational factors that reduce constant connectivity and that alleviate its negative impact point to further boundary conditions of the recovery paradox. Individual preferences to segment versus integrate various life domains (Ashforth, Kreiner, & Fugate, 2000) can play an important role here. Empirical studies have shown that job-related electronic communications during after-work hours is more strongly related to negative outcomes for people who prefer to segment work and nonwork life than it is for people who prefer to integrate these two life domains (Butts, Becker, & Boswell, 2015). With respect to organizational factors, norms and expectations to stay technologically connected to work during after-work hours are important. Research demonstrated that the outcomes of constant connectivity are most detrimental when organizational connectivity expectations are high (Derks, van Duin, Tims, & Bakker, 2015) – particularly when individual integration preferences are low (Gadeyne et al., 2018). Taken together, the behavioral mechanism of staying technologically connected to work during nonwork time should threaten recovery most for people with high segmentation preferences and people facing high organizational integration norms and expectations. For them, the recovery paradox will be most pronounced. People, however, who prefer to integrate work and nonwork life and who face only weak norms and expectations to stay connected may be less negatively affected by constant connectivity, and may be better able to recover even when reacting to job stressors with job-related technology use during after-work hours. Accordingly, the recovery paradox may be less evident for them.

Directions for future research

In this article, I reviewed organizational research on job stress and recovery, arguing that job stressors and recovery-enhancing processes are linked in a paradoxical way. This review suggests several areas of future research. First of all, future research should address the recovery paradox in greater detail. Moreover, we need

a deeper understanding of the complexities underlying the basic processes related to job stressors, recovery, and well-being. Accordingly, I discuss how to further develop research on the recovery paradox and how to move forward research on job stress.

Examining the recovery paradox more fully

The concept of the recovery paradox points to the complex interdependency between job stressors, recovery, and well-being. Although there is broad empirical evidence for specific components of the recovery paradox and its underlying mechanisms, the interplay between the specific components and mechanisms still awaits empirical test. Future studies might want to start by examining the proposed underlying mechanisms (negative activation, depletion of energetic resources, constant connectivity) as responses to a broad set of job stressors and as antecedents of poor recovery processes. It will be important to examine the relative strength of the three proposed mediating processes and to consider possible mutually amplifying effects of negative activation, depletion of energetic resources, and constant connectivity.

It will also important to put more emphasis on studying the time frame during which the recovery paradox unfolds. The review of existing empirical research suggests that the negative relationship between job stressors seems to occur both on a day-to-day basis and over longer periods of time. The specific stressors that potentially hinder recovery, however, differ between the short-term and the long-term perspective, with quantitative demands being more detrimental in the long run, whereas hindrance and interpersonal stressors seem to undermine recovery at the day level.

Future research should also address the question of what organizations and individuals can do to sidestep the recovery paradox and to foster recovery processes, even when job stressors are high. There are at least two starting points., the first focusing on processes happening at work and the second targeting processes after work is over. With respect to the first point, research should address methods that help minimize negative reactions such as negative activation and depletion of energetic resources that are typical responses to high stressors. For instance, there is increasing evidence about the benefit of a mindful approach to work (Good et al., 2016). Being mindful would help to reduce negative activation as a reaction to job stressors (Fisher, Kerr, & Cunningham, in press). Accordingly, future studies might want to examine if a reduction of negative activation during work can explain the benefits of mindfulness practice for recovery (Hülsheger et al., 2014). Moreover, taking short breaks during the workday counteracts the depletion of energetic resources (Fritz, Lam, & Spreitzer, 2011; Zacher, Brailsford, & Parker, 2014). Thus depletion levels at the end of the workday should be lower (Trougakos, Hideg, Cheng, & Beal, 2014), even when having faced a high level of job stressors during the day. Future research should test if breaks during the workday help to maintain a certain energy level so that recovery-enhancing processes after work – particularly physical exercise – are facilitated.

A second starting point for circumventing the recovery paradox may be the initiation of promising recovery-enhancing processes, even when negative reactions to job stressors already have occurred; that is, when negative activation or depletion of energetic resources are high. Research should examine if specific recovery habits may help in starting recovery processes even under unfavorable affective and energetic circumstances. Although the development of new habits can be difficult (Carden & Wood, 2018), it might prove helpful in overcoming the recovery paradox. Insights from research on exercise habits (Rebar, Elavsky, Maher, Doerksen, & Conroy, 2014) and recovery interventions (Ebert et al., 2015) could be used to test if specific habits help to interrupt the link between high job stressors and lack of recovery-enhancing processes.

Addressing interdependencies among various job stressors

Organizational research on job stress has spent a lot of effort on categorizing various types of job stressors (Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Katz & Kahn, 1978) and in examining how these various types of job stressors are related to well-being outcomes. As described above, the various types of stressors show unique cross-sectional patterns with well-being indicators. Moreover, day-level research showed that various job stressors differ in their ability to elicit positive affective states (Sonnentag, 2015). Interestingly, research has paid very little attention to the possibility that various job stressors interact in their prediction of well-being outcomes (for a notable exception, see van Woerkom, Bakker, & Nishii, 2016). While models of job stress have focused on the role of job resources and rewards as possible moderators of the effect of job stressors on strains (Bakker, Demerouti, & Sanz-Vergel, 2014; Karasek, 1979; Siegrist, 1996), possible amplifying effects of job stressors have been neglected in organizational research. For instance, one could argue that hindrance stressors (such as interruptions) are particularly harmful under conditions of high time pressure and workload. Future empirical studies that address such interaction effects should be open to the possibility that the interaction pattern is not a linear one, but that more complex curvilinear patterns occur and that the outcomes may not only change in quantity, but also in qualitative terms. For instance, if a combination of high job stressors moves above and beyond a specific threshold, high strain levels may not be reflected any longer in low levels of subjective well-being or absenteeism, but in an increased likelihood of turnover or premature retirement.

Addressing interdependencies among various recovery-enhancing processes

Similar to research on job stressors, most studies on recovery have examined the various recovery-enhancing processes in isolation. Psychological detachment from work, physical exercise, and sleep, however, most probably are not fully independent from one another. For instance, physical exercise might help in psychologically detaching from work (Feuerhahn et al., 2014), and psychological detachment from work might facilitate good sleep (Hülsheger et al., 2014). In addition, psychological detachment from work, physical exercise, and sleep might interact in predicting well-being, either in a compensatory or an enhancing way. For instance, a recent study suggests that physical exercise during the weekend is associated with a decrease in negative affect only when people psychologically detach from work during the weekend or when they sleep well (Cho & Park, in press). Moreover, research has started to look at recovery profiles (Bennett, Gabriel, Calderwood, Dahling, & Trougakos, 2016) – so far focusing on various combinations of psychological recovery experiences. This research should be extended by examining recovery profiles that combine psychological detachment from work, physical exercise, and sleep.

Investigating the link between short-term and long-term processes

Most organizational stress research discusses short-term and long-term processes in isolation. A very important question for future organizational research, however, refers to the question of how short-term (i.e., acute) processes translate into longer-term (i.e., chronic) outcomes. The broader stress literature suggests that over time, stressors “pile up” (Smyth et al., 2018) and increase the vulnerability of future stressors, particularly when experiencing

anticipatory physiological or affective responses before the onset of the actual stressor, when recovery is incomplete, and when no habituation to repeated stressors has occurred (Epel et al., 2018). It will be a highly interesting challenge for organizational researchers to conceptualize and empirically test how short-term reactions to job stressors become relevant to coping with more chronic stressors. The use of measurement-burst designs (Sliwinski, 2008) that allow one to examine how within-person reaction patterns to day-specific stressors (i.e., slopes in multi-level regression models) predict strain outcomes several months or years later could be a promising methodological approach that combines a short-term with a more longer-term time perspective. In addition, organizational research should pay more attention to how chronic job stressors influence short-term reactions to day-specific job stressors (Chida & Hamer, 2008).

Taking reverse causation and reciprocal processes seriously

Research on job stress has focused on job stressors as predictors of strain and poor well-being – a research perspective that is deeply rooted in the conceptualization of stressors as "external conditions or events (stimuli) that evoke responses indicative of stress" (Kahn & Byosiere, 1992, p. 575). Similarly, most recovery studies have examined recovery-enhancing processes as predictors of reduced strain and good well-being. Within this logic of stressors and recovery, well-designed studies have also examined reverse causation – mainly with the intention of ruling out the possibility that well-being has an impact on subsequent job stressors or recovery processes. With respect to job stressors, meta-analyses based on longitudinal studies have presented evidence for reverse causation (Ford et al., 2014; Nielsen & Einarsen, 2012). With respect to studies on recovery, reverse causation has been addressed very rarely. Studies that did address reverse causation resulted in mixed findings (Sonnentag et al., 2014; Sonnentag, Binnewies et al., 2010). As these studies controlled for the baseline level of the outcome variables, and for trait negative affectivity or emotional stability, it is unlikely that common method variance can explain the inconsistent findings. Possibly, individual and organizational factors as well as different time frames play a role here.

Although the causal pathway from job stressors and recovery-enhancing processes to well-being is more consistent with dominant theories on job stress and recovery, organizational research on job stress may gain from taking the reverse causal process seriously, so as to develop a better understanding of how job stressors and recovery on the one hand and well-being on the other hand mutually influence each other. The broader psychological and organizational literatures suggest that subjective well-being has important implications for cognitions, affect, and behavior (Lyubomirsky, King, & Diener, 2005; Tenney et al., 2016). For instance, Bakker and Costa (2014) have similarly described how chronic exhaustion as a typical indicator of poor well-being may impact on-the-job experiences and behavior. Therefore, we need to extend organizational theories on job stressors and recovery, and strive to explain how well-being potentially influences selection into specific jobs, building resilience within specific jobs, as well as attrition from specific jobs. Similarly, we need to develop a better understanding of how well-being may shape a person's recovery process – without denying that the stressors in specific jobs and lack of adequate recovery can undermine individual well-being.

Conclusion

Although everyday recovery is definitely needed when facing high job stressors, the likelihood of actually detaching from work during nonwork time, engaging in physical exercise, and sleeping well is reduced in situations characterized by a high level of job stressors. Therefore, individuals and organizations need to pay particular attention to recovery-enhancing processes when stressor levels are high. However, supporting recovery is always only the second-best option. Given the strong empirical evidence that recovery-enhancing processes are impaired when stressors are high, it is crucial to keep job stressors within certain limits and to support employees to adequately cope with these job stressors (Richardson & Rothstein, 2008; Tetrick & Winslow, 2015).

Appendix

Table A1
Findings from meta-analyses on job demands and well-being.

Study	Job stressor	Well-being outcome	*k*	*N*	*r*	rho
Alcaron (2011)	Workload	Emotional exhaustion	86	51,529	.40	.49
Alcaron (2011)	Workload	Cynicism	58	39,786	.24	.31
Bowling, Alcaron, Bragg, and Hartman (2015)	Workload	Mental well-being	24	37,130	−.25	−.30
Bowling, Alcaron, Bragg, and Hartman (2015)	Workload	Strain	29	17,960	.27	.36
Bowling, Alcaron, Bragg, and Hartman (2015)	Workload	Depression	27	19,962	.17	.22
Bowling, Alcaron, Bragg, and Hartman (2015)	Workload	Distress	41	32,554	.21	.26
Bowling, Alcaron, Bragg, and Hartman (2015)	Workload	Fatigue	12	17,397	.10	.30
Bowling, Alcaron, Bragg, and Hartman (2015)	Workload	Emotional exhaustion	53	48,723	.38	.47
Bowling, Alcaron, Bragg, and Hartman (2015)	Workload	Depersonalization	28	18,914	.25	.33
Bowling, Alcaron, Bragg, and Hartman (2015)	Workload	Global health	10	5717	−.23	−.27
Bowling, Alcaron, Bragg, and Hartman (2015)	Workload	Physical symptoms	50	51,651	.24	.30
Crawford, LePine, and Rich (2010)	Challenge demands	Burnout	18	9794	.14	.16
Fila, Purl, and Griffeth (2017)	Demands (broad category)	Emotional exhaustion	60	63,099	.40	.51
Lang, Ochsmann, Kraus, and Lang (2012)	Demands (broad category)	Lower back pain	16	47,447	1.32 (OR)	1.42 (OR)
Lang, Ochsmann, Kraus, and Lang (2012)	Demands (broad category)	Neck and/or shoulder symptoms	28	43,030	1.17 (OR)	1.17 (OR)
Lang, Ochsmann, Kraus, and Lang (2012)	Highly monotonous work	Neck and/or shoulder symptoms	12	6273	1.22 (OR)	1.30 (OR)
Nahrgang, Morgeson, and Hofmann (2011)	Physical demands	Burnout	11	4890	.01	.01
Nixon, Mazzola, Bauer, Krueger, and Spector (2011)	Work hours	Physical symptoms	39	11,354	.09	–
Nixon, Mazzola, Bauer, Krueger, and Spector (2011)	Workload	Physical symptoms	92	36,610	.22	–
Ng and Feldman (2008)	Long work hours	Mental strain	38	21,280	–	.06
Ng and Feldman (2008)	Long work hours	Physical health problems	29	16,367	–	.00
Podsakoff, LePine, and LePine (2007)	Challenge stressors	Strain	25	7440	.33	.40

Note: table includes only meta-analyses with at least 10 effect sizes from primary studies. *k* = number of effect sizes. *N* = overall sample size. r = observed correlation. rho = correlation corrected for artefacts. OR = odds ratio.

Table A2
Findings from meta-analyses on hindrances and well-being.

Study	Job stressor	Well-being outcome	*k*	*N*	*r*	rho
Alcaron (2011)	Role ambiguity	Emotional exhaustion	51	22,145	.26	.32
Alcaron (2011)	Role ambiguity	Cynicism	37	16,616	.24	.31
Alcaron (2011)	Role conflict	Emotional exhaustion	37	13,568	.42	.53
Alcaron (2011)	Role conflict	Cynicism	29	10,178	.29	.40
Crawford, LePine, and Rich (2010)	Hindrance demands	Burnout	15	9439	.24	.30
Cheng and Chan (2008)	Job insecurity	Psychological health	77	72,339	−.20	−.28
Cheng and Chan (2008)	Job insecurity	Physical health	44	56,934	−.16	−.23
Harari, Manapragada, and Viswesvaran (2017)	Perceived overqualification	Psychological well-being	16	4129	−.23	−.26
Jiang and Lavaysse (2018)	Job insecurity	Burnout	21	22,840	.20	.24
Jiang and Lavaysse (2018)	Job insecurity	Emotional exhaustion	65	50,308	.26	.30
Jiang and Lavaysse (2018)	Job insecurity	Cynicism/depersonalization	28	17,964	.37	.45
Jiang and Lavaysse (2018)	Job insecurity	Strain	64	45,467	.21	.24
Jiang and Lavaysse (2018)	Job insecurity	General health	35	35,589	−.15	−.19
Jiang and Lavaysse (2018)	Job insecurity	Psychological health	86	67,119	−.24	−.30
Jiang and Lavaysse (2018)	Job insecurity	Physical health	101	91,563	−.18	−.23
Jiang and Lavaysse (2018)	Job insecurity	Depression	27	22,077	.25	.30
Lee and Ashforth (1996)	Role conflict	Emotional exhaustion	11	2824	.42	.53
Lee and Ashforth (1996)	Role conflict	Depersonalisation	11	2824	.27	.37
Nixon, Mazzola, Bauer, Krueger, and Spector (2011)	Organizational constraints	Physical symptoms	34	8212	.33	–
Nixon, Mazzola, Bauer, Krueger, and Spector (2011)	Role ambiguity	Physical symptoms	33	13,556	.15	–
Nixon, Mazzola, Bauer, Krueger, and Spector (2011)	Role conflict	Physical symptoms	26	4880	.27	–
Pindek and Spector (2016)	Organizational constraints	Physical symptoms	42	10,321	.33	–
Podsakoff, LePine, and LePine (2007)	Hindrance stressors	Strain	56	12,454	.41	.56
Schmidt, Roesler, Kusserow, and Rau (2014)	Role ambiguity	Depression	27	13,703	.28	–
Schmidt, Roesler, Kusserow, and Rau (2014)	Role conflict	Depression	20	10,538	.29	–
Sverke, Hellgren, and Näswall (2002)	Job insecurity	Physical health	19	9704	−.12	−.16
Sverke, Hellgren, and Näswall (2002)	Job insecurity	Mental health	37	14,888	−.19	−.24

Note: table includes only meta-analyses with at least 10 effect sizes from primary studies. *k* = number of effect sizes. *N* = overall sample size. r = observed correlation. rho = correlation corrected for artefacts. OR = odds ratio.

Table A3
Findings from meta-analyses on interpersonal stressors and well-being.

Study	Job stressor	Well-being outcome	*k*	*N*	*r*	rho
Dhanani, Beus, and Joseph (2018)	Workplace discrimination	Mental health	30	42,819	–	−.29
Dhanani, Beus, and Joseph (2018)	Workplace discrimination	Physical health	21	39,511	–	−.19
Herschcovis and Barling (2010)	Supervisor aggression	Physical well-being	12	5455	−.15	−.20
Herschcovis and Barling (2010)	Coworker aggression	Physical well-being	11	3131	−.20	−.24
Herschcovis and Barling (2010)	Outsider aggression	Physical well-being	14	4657	−.17	−.19
Herschcovis and Barling (2010)	Outsider aggression	Psychological distress (recoded)	12	4603	−.19	−.22
Herschcovis and Barling (2010)	Outsider aggression	Emotional exhaustion	13	3066	.31	.36
Jones, Peddie, Gilrane, King, and Gray (2016)	Discrimination	Adverse physical health	11	14,637	.13	.16
Jones, Peddie, Gilrane, King, and Gray (2016)	Discrimination	Adverse psychological health	32	17,498	.25	.30
Montano, Reeske, Franke, and Hüffmeier (2017)	Destructive leadership	Affective symptoms	19	10,257	.25	.29
Montano, Reeske, Franke, and Hüffmeier (2017)	Destructive leadership	Burnout	16	8181	.31	.36
Montano, Reeske, Franke, and Hüffmeier (2017)	Destructive leadership	Stress	15	6440	.27	.32
Nielsen and Einarsen (2012)	Workplace bullying	Mental health problems	33	30,785	.34	–
Nielsen and Einarsen (2012)	Workplace bullying	Anxiety (= subcategory of mental health problems)	12	7863	.27	–
Nielsen and Einarsen (2012)	Workplace bullying	Depression (= subcategory of mental health problems)	17	17,196	.34	–
Nielsen and Einarsen (2012)	Workplace bullying	Somatization	11	11,733	.28	–
Nielsen and Einarsen (2012)	Workplace bullying	Physical health problems	11	34,941	.23	–
Nielsen and Einarsen (2012)	Workplace bullying	Burnout	10	4914	.27	–
Nixon, Mazzola, Bauer, Krueger, and Spector (2011)	Interpersonal conflict	Physical symptoms	25	10,215	.22	–
Schyns and Schilling (2013)	Destructive leadership	Stress	24	12,093	.24	–
Sojo, Wood, and Genat (2016)	Work harassment	Mental health	10	–	−.37	–
Sojo, Wood, and Genat (2016)	Sexual harassment	General health	18	–	−.23	–
Sojo, Wood, and Genat (2016)	Sexual harassment	Physical health	13	–	−.17	–
Sojo, Wood, and Genat (2016)	Sexual harassment	Mental health	36	–	−.27	–

Note: table includes only meta-analyses with at least 10 effect sizes from primary studies. *k* = number of effect sizes. *N* = overall sample size. r = observed correlation. rho = correlation corrected for artefacts.

References

Armon, G., Shirom, A., Shapira, I., & Melamed, S. (2008). On the nature of burnout-insomnia relationships: A prospective study of employed adults. *Journal of Psychosomatic Research, 65*, 5–12. http://dx.doi.org/10.1016/j.jpsychores.2008.01.012.

Ashforth, B. E., Kreiner, G. E., & Fugate, M. (2000). All in a day's work: Boundaries and micro role transitions. *Academy of Management Review, 25*, 472–491. http://dx.doi.org/10.5465/AMR.2000.3363315.

Baglioni, C., Battagliese, G., Feige, B., Spiegelhalder, K., Nissen, C., Voderholzer, U., . . . Riemann, D. (2011). Insomnia as a predictor of depression: A meta-analytic evaluation of longitudinal epidemiological studies. *Journal of Affective Disorders, 135*, 10–19.

Bakker, A. B., & Costa, P. L. (2014). Chronic job burnout and dialy functioning: A theoretical analysis. *Burnout Research, 1*, 112–119. http://dx.doi.org/10.1016/j.burn.2014.04.003.

Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. I. (2014). Burnout and work engagement: The JD-R approach. *Annual Review of Organizational Psychology and*

Organizational Behavior, *1*, 389–411. http://dx.doi.org/10.1146/annurev-orgpsych-031413-091235.
Barber, L. K., & Santuzzi, A. M. (2015). Please respond ASAP: Workplace telepressure and employee recovery. *Journal of Occupational Health Psychology*, *20*, 172–189. http://dx.doi.org/10.1037/a0038278.
Barnes, C. M. (2012). Working in our sleep: Sleep and self-regulation in organizations. *Organizational Psychology Review*, *2*, 234–257. http://dx.doi.org/10.1177/2041386612450181.
Bennett, A. A., Bakker, A. B., & Field, J. G. (2018). Recovery from work-related effort: A meta-analysis. *Journal of Organizational Behavior*, *39*, 262–275. http://dx.doi.org/10.1002/job.2217.
Bennett, A. A., Gabriel, A. S., Calderwood, C., Dahling, J. J., & Trougakos, J. P. (2016). Better together? Examining profiles of employee recovery experiences. *Journal of Applied Psychology*, *101*, 1635–1654. http://dx.doi.org/10.1037/apl0000157.
Biddle, S. J. H., & Mutrie, N. (2008). *Psychology of physical activity: Determinants, well-being and interventions*. New York, NY: Routledge.
Bliese, P. D., Edwards, J. R., & Sonnentag, S. (2017). Stress and well-being at work: A century of empirical trends reflecting theoretical and societal influences. *Journal of Applied Psychology*, *102*, 389–402. http://dx.doi.org/10.1037/apl0000109.
Bono, J. E., Glomb, T. M., Shen, W., Kim, E., & Koch, A. J. (2013). Building positive resources: Effects of positive events and positive reflection on work-stress and health. *Academy of Management Journal*, *56*, 1601–1627. http://dx.doi.org/10.5465/amj.2011.0272.
Borbély, A. A., Daan, S., Wirz-Justice, A., & Deboer, T. (2016). The two-process model of sleep regulation: A reappraisal. *Journal of Sleep Research*, *25*, 131–143. http://dx.doi.org/10.1111/jsr.12371.
Bower, G. H. (1981). Mood and memory. *American Psychologist*, *36*, 129–148. http://dx.doi.org/10.1037/0003-066X.36.2.129.
Braukmann, J., Schmitt, A., Ďuranová, L., & Ohly, S. (2018). Identifying ICT-related affective events across life domains and examining their unique relationships with employee recovery. *Journal of Business and Psychology*, *33*, 529–544. http://dx.doi.org/10.1007/s10869-017-9508-7.
Brief, A. P., Burke, M. J., George, J. M., Robinson, B. S., & Webster, J. (1988). Should negative affectivity remain an unmeasured variable in the study of job stress? *Journal of Applied Psychology*, *73*, 193–198. http://dx.doi.org/10.1037/0021-9010.73.2.193.
Brisette, I., & Cohen, S. (2002). The contribution of individual differences in hostility to the associations between daily interpersonal conflict, affect, and sleep. *Personality and Social Psychology Bulletin*, *28*, 1265–1274. http://dx.doi.org/10.1177/01461672022812011.
Brown, R., Duck, J., & Jimmieson, N. (2014). E-mail in the workplace: The role of stress appraisals and normative response pressure in the relationship between E-mail stressors and employee strain. *International Journal of Stress Management*, *21*, 325–347. http://dx.doi.org/10.1037/a0037464.
Burke, M. J., Brief, A. P., & George, J. M. (1993). The role of negative affectivity in understanding relations between self-reports of stressors and strains: A comment on the applied psychology literature. *Journal of Applied Psychology*, *78*, 402–412. http://dx.doi.org/10.1037/0021-9010.78.3.402.
Butts, M. M., Becker, W. J., & Boswell, W. R. (2015). Hot buttons and time sinks: The effects of electronic communication during nonwork time on emotions and work-nonwork conflict. *Academy of Management Journal*, *58*, 763–788. http://dx.doi.org/10.5465/amj.2014.0170.
Carden, L., & Wood, W. (2018). Habit formation and change. *Current Opinion in Behavioral Sciences*, *20*, 117–122. http://dx.doi.org/10.1016/j.cobeha.2017.12.009.
Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among U.S. managers. *Journal of Applied Psychology*, *85*, 65–74. http://dx.doi.org/10.1037//0021-9C10.85.1.65.
Chen, P. Y., & Spector, P. E. (1991). Negative affectivity as the underlying cause of correlations between stressors and strains. *Journal of Applied Psychology*, *76*, 398. http://dx.doi.org/10.1037/0021-9010.76.3.398.
Chida, Y., & Hamer, M. (2008). Chronic psychosocial factors and acute physiological responses to laboratory-induced stress in healthy populations: A quantitative review of 30 years of investigations. *Psychological Bulletin*, *134*, 829–885. http://dx.doi.org/10.1037/a0013342.
Cho, S., & Park, Y. (in press). How to benefit from weekend physical activities: Moderating roles of psychological recovery experiences and sleep. *Stress and Health*. doi:10.1002/smi.2831.
Christian, M. S., & Ellis, A. P. J. (2011). Examining the effects of sleep deprivation on workplace deviance: A self-regulatory perspective. *Academy of Management Journal*, *54*, 913–934. http://dx.doi.org/10.5465/amj.2010.0179.
Conn, V. S. (2010a). Anxiety outcomes after physical activity interventions: Meta-analysis findings. *Nursing Research*, *59*, 224–231. http://dx.doi.org/10.1097/NNR.0b013e3181dbb2f8.
Conn, V. S. (2010b). Depressive symptom outcomes of phyisical activity interventions: Meta-analysis findings. *Annals of Behavioral Medicine*, *39*, 128–138. http://dx.doi.org/10.1007/s12160-010-9172-x.
Craig, A., & Cooper, R. E. (1992). Symptoms of acute and chronic fatigue. In A. P. Smith, & D. M. Jones (Eds.), *Handbook of human performance:* (Vol. 3. pp. 289–339).*Handbook of human performance*, London: Academic Press, 289–339.
Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology*, *95*, 834–848. http://dx.doi.org/10.1037/a0019364.
de Vries, J. D., Claessens, B. J. C., van Hooff, M. L. M., Geurts, S. A. E., van den Bossche, S. N. J., & Kompier, M. A. J. (2016). Disentangling longitudinal relations between physical activitiy, work-related fatigue, and task demands. *International Archives of Occupational and Environmental Health*, *89*, 89–101. http://dx.doi.org/10.1007/s00420-015-1054-x.
Debrot, A., Siegler, S., Klumb, P. L., & Schoebi, D. (2018). Daily work stress and relationship satisfaction: Detachment affects romantic couples' interactions quality. *Journal of Happiness Studies*, *88*, 2283–2301. http://dx.doi.org/10.1007/s10902-017-9922-6.
Demsky, C. A., Fritz, C., Hammer, L. B., & Black, A. E. (2018). Workplace incivility and employee sleep: The role of rumination and recovery experiences. *Journal of Occupational Health Psychology*. http://dx.doi.org/10.1037/ocp0000116.
Derks, D., van Duin, D., Tims, M., & Bakker, A. B. (2015). Smartphone use and work-home interference: The moderating role of social norms and employee work engagement. *Journal of Occupational and Organizational Psychology*, *88*, 155–177. http://dx.doi.org/10.1111/joop.12083.
Derks, D., van Mierlo, H., & Schmitz, E. B. (2014). A diary study on work-related smartphone use, psychological detachment and exhaustion: Examining the role of the perceived segmentation norm. *Journal of Occupational Health Psychology*, *19*, 74–84. http://dx.doi.org/10.1037/a0035076.
Dettmers, J. (2017). How extended work availability affects well-being: The mediating roles of psychological detachment and work-family-conflict. *Work & Stress*, *31*, 24–41. http://dx.doi.org/10.1080/02678373.2017.1298164.
Diamond, A. (2013). Executive functions. *Annual Review of Psychology*, *64*, 135–168. http://dx.doi.org/10.1146/annurev-psych-113011-143750.
Dicke, T., Stebner, F., Linninger, C., Kunter, M., & Leutner, D. (2018). A longitudinal study of teachers' occupational well-being: Applying the job demands-resources model. *Journal of Occupational Health Psychology*, *23*, 262–277. http://dx.doi.org/10.1037/ocp0000070.
Dunton, G. F., Atienza, A. A., Castro, C. M., & King, A. C. (2009). Using ecological momentary assessment to examine antecedents and correlates of physical activity bouts in adults age 50+ years: A pilot study. *Annals of Behavioral Medicine*, *38*, 249–255. http://dx.doi.org/10.1007/s12160-009-9141-4.
Ebert, D. D., Berking, M., Thiart, H., Riper, H., Laferton, J. A. C., Cuijpers, P., . . . Lehr, D. (2015). Restoring depleted resources: Efficacy and mechanisms of change of an Internet-based unguided recovery training for better sleep and psychological detachment from work. *Health Psychology*, *34*, 1240–1251. http://dx.doi.org/10.1037/hea0000277.
Elkington, T. J., Cassar, S., Nelson, A. R., & Levinger, I. (2017). Psychological responses to acute aerobic, resistance, or combined exercise in healthy and overweight individuals: A systematic review. *Clinical Medicine Insights: Cardiology*, *11*, 1–23. http://dx.doi.org/10.1177/1179546817701725.
Epel, E. S., Crosswell, A. D., Mayer, S. E., Prather, A. A., Slavich, G. M., Puterman, E., & Mendes, W. B. (2018). More than a feeling: A unified view of stress measurement for population science. *Frontiers in Neuroendocrinology*, *49*, 146–169. http://dx.doi.org/10.1016/j.yfrne.2018.03.001.
Etzion, D., Eden, D., & Lapidot, Y. (1998). Relief from job stressors and burnout: Reserve service as a respite. *Journal of Applied Psychology*, *83*, 577–585. http://dx.doi.org/10.1037/0021-9010.83.4.577.
Feuerhahn, N., Sonnentag, S., & Woll, A. (2014). Exercise after work, psychological mediators, and affect: A day-level study. *European Journal of Work and Organizational Psychology*, *23*, 62–79. http://dx.doi.org/10.1080/1359432X.2012.709965.
Ferguson, M., Carlson, D., Boswell, W., Whitten, D., Butts, M. M., & Kacmar, K. M. (2016). Tethered to work: A family systems approach linking mobile device use to turnover intentions. *Journal of Applied Psychology*, *101*, 520–534. http://dx.doi.org/10.1037/apl0000075.
Fisher, D. M., Kerr, A. J., & Cunningham, S. (in press). Examining the moderating effect of mindfulness on the relationship between job stressors and strain outcomes. *International Journal of Stress Management*. doi:10.1037/str0000090.
Flaxman, P. E., Stride, C. B., Söderberg, M., Lloyd, J., Guenole, N., & Bond, F. W. (2018). Relationships between two dimensions of employee perfectionism, postwork cognitive processing, and work day functioning. *European Journal of Work and Organizational Psychology*, *27*, 56–69. http://dx.doi.org/10.1080/1359432X.2017.1391792.
Ford, M. T., Matthews, R. A., Wooldridge, J. D., Mishra, V., Kakar, U. M., & Strahan, S. R. (2014). How do occupational stressor–strain effects vary with time? A review and meta-analysis of the relevance of time lags in longitudinal studies. *Work & Stress*, *28*, 9–30. http://dx.doi.org/10.1080/02678373.2013.877096.
Fransson, E. I., Heikkilä, K., Nyberg, S. T., Zins, M., Westerlund, H., Westerholm, P., . . . Theorell, T. (2012). Job strain as a risk factor for leisure-time physical inactivity: An individual-participant meta-analysis of up to 170,000 men and women: The IPD-Work Consortium. *American Journal of Epidemiology*, *176*, 1078–1089. http://dx.doi.org/10.1093/aje/kws336.
Friese, M., Loschelder, D. D., Gieseler, K., Frankenbach, J., & Inzlicht, M. (in press). Is ego depletion real? An analysis of arguments. *Personality and Social Psychology Review*. doi:10.1177/1088868318762183.
Fritz, C., & Crain, T. L. (2016). Recovery from work and employee sleep. In J. Barling, C. M. Barnes, E. L. Carleton, & D. T. Wagner (Eds.), *Work and sleep: Research insights for the workplace* (pp. 55–76). New York: Oxford University Press.
Fritz, C., Lam, C. F., & Spreitzer, G. M. (2011). It's the little things that matter: An examination of knowledge workers' energy management. *Academy of Management Perspectives*, *23*(3), 28–39. http://dx.doi.org/10.5465/amp.25.3.zol28.
Fritz, C., Yankelevich, M., Zarubin, A., & Barger, P. (2010). Happy, healthy and productive: The role of detachment from work during nonwork time. *Journal of Applied Psychology*, *95*, 977–983. http://dx.doi.org/10.1037/a0019462.

Gadeyne, N., Verbruggen, M., Delanoeije, J., & De Cooman, R. (2018). All wired, all tired? Work-related ICT-use outside work hours and work-to-home conflict: The role of integration preference, integration norms and work demands. *Journal of Vocational Behavior*, *107*, 86–99. http://dx.doi.org/10.1016/j.jvb.2018.03.008.

Ganster, D. C., Crain, T. L., & Brossoit, R. M. (2018). Physiological measurement in the organizational sciences: A review and recommendations for future use. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*, 267–293. http://dx.doi.org/10.1146/annurev-orgpsych-032117-104613.

Ganster, D. C., & Rosen, C. C. (2013). Work stress and employee health: A multidisciplinary review. *Journal of Management*, *39*, 1085–1122. http://dx.doi.org/10.1177/0149206313475815.

Garrick, A., Mak, A. S., Cathcart, S., Winwood, P. C., Bakker, A. B., & Lushington, K. (2014). Psychosocial safety climate moderating the effects of daily job demands and recovery on fatigue and work engagement. *Journal of Occupational and Organizational Psychology*, *87*, 694–714. http://dx.doi.org/10.1111/joop.12069.

Garrosa-Hernández, E., Carmona-Cobo, I., Ladstätter, F., Blanco, L. M., & Cooper-Thomas, H. D. (2013). The relationships between family–work interaction, job-related exhaustion, detachment, and meaning in life: A day-level study of emotional well-being. *Journal of Work and Organizational Psychology*, *29*, 169–177. http://dx.doi.org/10.5093/tr2013a23.

Germeys, L., & De Gieter, S. (2018). A diary study on the role of psychological detachment in the spillover of self-control demands to employees' ego depletion and the crossover to their partner. *European Journal of Work and Organizational Psychology*, *27*, 140–152. http://dx.doi.org/10.1080/1359432X.2017.1417259.

Goldstein, A. N., & Walker, M. P. (2014). The role of sleep in emotional brain function. *Annual Review of Clinical Psychology*, *10*, 679–708. http://dx.doi.org/10.1146/annurev-clinpsy-032813-153716.

Good, D. J., Lyddy, C. J., Glomb, T. M., Bono, J. E., Brown, K. W., Duffy, M. K., . . . Lazar, S. W. (2016). Contemplating mindfulness at work: An integrative review. *Journal of Management*, *42*(1), 114–142. http://dx.doi.org/10.1177/0149206315617003.

Grandey, A., Foo, S. C., Groth, M., & Goodwin, R. E. (2012). Free to be you and me: A climate of authenticity alleviates burnout from emotional labor. *Journal of Occupational Health Psychology*, *17*, 1–14. http://dx.doi.org/10.1037/a0025102.

Greiner, B. A., & Krause, N. (2006). Observational stress factors and musculosketal disorders in urban transit operators. *Journal of Occupational Health Psychology*, *11*, 38–51. http://dx.doi.org/10.1037/1076-8998.11.1.38.

Griffin, M. A., & Clarke, S. (2011). Stress and well-being at work. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology* (Vol. 3: Maintaining, expanding, and contracting the organization, pp. 359–397). Washington, DC: American Psychological Association.

Hampson, S. E. (2012). Personality processes: Mechanisms by which personality traits "get outside the skin". *Annual Review of Rsychology*, *63*, 315–339. http://dx.doi.org/10.1146/annurev-psych-120710-100419.

Haun, V. C., Nübold, A., & Bauer, A. G. (2018). Being mindful at work and at home: Buffering effects in the stressor–detachment model. *Journal of Occupational and Organizational Psychology*, *91*, 385–410. http://dx.doi.org/10.1111/joop.12200.

Häusser, J. A., & Mojzisch, A. (2017). The physical activity-mediated Demand–Control (pamDC) model: Linking work characteristics, leisure time physical activity, and well-being. *Work & Stress*, *31*, 209–232. http://dx.doi.org/10.1080/02678373.2017.1303759.

Hintsanen, M., Puttonen, S., Smith, K., Törnroos, M., Jokela, M., Pulkki-Råback, L., . . . Keltikangas-Järvinen, L. (2014). Five-factor personality traits and sleep: Evidence from two population-based cohort studies. *Health Psychology*, *33*, 1214–1223. http://dx.doi.org/10.1037/hea0000105.

Hoppe, A. (2011). Psychosocial working conditions and well-being among immigrant and German low-wage workers. *Journal of Occupational Health Psychology*, *16*, 187–201. http://dx.doi.org/10.1037/a0021728.

Hülsheger, U., Lang, J. W. B., Depenbrock, F., Fehrmann, C., Zijlstra, F. R. J., & Alberts, H. J. E. M. (2014). The power of presence: The role of mindfulness at work for daily levels and change trajectories of psychological detachment and sleep quality. *Journal of Applied Psychology*, *99*, 1113–1128. http://dx.doi.org/10.1037/a0037702.

Inzlicht, M., & Schmeichel, B. J. (2012). What is ego depletion? Toward a mechanistic revision of the resource model of self-control. *Perspectives on Psychological Science*, *7*, 450–463. http://dx.doi.org/10.1177/1745691612454134.

Isoard-Gautheur, S., Scotto-di-Luzio, S., Ginoux, C., & Sarrazin, P. (2018). The relationships between off-job physical activity and vigor at work across time: Testing for reciprocity. *Mental Health and Physical Activity*, *14*, 47–51. http://dx.doi.org/10.1016/j.mhpa.2018.01.002.

Jansson-Fröjmark, M., & Lindblom, K. (2010). Is there a bidirectional link between insomnia and burnout? A prospective study in the Swedish workforce. *International Journal of Behavioral Medicine*, *17*, 306–313. http://dx.doi.org/10.1007/s12529-010-9107-8.

Jeckel, S., & Sudeck, G. (2017). Physical activity and affective well-being in everyday life. *Zeitschrift für Gesundheitspsychologie*, *24*, 130–144. http://dx.doi.org/10.1026/0943-8149/a000163.

Job, V., Dweck, C. S., & Walton, G. M. (2010). Ego depletion—Is it all in your head? Implicit theories about willpower affect self-regulation. *Psychological Science*, *21*, 1686–1693. http://dx.doi.org/10.1177/0956797610384745.

Jones, F., & Fletcher, B. (1996). Taking work home: A study of daily fluctuations in work stressors, effects on moods and impacts on marital partners. *Journal of Occupational and Organizational Psychology*, *69*, 89–106. http://dx.doi.org/10.1111/j.2044-8325.1996.tb00602.x.

Jones, F., O'Connor, D. B., Conner, M., McMillan, B., & Ferguson, E. (2007). Impact of daily mood, work hours, and iso-strain variables on self-reported health behaviors. *Journal of Applied Psychology*, *92*, 1731–1740. http://dx.doi.org/10.1037/0021-9010.92.6.1731.

Jones, M., Taylor, A., Liao, Y., Intille, S. S., & Dunton, G. F. (2017). Real-time subjective assessment of psychological stress: Associations with objectively-measured physical activity levels. *Psychology of Sport and Exercise*, *31*, 79–87. http://dx.doi.org/10.1016/j.psychsport.2017.03.013.

Judge, T. A., & Ilies, R. (2004). Affect and job satisfaction: A study of their relationship at work and at home. *Journal of Applied Psychology*, *89*, 661–673. http://dx.doi.org/10.1037/0021-9010.89.4.661.

Kabat-Farr, D., Cortina, L. M., & Marchiondo, L. A. (2018). The emotional aftermath of incivility: Anger, guilt, and the role of organizational commitment. *International Journal of Stress Management*, *25*, 109–128. http://dx.doi.org/10.1037/str0000045.

Kahn, R. L., & Byosiere, P. (1992). Stress in organizations, (2nd ed.) In M. D. Dunnette, & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology:* (Vol. 3. pp. 571–650).*Handbook of industrial and organizational psychology*, Palo Alto, CA: Consulting Psychologists Press, 571–650.

Kammeyer-Mueller, J. D., Judge, T. A., & Scott, B. A. (2009). The role of core self-evaluations in the coping process. *Journal of Applied Psychology*, *94*, 117–195. http://dx.doi.org/10.1037/a0013214.

Kammeyer-Mueller, J. D., Rubenstein, A. L., Long, D. M., Odio, M. A., Buckman, B. R., Zhang, Y., & Halvorsen-Ganepola, M. D. K. (2013). A meta-analytic structural model of dispositonal affectivity and emotional labor. *Personnel Psychology*, *66*, 47–90. http://dx.doi.org/10.1111/peps.12009.

Kanning, M. K., Ebner-Priemer, U. W., & Schlicht, W. M. (2013). How to investigate within-subject associations between physical activity and momentary affective states in everyday life: A position statement based on a literature overview. *Frontiers in Psychology*, *4*, 187. http://dx.doi.org/10.3389/fpsyg.2013.00187.

Karasek, R. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, *24*, 285–306. http://dx.doi.org/10.2307/2392498.

Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations*, (2nd ed.) New York: Wiley.

Kinnunen, U., & Feldt, T. (2013). Job characteristics, recovery experiences and occupational well-being: Testing cross-lagged relationships across 1 year. *Stress and Health*, *29*, 369–382. http://dx.doi.org/10.1002/smi.2483.

Konjarski, M., Murray, G., Lee, V. V., & Jackson, M. L. (2018). Reciprocal relationships between daily sleep and mood: A systematic review of naturalistic prospective studies. *Sleep Medicine Reviews*, *42*, 47–58. http://dx.doi.org/10.1016/j.smrv.2018.05.005.

Krueger, J. M., Frank, M. G., Wisor, J. P., & Roy, S. (2016). Sleep function: Toward elucidating an enigma. *Sleep Medicine Reviews*, *28*, 46–54. http://dx.doi.org/10.1016/j.smrv.2015.08.005.

Lanaj, K., Johnson, R. E., & Barnes, C. M. (2014). Beginning the workday yet already depleted? Consequences of late-night smartphone use and sleep. *Organizational Behavior and Human Decision Processes*, *124*, 11–23. http://dx.doi.org/10.1016/j.obhdp.2014.01.001.

Lang, J., Ochsmann, W., Kraus, T., & Lang, J. W. B. (2012). Psychosocial work stressors as antecedents of musculoskeletal problems: A systematic review and meta-analysis of stability-adjusted longitudinal studies. *Social Science and Medicine*, *75*, 1163–1174. http://dx.doi.org/10.1016/j.socscimed.2012.04.015.

LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor-hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of Management Journal*, *48*, 764–775. http://dx.doi.org/10.5465/amj.2005.18803921.

Li, L., Wu, C., Gan, Y., Qu, X., & Lu, Z. (2016). Insomnia and the risk of depression: A meta-analysis of prospective cohort studies. *BMC Psychiatry*, *16*, 375. http://dx.doi.org/10.1186/s12888-016-1075-3.

Lian, H., Yam, K. C., Ferris, D. L., & Brown, D. (2017). Self-control at work. *The Academy of Management Annals*, *11*, 703–732. http://dx.doi.org/10.5465/annals.2015.0126.

Liao, Y., Chou, C.-P., Huh, J., Leventhal, A., & Dunton, G. (2017). Associations of affective responses during free-living physical activity and future physical activity levels: An ecological momentary assessment study. *International Journal of Behavioral Medicine*, *24*, 513–519. http://dx.doi.org/10.1007/s12529-016-9626-z.

Liao, Y., Shonkoff, E. T., & Dunton, G. F. (2015). The acute relationships between affect, physical feeling states, and physical activity in daily life: A review of current evidence. *Frontiers in Psychology*, *6*, 1975. http://dx.doi.org/10.3389/fpsyg.2015.01975.

Lindegård, A., Jonsdottir, I. H., Börjesson, M., Lindwall, M., & Gerber, M. (2015). Changes in mental health in compliers and non-compliers with physical activity recommendations in patients with stress-related exhaustion. *BMC Psychiatry*, *15*, 272. http://dx.doi.org/10.1186/s12888-015-0642-3.

Linton, S. J., Kecklund, G., Franklin, K. A., Leissner, L. C., Sivertsen, B., Lindberg, E., . . . Hall, C. (2015). The effect of the work environment on future sleep disturbances: A systematic review. *Sleep Medicine Reviews*, *23*, 10–19. http://dx.doi.org/10.1016/j.smrv.2014.10.010.

Litwiller, B., Snyder, L. A., Taylor, W. D., & Steele, L. M. (2017). The relationship between sleep and work: A meta-analysis. *Journal of Applied Psychology*, *102*, 682–699. http://dx.doi.org/10.1037/apl0000169.

Liu, Y., Song, Y., Koopman, J., Wang, M., Chang, C.-H., & Shi, J. (2017). Eating your feelings? Testing a model of employees' work-related stressors, sleep quality, and unhealthy eating. *Journal of Applied Psychology*, *102*, 1237–1258. http://dx.doi.org/10.1037/apl0000209.

Loft, M., & Cameron, L. (2014). The importance of sleep: Relationships between sleep quality and work demands, the prioritization of sleep and pre-sleep arousal in day-time employees. *Work & Stress*, *28*, 289–304. http://dx.doi.org/10.1080/02678373.2014.935523.

Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, *131*, 803–855. http://dx.doi.org/10.1037/0033-2909.131.6.803.

Madsen, I. E. H., Nyberg, S. T., Magnusson Hanson, L. L., Ferrie, J. E., Ahola, K., Alfredsson, L., . . . Kivimäki, M. (2017). Job strain as a risk factor for clinical depression: Systematic review and meta-analysis with additional individual participant data. *Psychological Medicine*, *47*, 1342–1356. http://dx.doi.org/10.1017/S003329171600355X.

Magnusson Hanson, L. L., Chungkham, H. S., Åkerstedt, T., & Westerlund, H. (2014). The role of sleep disturbances in the longitudinal relationship between psychosocial working conditions, measured by work demands and support, and depression. *Sleep*, *37*, 1977–1985. http://dx.doi.org/10.5665/sleep.4254.

Mazmanian, M. (2013). Avoiding the trap of constant connectivity: When congruent frames allow for heterogeneous practices. *Academy of Management Journal*, *56*, 1225–1250. http://dx.doi.org/10.5465/amj.2010.0787.

McEwen, B. S. (1998). Protective and damaging effects of stress mediators. *New England Journal of Medicine*, *338*, 171–179. http://dx.doi.org/10.1056/NEJM199801153380307.

Meier, L. L., & Cho, E. (2018). Work stressors and partner social undermining: Comparing negative affect and psychological detachment as mechanisms. *Journal of Occupational Health Psychology*. http://dx.doi.org/10.1037/ocp0000120.

Meier, L. L., Cho, E., & Dumani, S. (2016). The effects of positive work reflection during leisure time on affective well-being: Results from three diary studies. *Journal of Organizational Behavior*, *37*, 255–278. http://dx.doi.org/10.1002/job.2039.

Mellner, C. (2016). After-hours availability expectations, work-related smartphone use during leisure, and psychological detachment: The moderating role of boundary control. *International Journal of Workplace Health Management*, *9*, 146–164. http://dx.doi.org/10.1108/IJWHM-07-2015-0050.

Minkel, J. D., Banks, S., Htaik, O., Moreta, M. C., Jones, C. W., McGlinchey, E. L., . . . Dinges, D. F. (2012). Sleep deprivation and stressors: Evidence for elevated negative affect in response to mild stressors when sleep deprived. *Emotion*, *12*, 1015–1020. http://dx.doi.org/10.1037/a0026871.

Moreno-Jiménez, B., Rodrígez-Munoz, A., Pastor, J.-C., Sanz-Vergel, A. I., & Garrosa, E. (2009). The moderating effect of psychological detachment and thoughts of revenge in workplace bullying. *Personality and Individual Differences*, *46*, 359–364. http://dx.doi.org/10.1016/j.paid.2008.10.031.

Muris, P., Roelofs, J., Rassin, E., Franken, I., & Mayer, B. (2005). Mediating effects of rumination and worry on the links between neuroticism, anxiety and depression. *Personality and Individual Differences*, *39*, 1105–1111. http://dx.doi.org/10.1016/j.paid.2005.04.005.

Nägel, I., Sonnentag, S., & Kühnel, J. (2015). Motives matter: A diary study on the relationship between job stressors and exercise after work. *International Journal of Stress Management*, *22*, 346–371. http://dx.doi.org/10.1037/a0039115.

Nahum-Shani, I., & Bamberger, P. A. (2011). Explaining the variable effects of social support on work-based stressor–strain relations: The role of perceived pattern of support exchange. *Organizational Behavior and Human Decision Processes*, *114*, 49–63. http://dx.doi.org/10.1016/j.obhdp.2010.09.002.

Nielsen, M. B., & Einarsen, S. (2012). Outcomes of exposure to workplace bullying: A meta-analytic review. *Work & Stress*, *26*, 309–332. http://dx.doi.org/10.1080/02678373.2012.734709.

Niermann, C. Y. N., Herrmann, C., von Haaren, B., van Kann, D., & Woll, A. (2016). Affect and subsequent physical activity: An ambulatory assessment study examining the affect-activity association in a real-life context. *Frontiers in Psychology*, *7*, 677.

Nixon, A. E., Mazzola, J. J., Bauer, J., Krueger, J. R., & Spector, P. E. (2011). Can work make you sick? A meta-analysis of the relationships between job stressors and physical symptoms. *Work & Stress*, *25*, 1–22. http://dx.doi.org/10.1080/02678373.2011.569175.

Oerlemans, W. G. M., & Bakker, A. B. (2014). Burnout and daily recovery: A day reconstruction study. *Journal of Occupational Health Psychology*, *19*, 303–314. http://dx.doi.org/10.1037/a0036904.

Oshio, T., Tsutsumi, A., & Inoue, A. (2016). The association between job stress and leisure-time physical inactivity adjusted for individual attributes: Evidence from a Japanese occupational cohort survey. *Scandinavian Journal of Work, Environment & Health*, *43*, 228–236. http://dx.doi.org/10.5271/sjweh.3555.

Park, Y. A., Fritz, C., & Jex, S. M. (2011). Relationships between work-home segmentation and psychological detachment from work: The role of communication technology use at home. *Journal of Occupational Health Psychology*, *16*, 457–467. http://dx.doi.org/10.1037/a0023594.

Park, Y., Fritz, C., & Jex, S. M. (2018). Daily cyber incivility and distress: The moderating roles of resources at work and home. *Journal of Management*, *44*, 2535–2557. http://dx.doi.org/10.1177/0149206315576796.

Park, Y., & Kim, S. (2018). Customer mistreatment harms nightly sleep and next-morning recovery: Job control and recovery self-efficacy as cross-level moderators. *Journal of Occupational Health Psychology*. http://dx.doi.org/10.1037/ocp0000128.

Parkes, K. R. (1990). Coping, negative affectivity, and the work environment: Additive and interactive predictors of mental health. *Journal of Applied Psychology*, *75*, 399–409. http://dx.doi.org/10.1037/0021-9010.75.4.399.

Patterson, M. G., West, M. A., Shackleton, V. J., Dawson, J. F., Lawthom, R., Maitlis, S., . . . Wallace, A. M. (2005). Validating the organizational climate measure: Links to managerial practices, productivity and innovation. *Journal of Organizational Behavior*, *26*, 379–408. http://dx.doi.org/10.1002/job.312.

Pavani, J.-B., Le Vigouroux, S., Kop, J.-L., Congard, A., & Dauvier, B. (2016). Affect and affect regulation strategies reciprocally influence each other in daily life: The case of positive reappraisal, problem-focused coping, appreciation and rumination. *Journal of Happiness Studies*, *17*, 2077–2095. http://dx.doi.org/10.1007/s10902-015-9686-9.

Payne, N., Jones, F., & Harris, P. R. (2010). A daily diary investigation of the impact of work stress on exercise intention realisation: Can planning overcome the disruptive influence of work? *Psychology and Health*, *25*, 111–129. http://dx.doi.org/10.1080/08870440903337622.

Pereira, D., Meier, L. L., & Elfering, A. (2013). Short-term effects of social exclusion at work and worries on sleep. *Stress and Health*, *29*, 240–252. http://dx.doi.org/10.1002/smi.2461.

Pereira, D., Semmer, N. K., & Elfering, A. (2014). Illegitimate tasks and sleep quality: An ambulatory study. *Stress and Health*, *30*, 209–221. http://dx.doi.org/10.1002/smi.2599.

Perrewé, P. L., Zellars, K. L., Ferris, G. R., Rossi, A. M., Kacmar, C. J., & Ralston, D. A. (2004). Neutralizing job stressors: Political skill as an antidote to the dysfunctional consequences of role conflict. *Academy of Management Journal*, *47*, 141–152. http://dx.doi.org/10.5465/20159566.

Petrou, P., Demerouti, E., Peeters, M., Schaufeli, W. B., & Hetland, J. (2012). Crafting a job on a daily basis: Contextual correlates and the link to work engagement. *Journal of Organizational Behavior*, *33*, 1120–1141. http://dx.doi.org/10.1002/job.1783.

Pilcher, J. J., & Huffcutt, A. I. (1996). Effects of sleep deprivation on performance: A meta-analysis. *Sleep*, *19*, 318–326. http://dx.doi.org/10.1093/sleep/19.4.318.

Pindek, S., Arvan, M. L., & Spector, P. E. (2018). The stressor–strain relationship in diary studies: A meta-analysis of the within and between levels. *Work & Stress*1–21. http://dx.doi.org/10.1080/02678373.2018.1445672.

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, *63*, 539–569. http://dx.doi.org/10.1146/annurev-psych-120710-100452.

Puterman, E., Weiss, J., Beauchamp, M. R., Mogle, J., & Almeida, D. M. (2017). Physical activity and negative affective reactivity in daily life. *Health Psychology*, *36*, 1186–1194. http://dx.doi.org/10.1037/hea0000532.

Rothbard, N. P., & Wilk, S. L. (2011). Waking up on the right or wrong side of the bed: Start-of-workday mood, work events, employee affect, and performance. *Academy of Management Journal*, *54*, 959–980. http://dx.doi.org/10.5465/amj.2007.0056.

Querstret, D., & Cropley, M. (2012). Exploring the relationship between work-related rumination, sleep quality, and work-related fatigue. *Journal of Occupational Health Psychology*, *17*, 341–353. http://dx.doi.org/10.1037/a0028552.

Rebar, A. L., Elavsky, S., Maher, J. P., Doerksen, S. E., & Conroy, D. E. (2014). Habits predict physical activity on days when intentions are weak. *Journal of Sport & Exercise Psychology*, *36*, 157–165. http://dx.doi.org/10.1123/jsep.2013-0173.

Rebar, A. L., Stanton, R., Geard, D., Short, C., Duncan, M. J., & Vandelanotte, C. (2015). A meta-meta-analysis of the effect of physical activity on depression and anxiety in non-clinical adult populations. *Health Psychology Review*, *9*, 366–378. http://dx.doi.org/10.1080/17437199.2015.1022901.

Reed, J., & Buck, S. (2009). The effect of regular aerobic exercise on positive-activated affect: A meta-analysis. *Psychology of Sport and Exercise*, *10*, 581–594. http://dx.doi.org/10.1016/j.psychsport.2009.05.009.

Reed, J., & Ones, D. S. (2006). The affect of acute aerobic exercise on positive activated affect: A meta-analysis. *Psychology of Sport and Exercise*, *7*, 477–514. http://dx.doi.org/10.1016/j.psychsport.2005.11.003.

Rhodes, R. E., Janssen, I., Bredin, S. S. D., Warburton, D. E. R., & Bauman, A. (2017). Physical activity: Health impact, prevalence, correlates and interventions. *Psychology & Health*, *32*, 942–975. http://dx.doi.org/10.1080/08870446.2017.1325486.

Richardson, K. M., & Rothstein, H. R. (2008). Effects of occupational stress management intervention programs: A meta-analysis. *Journal of Occupational Health Psychology*, *13*, 69–93. http://dx.doi.org/10.1037/1076-8998.13.1.69.

Riemann, D., Spiegelhalder, K., Feige, B., Voderholzer, U., Berger, M., Perlis, M., & Nissen, C. (2010). The hyperarousal model of insomnia: A review of the concept and its evidence. *Sleep Medicine Reviews*, *14*, 19–31. http://dx.doi.org/10.1016/j.smrv.2009.04.002.

Rivkin, W., Diestel, S., & Schmidt, K.-H. (2015). Psychological detachment: A moderator in the relationship of self-control demands and job strain. *European Journal of Work and Organizational Psychology*, *24*, 376–388. http://dx.doi.org/10.1080/1359432X.2014.924926.

Rodell, J. B., & Judge, T. A. (2009). Can "good" stressors spark "bad" behaviors? The mediating role of emotions in links of challenge and hindrance stressors with citizenship and counterproductive behaviors. *Journal of Applied Psychology*, *94*, 1438–1451. http://dx.doi.org/10.1037/a0016752.

Rodríguez-Muñoz, A., Antino, M., & Sanz-Vergel, A. I. (2017). Cross-domain consequences of workplace bullying: A multi-source daily diary study. *Work & Stress*, *31*, 297–314. http://dx.doi.org/10.1080/02678373.2017.1330782.

Rodríguez-Muñoz, A., Sanz-Vergel, A. I., Antino, M., Demerouti, E., & Bakker, A. B. (2018). Positive experiences at work and daily recovery: Effects on coupleís well-being. *Journal of Happiness Studies*, *19*, 1395–1430. http://dx.doi.org/10.1007/s10902-017-9880-z.

Rugulies, R., Aust, B., & Madsen, I. E. H. (2017). Effort–reward imbalance at work and risk of depressive disorders. A systematic review and meta-analysis of

prospective cohort studies. *Scandinavian Journal of Work, Environment & Health*, *43*, 294–306. http://dx.doi.org/10.5271/sjweh.3632.
Sadeh, A. (2011). The role and validity of actigraphy in sleep medicine: An update. *Sleep Medicine Reviews*, *15*, 259–267. http://dx.doi.org/10.1016/j.smrv.2010.10.001.
Sanchez, J. I., & Brock, P. (1996). Outcomes of perceived discrimination among Hispanic employees: Is diversity management a luxury or a necessity? *Academy of Management Journal*, *39*, 704–719. http://dx.doi.org/10.2307/256660.
Schöndube, A., Bertrams, A., Sudeck, G., & Fuchs, R. (2017). Self-control strength and physical exercise: An ecological momentary assessment study. *Psychology of Sport and Exercise*, *29*, 19–26. http://dx.doi.org/10.1016/j.psychsport.2016.11.006.
Schuller, K., Roesler, U., & Rau, R. (2014). Self-reported job characteristics and negative spillover from work to private life as mediators between expert-rated job characteristics and vital exhaustion. *European Journal of Work and Organizational Psychology*, *23*, 177–189. http://dx.doi.org/10.1080/1359432X.2012.727555.
Schwerdtfeger, A., Eberhardt, R., Chmitorz, A., & Schaller, E. (2010). Momentary affect predicts bodily movement in daily life: An ambulatory monitoring study. *Journal of Sport & Exercise Psychology*, *32*, 674–693. http://dx.doi.org/10.1123/jsep.32.5.674.
Scott, B. A., & Judge, T. A. (2006). Insomnia, emotions, and job satisfaction: A multilevel study. *Journal of Management*, *32*, 622–645. http://dx.doi.org/10.1177/0149206306289762.
Shoss, M. K. (2017). Job insecurity: An integrative review and agenda for future research. *Journal of Management*, *43*, 1911–1939.
Sianoja, M., Kinnunen, U., Mäkikangas, A., & Tolvanen, A. (2018). Testing the direct and moderator effects of the stressor–detachment model over one year: A latent change perspective. *Work & Stress*, *32*, 357–378. http://dx.doi.org/10.1080/02678373.2018.1437232.
Siegrist, J. (1996). Adverse health effects of high effort/low reward conditions. *Journal of Occupational Health Psychology*, *1*, 27–41. http://dx.doi.org/10.1037/1076-8998.1.1.27.
Siltaloppi, M., Kinnunen, U., & Feldt, T. (2009). Recovery experiences as moderators between psychological work characteristics and occupational well-being. *Work & Stress*, *23*, 330–348. http://dx.doi.org/10.1080/02678370903415572.
Sin, N. L., Almeida, D. M., Crain, T. L., Kossek, E. E., Berkman, L. F., & Buxton, O. M. (2017). Bidirectional, temporal associations of sleep with positive events, affect, and stressors in daily life across a week. *Annals of Behavioral Medicine*, *51*, 402–415. http://dx.doi.org/10.1007/s12160-016-9864-y.
Sivertsen, B., Salo, P., Mykletun, A., Hysing, M., Pallesen, S., Krokstad, S., ... Øverland, S. (2012). The bidirectional association between depression and insomnia: The HUNT study. *Psychosomatic Medicine*, *74*, 758–765. http://dx.doi.org/10.1097/PSY.0b013e3182648619.
Slavish, D. C., Sliwinski, M. J., Smyth, J. M., Almeida, D. M., Lipton, R. B., Katz, M. J., & Graham-Engeland, J. E. (2018). Neuroticism, rumination, negative affect, and sleep: Examining between- and within-person associations. *Personality and Individual Differences*, *123*, 217–222. http://dx.doi.org/10.1016/j.paid.2017.11.023.
Sliwinski, M. J. (2008). Measurement-burst designs for social health research. *Social and Personality Psychology Compass*, *2*, 245–261. http://dx.doi.org/10.1111/j.1751-9004.2007.00043.x.
Sluiter, J. K., Frings-Dresen, M. H. W., van der Beek, A. J., & Meijman, T. F. (2001). The relation between work-induced neuroendocrine reactivity and recovery, subjective need for recovery, and health status. *Journal of Psychosomatic Research*, *50*, 29–37. http://dx.doi.org/10.1016/S0022-3999(00)00213-0.
Smyth, J. M., Sliwinski, M. J., Zawadzki, M. J., Scott, S. B., Conroy, D. E., Lanza, S. T., ... Stoney, C. M. (2018). Everyday stress response targets in the science of behavior change. *Behaviour Research and Therapy*, *101*, 20–29. http://dx.doi.org/10.1016/j.brat.2017.09.009.
Söderström, M., Jeding, K., Ekstedt, M., Perski, A., & Akerstedt, T. (2012). Insufficient sleep predicts clinical burnout. *Journal of Occupational Health Psychology*, *17*, 175–183. http://dx.doi.org/10.1037/a0027518.
Sonnentag, S. (2015). Dynamics of well-being. *Annual Review of Organizational Psychology and Organizational Behavior*, *2*, 261–293. http://dx.doi.org/10.1146/annurev-orgpsych-032414-111347.
Sonnentag, S., Arbeus, H., Mahn, C., & Fritz, C. (2014). Exhaustion and lack of psychological detachment from work during off-job time: Moderator effects of time pressure and leisure experiences. *Journal of Occupational Health Psychology*, *19*, 206–216. http://dx.doi.org/10.1037/a0035760.
Sonnentag, S., & Bayer, U.-V. (2005). Switching off mentally: Predictors and consequences of psychological detachment from work during off-job time. *Journal of Occupational Health Psychology*, *10*, 393–414. http://dx.doi.org/10.1037/1076-8998.10.4.393.
Sonnentag, S., Binnewies, C., & Mojza, E. J. (2008). "Did you have a nice evening?" A day-level study on recovery experiences, sleep, and affect. *Journal of Applied Psychology*, *93*, 674–684. http://dx.doi.org/10.1037/0021-9010.93.3.674.
Sonnentag, S., Binnewies, C., & Mojza, E. J. (2010). Staying well and engaged when demands are high: The role of psychological detachment. *Journal of Applied Psychology*, *95*, 965–976. http://dx.doi.org/10.1037/a0020032.
Sonnentag, S., Kuttler, I., & Fritz, C. (2010). Job stressors, emotional exhaustion, and need for recovery: A multi-source study on the benefits of psychological detachment. *Journal of Vocational Behavior*, *76*, 355–365. http://dx.doi.org/10.1016/j.jvb.2009.06.005.
Sonnentag, S., & Frese, M. (2012). Stress in organizations, In N. W. Schmitt, & S. Highhouse (Eds.), *Handbook of psychology. Volume 12: industrial and organizational psychology* (pp. 560–592). (2nd ed.) Hoboken: Wiley.
Sonnentag, S., & Fritz, C. (2015). Recovery from job stress: The stressor-detachment model as an integrative framework. *Journal of Organizational Behavior 36*, S72–S103http://doi.org/10.1002/job.1924.
Sonnentag, S., & Fritz, C. (2007). The recovery experience questionnaire: Development and validation of a measure assessing recuperation and unwinding from work. *Journal of Occupational Health Psychology*, *12*, 204–221. http://dx.doi.org/10.1037/1076-8998.12.3.204.
Sonnentag, S., & Jelden, S. (2009). Job stressors and the pursuit of sport activities: A day-level perspective. *Journal of Occupational Health Psychology*, *14*, 165–181. http://dx.doi.org/10.1037/a0014953.
Sonnentag, S., & Lischetzke, T. (2018). Illegitimate tasks reach into after-work hours: A multi-level study. *Journal of Occupational Health Psychology*, *23*, 248–261. http://dx.doi.org/10.1037/ocp0000077.
Sonnentag, S., Mojza, E. J., Demerouti, E., & Bakker, A. B. (2012). Reciprocal relations between recovery and work engagement: The moderating role of job stressors. *Journal of Applied Psychology*, *97*, 842–853. http://dx.doi.org/10.1037/a0028292.
Sonnentag, S., & Starzyk, A. (2015). Perceived prosocial impact, perceived situational constraints, and proactive work behavior: Looking at two distinct affective pathways. *Journal of Organizational Behavior*, *36*, 806–824. http://dx.doi.org/10.1002/job.2005.
Sonnentag, S., Venz, L., & Casper, A. (2017). Advances in recovery research: What have we learned? What should be done next?. *Journal of Occupational Health Psychology*, *22*, 365–380. http://dx.doi.org/10.1037/ocp0000079.
Sonstroem, R. J., & Morgan, W. P. (1989). Exercise and self-esteem: Rationale and model. *Medicine & Science in Sports & Exercise*, *2*, 329–337. http://dx.doi.org/10.1249/00005768-198906000-00018.
Spector, P. E., & O'Connell, B. J. (1994). The contribution of personality traits, negative affectivity, locus of control and type A to the subsequent reports of job stressors and job strains. *Journal of Occupational and Organizational Psychology*, *67*, 1–12. http://dx.doi.org/10.1111/j.2044-8325.1994.tb00545.x.
Stavrakakis, N., Booij, S. H., Roest, A. M., de Jonge, P., Oldehinkel, A. J., & Bos, E. H. (2015). Temporal dynamics of physical activity and affect in depressed and nondepressed individuals. *Health Psychology*, *34*, 1268–1277. http://dx.doi.org/10.1037/hea0000303.
Staw, B. M. (1981). The escalation of commitment to a course of action. *Academy of Management Review*, *6*, 577–587. http://dx.doi.org/10.5465/amr.1981.4285694.
Steptoe, A., Lipsey, Z., & Wardle, J. (1998). Stress, hassles and variations in alcohol consumption, food choice and physical exercise: A diary study. *British Journal of Health Psychology*, *3*, 51–63. http://dx.doi.org/10.1111/j.2044-8287.1998.tb00555.x.
Stults-Kolehmainen, M. A., Bartholomew, J. B., & Sinha, R. (2014). Chronic psychological stress impairs recovery of muscular function and somatic sensations over a 96-hour period. *The Journal of Strength & Conditioning Research*, *28*, 2007–2017. http://dx.doi.org/10.1519/JSC.0000000000000335.
Stults-Kolehmainen, M. A., & Sinha, R. (2014). The effects of stress on physical activity and exercise. *Sports Medicine*, *44*, 81–121. http://dx.doi.org/10.1007/s40279-013-0090-5.
Tadić, M., Bakker, A. B., & Oerlemans, W. G. M. (2015). Challenge versus hindrance job demands and well-being: A diary study on the moderating role of job resources. *Journal of Occupational and Organizational Psychology*, *88*, 702–725.
Tenney, E. R., Poole, J. M., & Diener, E. (2016). Does positivity enhance work performance? Why, when, and what we don't know. *Research in Organizational Behavior*, *36*, 27–46. http://dx.doi.org/10.1016/j.riob.2016.11.002.
Tetrick, L. E., & Winslow, C. J. (2015). Workplace stress management interventions and health promotion. *Annual Review of Organizational Psychology and Organizational Behavior*, *2*, 583–603. http://dx.doi.org/10.1146/annurev-orgpsych-032414-111341.
Toker, S., & Biron, M. (2012). Job burnout and depression: Unraveling their temporal relationship and considering the role of physical activity. *Journal of Applied Psychology*, *97*, 699–710. http://dx.doi.org/10.1037/a0026914.
Törnroos, M., Hakulinen, C., Hintsanen, M., Puttonen, S., Hintsa, T., Pulkki-Råback, L., ... Keltikangas-Järvinen, L. (2017). Reciprocal relationships between psychosocial work characteristics and sleep problems: A two-wave study. *Work & Stress*, *31*, 63–81. http://dx.doi.org/10.1080/02678373.2017.1297968.
Trougakos, J. P., Beal, D. J., Cheng, B. H., Hideg, I., & Zweig, D. (2015). Too drained to help: A resource depletion perspective on daily interpersonal citizenship behaviors. *Journal of Applied Psychology*, *100*, 227–236. http://dx.doi.org/10.1037/a0038082.
Trougakos, J. P., Hideg, I., Cheng, B. H., & Beal, D. J. (2014). Lunch breaks unpacked: The role of autonomy as a moderator of recovery during lunch. *Academy of Management Journal*, *57*, 405–421. http://dx.doi.org/10.5465/amj.2011.1072.
Van Laethem, M., Beckers, D. G. J., Kompier, M. A. J., Dijksterhuis, A., & Geurts, S. A. E. (2013). Psychosocial work characteristics and sleep quality: A systematic review of longitudinal and intervention research. *Scandinavian Journal of Work, Environment and Health*, *39*, 535–549. http://dx.doi.org/10.5271/sjweh.3376.
Van Laethem, M., Van Vianen, A. E. M., & Derks, D. (2018). Daily fluctuations in smartphone use, psychological detachment, and work engagement: The role of workplace telepressure. *Frontiers in Psychology*, *9*, 1808. http://dx.doi.org/10.3389/fpsyg.2018.01808.
van Veldhoven, M., & Broersen, S. (2003). Measurement quality and validity of the "need for recovery scale". *Occupational and Environmental Medicine*, *60*, i3–i9. http://dx.doi.org/10.1136/oem.60.suppl_1.i3.
van Woerkom, M., Bakker, A. B., & Nishii, L. H. (2016). Accumulative job demands and support for strength use: Fine-tuning the job demands-resources model using conservation of resources theory. *Journal of Applied Psychology*, *101*, 141–150. http://dx.doi.org/10.1037/apl0000033.
Volmer, J., Binnewies, C., Sonnentag, S., & Niessen, C. (2012). Do social conflicts with customers at work encroach upon our private lives? A diary study. *Journal of*

Occupational Health Psychology, *17*, 304–315. http://dx.doi.org/10.1037/a0028454.
Wagner, D. T., Barnes, C. M., & Scott, B. A. (2014). Driving it home: How workplace emotional labor harms employee home life. *Personnel Psychology*, *67*, 487–516. http://dx.doi.org/10.1111/peps.12044.
Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin*, *96*, 465–490. http://dx.doi.org/10.1037/0033-2909.96.3.465.
Wegner, M., Helmich, I., Machado, S., Nardi, A. E., Arias-Carrion, O., & Budde, H. (2014). Effects of exercise on anxiety and depression disorders: Review of meta-analyses and neurobiological mechanisms. *CNS and Neurological Disorders Drug Targets*, *13*, 1002–1014. http://dx.doi.org/10.2174/1871527313666140612102841.
Wendsche, J., & Lohmann-Haislah, A. (2017). A meta-analysis on antecedents and outcomes of detachment from work. *Frontiers in Psychology*, *7*, 2072. http://dx.doi.org/10.3389/fpsyg.2016.02072.
Wiese, B. S., Heidemeier, H., Burk, C. L., & Freund, A. M. (2017). When work takes over: Emotional labor strategies and daily ruminations about work while at home. *Journal of Personnel Psychology*, *16*, 150–154. http://dx.doi.org/10.1027/1866-5888/a000174.
Wiese, C. W., Kuykendall, L., & Tay, L. (2018). Get active? A meta-analysis of leisure-time physical activity and subjective well-being. *The Journal of Positive Psychology*, *13*, 57–66. http://dx.doi.org/10.1080/17439760.2017.1374436.
Xanthopoulou, D., Bakker, A. B., Oerlemans, W. G. M., & Koszucka, M. (2018). Need for recovery after emotional labor: Differential effects of daily deep and surface acting. *Journal of Organizational Behavior*, *39*, 481–494. http://dx.doi.org/10.1002/job.2245.
Zacher, H., Brailsford, H. A., & Parker, S. L. (2014). Micro-breaks matter: A diary study on the effects of energy management strategies on occupational well-being. *Journal of Vocational Behavior*, *85*, 287–297. http://dx.doi.org/10.1016/j.jvb.2014.08.005.
Zapf, D., Dormann, C., & Frese, M. (1996). Longitudinal studies in organizational stress research: A review of the literature with reference to methodological issues. *Journal of Occupational Health Psychology*, *1*, 145–169. http://dx.doi.org/10.1037/1076-8998.1.2.145.
Zautra, A. J., Affleck, G. G., Tennen, H., Reich, J. W., & Davis, M. C. (2005). Dynamic approaches to emotions and stress in everyday life: Bolger and Zuckerman reloaded with positive as well as negative affects. *Journal of Personality*, *73*, 1511–1538. http://dx.doi.org/10.1111/j.0022-3506.2005.00357.x.
Zohar, D. (1997). Predicting burnout with a hassle-based measure of role demands. *Journal of Organizational Behavior*, *18*, 101–115. http://dx.doi.org/10.1002/(SICI)1099-1379(199703)18:2<101::AID-JOB788>3.0.CO;2-Y.
Zohar, D., Tzischinski, O., & Epstein, R. (2003). Effects of energy availability on immediate and delayed emotional reactions to work events. *Journal of Applied Psychology*, *88*, 1082–1093. http://dx.doi.org/10.1037/0021-9010.88.6.1082.

References (Meta-analyses listed in the Appendix)

Alcaron, G. M. (2011). A meta-analysis of burnout with job demands, resources, and attitudes. *Journal of Vocational Behavior*, *79*, 549–562. http://dx.doi.org/10.1016/j.jvb.2011.03.007.
Bowling, N. A., Alcaron, G. M., Bragg, C. B., & Hartman, M. J. (2015). A meta-analytic examination of the potential correlates and consequences of workload. *Work & Stress*, *29*, 95–113. http://dx.doi.org/10.1080/02678373.2015.1033037.
Cheng, G. H.-L., & Chan, D. K.-S. (2008). Who suffers more from job insecurity? A meta-analytic review. *Applied Psychology: An International Review*, *57*, 272–303.
Crawford, E. R., LePine, J. A., & Rich, B. L. (2010TmpLabel1). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology*, *95*, 834–848. http://dx.doi.org/10.1037/a0019364.
Dhanani, L. Y., Beus, J. M., & Joseph, D. L. (2018). Workplace discrimination: A meta-analytic extension, critique, and future research agenda. *Personnel Psychology*, *71*, 147–179. http://dx.doi.org/10.1111/peps.12254.
Fila, M. J., Purl, J., & Griffeth, R. W. (2017). Job demands, control and support: Meta-analyzing moderator effects of gender, nationality, and occupation. *Human Resource Management Review*, *27*, 39–60. http://dx.doi.org/10.1016/j.hrmr.2016.09.004.
Harari, M. B., Manapragada, A., & Viswesvaran, C. (2017). Who thinks they're a big fish in a small pond and why does it matter? A meta-analysis of perceived overqualification. *Journal of Vocational Behavior*, *102*, 28–47. http://dx.doi.org/10.1016/j.jvb.2017.06.002.
Herschcovis, M. S., & Barling, J. (2010). Towards a multi-foci approach to workplace aggression: A meta-analytic review of outcomes from different perpetrators. *Journal of Organizational Behavior*, *31*, 24–44. http://dx.doi.org/10.1002/job.621.
Jiang, L., & Lavaysse, L. M. (2018). Cognitive and affective job insecurity: A meta-analysis and a primary study. *Journal of Management 44*, 2307–2342https://doi.org/10.1177/0149206318773853.
Jones, K. P., Peddie, C. I., Gilrane, V. L., King, E. B., & Gray, A. L. (2016). Not so subtle: A meta-analytic investigation of the correlates of subtle and overt discrimination. *Journal of Management*, *42*, 1588–1613. http://dx.doi.org/10.1177/0149206313506466.
Lang, J., Ochsmann, W., Kraus, T., & Lang, J. W. B. (2012TmpLabel2). Psychosocial work stressors as antecedents of musculoskeletal problems: A systematic review and meta-analysis of stability-adjusted longitudinal studies. *Social Science and Medicine*, *75*, 1163–1174. http://dx.doi.org/10.1016/j.socscimed.2012.04.015.
Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology*, *81*, 123–133. http://dx.doi.org/10.1037/0021-9010.81.2.123.
Montano, D., Reeske, A., Franke, F., & Hüffmeier, J. (2017). Leadership, followers' mental health and job performance in organizations: A comprehensive meta-analysis from an occupational health perspective. *Journal of Organizational Behavior*, *38*, 327–350. http://dx.doi.org/10.1002/job.2124.
Nahrgang, J. D., Morgeson, F. P., & Hofmann, D. A. (2011). Safety at work: A meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes. *Journal of Applied Psychology*, *96*, 71–96. http://dx.doi.org/10.1037/a0021484.
Ng, T. W. H., & Feldman, D. C. (2008). Long work hours: A social identity perspective on meta-analysis data. *Journal of Organizational Behavior*, *29*, 853–880. http://dx.doi.org/10.1002/job.536.
Nielsen, M. B., & Einarsen, S. (2012TmpLabel3). Outcomes of exposure to workplace bullying: A meta-analytic review. *Work & Stress*, *26*, 309–332. http://dx.doi.org/10.1080/02678373.2012.734709.
Nixon, A. E., Mazzola, J. J., Bauer, J., Krueger, J. R., & Spector, P. E. (2011TmpLabel4). Can work make you sick? A meta-analysis of the relationships between job stressors and physical symptoms. *Work & Stress*, *25*, 1–22. http://dx.doi.org/10.1080/02678373.2011.569175.
Pindek, S., & Spector, P. E. (2016). Explaining the surprisingly weak relationship between organizational constraints and job performance. *Human Performance*, *29*, 191–208. http://dx.doi.org/10.1080/08959285.2016.1160095.
Podsakoff, N. P., LePine, J. A., & LePine, M. A. (2007). Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intention, turnover, and withdrawal behavior: A meta-analysis. *Journal of Applied Psychology*, *92*, 438–454. http://dx.doi.org/10.1037/0021-9010.92.2.438.
Schmidt, S., Roesler, U., Kusserow, T., & Rau, R. (2014). Uncertainty in the workplace: Examining role ambiguity and role conflict, and their link to depression – A meta-analysis. *European Journal of Work and Organizational Psychology*, *23*, 91–106. http://dx.doi.org/10.1080/1359432X.2012.711523.
Schyns, B., & Schilling, J. (2013). How bad are the effects of bad leaders? A meta-analysis of destructive leadership and its outcomes. *The Leadership Quarterly*, *24*, 138–158. http://dx.doi.org/10.1016/j.leaqua.2012.09.001.
Sojo, V. E., Wood, R. E., & Genat, A. E. (2016). Harmful workplace experiences and women's occupational well-being: A meta-analysis. *Psychology of Women Quarterly*, *40*, 10–40. http://dx.doi.org/10.1177/0361684315599346.
Sverke, M., Hellgren, J., & Näswall, K. (2002). No security: A meta-analysis and review of job insecurity and its consequences. *Journal of Occupational Health Psychology*, *7*, 242–262. http://dx.doi.org/10.1037//1076-8998.7.3.242.