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ORIGINAL PAPER

I'll Support You Either Way: Examining Supervisor Work Support and Nonwork Support as Antecedents of Subordinates' Recovery Experiences

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Abstract

Recovery from work substantially contributes to employees' well-being and productivity but the role of supervisors in fostering recovery is largely unexplored. We introduce supervisor support regarding both work roles (i.e., work support) and nonwork roles (i.e., nonwork support) as interpersonal work experiences that positively relate to recovery. Integrating principles of boundary management theory into the work-home resources model (W-HR model), we examine supervisor support as a predictor of subordinates' recovery experiences during nonwork time. Based on the W-HR model, we test indirect effects of vitality as a personal resource linking supervisor support to subordinates' recovery experiences in the evening. Moreover, we extend the WH-R model by integrating working from home as a boundary condition into the WH-R model. Specifically, we suggest that supervisor support could be particularly important for subordinates' evening recovery on working-from-home days. In a daily diary study over the course of two work weeks (171 employees, 871 days), we found that supervisor work support indirectly predicted subordinates' recovery experiences via the personal resource vitality. In contrast, supervisor nonwork support directly predicted subordinates' recovery experiences on working-from-home days (psychological detachment, relaxation, control). Our results suggest that integrating supervisor support in recovery research is important because supervisors supporting both work and nonwork roles positively relate to subordinates' recovery. Our findings highlight that future research should distinguish between domain-specific support aimed at work versus nonwork roles.

Keywords Recovery experiences · Supervisor support · Vitality · Working from home · Work-home interface

Recovery from work refers to employees' restoration of personal resources during nonwork time (Sonnentag et al., 2022). Recovery processes in the home domain are crucial because recovery contributes to employees' well-being (Chawla et al., 2020; McGrath et al., 2017) as well as performance-related outcomes such as work engagement (ten Brummelhuis & Bakker, 2012b) and performance (Binnewies et al., 2009). Due to this relevance of beneficial recovery processes, understanding its antecedents in the work domain is an important step to promote employees' recovery. Research to date has shown that experiences at work can impact employees' evening recovery (e.g., Demsky et al., 2019; Sonnentag & Binnewies, 2013) but studies have focused primarily on work demands as predictors of impaired recovery (Bennett et al., 2018; Steed et al., 2019). Consequently, the literature lacks insights into how employees' recovery in the evening can be fostered actively by positive work experiences. Although supervisors could be important facilitators of occupational health strategies, their role in subordinates' recovery was largely neglected (Sonnentag et al., 2022).

Supervisors are important agents in subordinates' daily work lives because they are in a central position to provide task-relevant resources and can help to fulfill

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socio-emotional needs at work (Mathieu et al., 2019). Supervisor support is a highly critical resource for employees' well-being (Guo et al., 2024; Kossek et al., 2023) and could play an important role in employees' daily recovery processes because supervisors can help subordinates with challenging work and nonwork situations (Crain & Stevens, 2018; Skakon et al., 2010). We thus examine supervisor support at work as daily antecedent of subordinates' recovery in the home domain. In line with role-based approaches (Ashforth et al., 2000), we differentiate between perceptions of domain-specific supervisor support that support work versus nonwork roles. Accordingly, we examine supervisor work support (supporting subordinates in fulfilling their work role; Thacker & Stoner, 2012) and supervisor nonwork support (helping subordinates fulfilling their nonwork roles; Hammer et al., 2009) as predictors of subordinates' recovery experiences during nonwork time.

Integrating the work-home resources model (W-HR model; ten Brummelhuis & Bakker, 2012a) with principles of boundary management theory (Ashforth et al., 2000), we develop and test a conceptual model on how supervisor support at work may impact subordinates' recovery experiences at home (see Fig. 1). The WH-R model is as a resource-based framework that explains *why* supervisor support spills over into the home domain. The W-HR model suggests that work resources (i.e., supervisor support) impact home outcomes (i.e., recovery experiences) via increased personal resources (ten Brummelhuis & Bakker, 2012a). Thus, we examine the personal resource vitality (i.e., subordinates' energetic state after work) as a mediator that connects the work and home domain. In addition, we integrate working from home as a boundary condition in the WH-R model. Thus, we draw on principles of boundary management theory (Ashforth et al., 2000) to explain *when* supervisor support relates to the recovery experiences. Thus, we propose that associations of supervisor support with the recovery experiences during nonwork time will be *stronger* on days when working from home because on these days clear boundaries are absent.

Our study offers important insights both for the recovery and the leadership literature. First, we contribute to recovery research by examining supervisor support as daily predictors of subordinates' recovery experiences. Previous work has already recognized the need to include a leadership perspective in studies on recovery (Sonnentag et al., 2022) because experiences with the supervisor have a tremendous impact on subordinates' well-being (Inceoglu et al., 2018; Montano et al., 2017). By examining supervisor support as daily predictors that have the potential to foster evening recovery, we meaningfully extend previous daily diary studies that have mostly focused on daily interpersonal antecedents that harm evening recovery (e.g., Iser-Potempa et al., 2024; Nicholson & Griffin, 2015). While very recent studies have shown that perceiving the supervisor as generally supportive can contribute to detachment on the between-person level (Bendixen & Scheel, 2024; Sonnentag et al., 2024), the question whether higher-than-usual support on specific workdays is related to the recovery experiences on the within-person level remains unanswered. This is a crucial oversight for two reasons. First, supervisory leadership processes unfold at the day level (Keleman et al., 2020). Second, the WH-R model classifies social support as a volatile resource, meaning that support is a fluctuating resource that is temporarily available to employees (ten Brummelhuis & Bakker, 2012a). Accordingly, to adequately apply the WH-R model, a within-person perspective on short-term processes is needed.

Second, drawing on the role-based approach (Ashforth et al., 2000), we answer the call to study specific kinds of supervisor support (Kelemen et al., 2020). By differentiating between supervisor support directed at a subordinate's distinct roles (i.e., work and nonwork roles), our

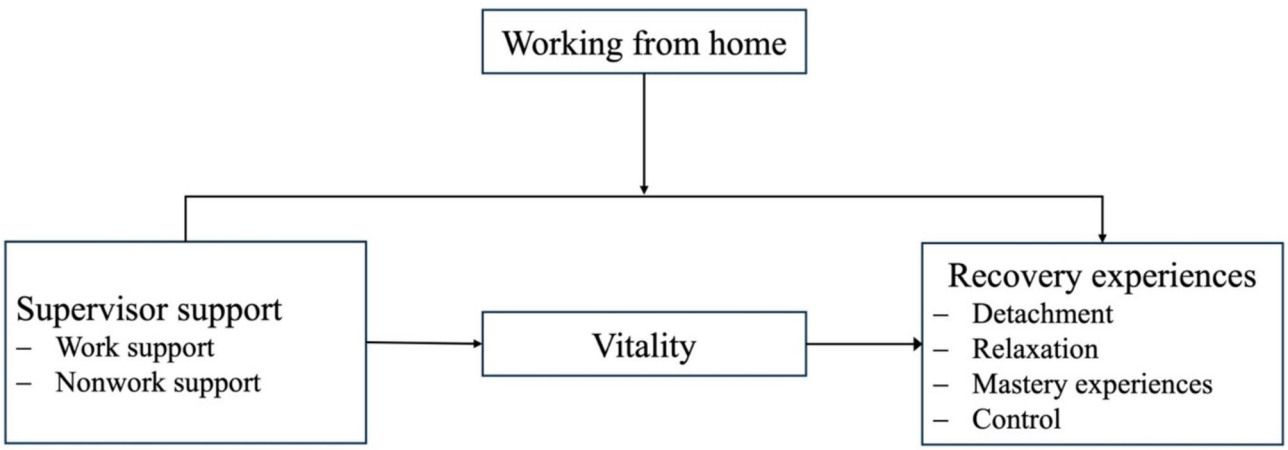

Fig. 1 Conceptual model

conceptualization of supervisor support reflects the roles employees hold in different life domains (Ashforth et al., 2000). We demonstrate the importance of supervisors considering both life domains in their leadership. Domain-specific types of support should be highly relevant for subordinates' recovery because experiences in the work domain (e.g., Bono et al., 2013; Demsky et al., 2019) as well as in the home domain (e.g., Hahn & Dormann, 2013; Völker et al., 2023) affect employees' recovery. Accordingly, our study goes beyond previous studies on supervisor support and recovery (Bendixen & Scheel, 2024; Sonnentag et al., 2024) by identifying different types of support aimed at subordinates' different roles as antecedents of subordinates' recovery processes.

Third, we expand the WH-R model by including working from home as a boundary condition. The WH-R model does not make specific assumptions about working from home but treats work and home as separate domains (ten Brummelhuis & Bakker, 2012a). However, more employees than ever regularly work from home (OECD, 2021), making the integration of working from home necessary to consider the "new normal" and reflect changing working conditions. When working from home, people lack clear physical and temporal boundaries between work and home life (Kerman et al., 2022; Kossek et al., 2021) which makes supervisor support especially important (Bell et al., 2023; Perrigino & Raveendhran, 2020). Accordingly, supervisor support could be particularly relevant for subordinates' recovery on working-from-home days. Thus, by integrating principles of boundary management theory (Ashforth et al., 2000) into the WH-R model (ten Brummelhuis & Bakker, 2012a), we provide a refined theoretical perspective on the work-home interface. Moreover, we add to a recent stream of research investigating working from home as a fluctuating construct (Shao et al., 2021; Toscano et al., 2025) rather than between-person differences in remote work intensity (e.g., Gajendran et al., 2024).

Theoretical Background and Hypothesis Development

The W-HR model (ten Brummelhuis & Bakker, 2012a) is a resource-based approach that applies assumptions of the broader conservation of resources theory (COR; Hobfoll, 1989) to the work-home interface. Specifically, ten Brummelhuis and Bakker (2012a) differentiate between contextual and personal resources. Contextual resources in the individual's social environment lie outside the self (e.g., supervisor support), whereas personal resources such as energy are characteristics inside the self. Contextual resources at work can foster personal resources in the work domain which, in turn, spill over into the home domain, positively affecting home outcomes (ten Brummelhuis & Bakker, 2012a). Moreover, the WH-R model is particularly suitable for explaining daily processes because it distinguishes structural resources (i.e., stable characteristics) and volatile resources (i.e., fleeting resources that are only temporarily available). Accordingly, volatile contextual resources (labeled as "social support", ten Brummelhuis & Bakker, 2012a, p. 549) have indirect effects via volatile personal resources (labeled as "energies", ten Brummelhuis & Bakker, 2012a, p. 549) on short-term home outcomes. On a methodological note, because supervisor support and vitality are volatile resources that fluctuate from day to day, our study based on the WH-R model requires a within-person design (Lin et al., 2022; Rodríguez-Muñoz et al., 2020).

Although the WH-R model provides valuable insights into the mechanism that links supervisor support with subordinates' recovery at home, it is mute about working from home and conceptualizes work and home as two distinct domains (ten Brummelhuis & Bakker, 2012a). However, when working in the home domain, work and home do not stay distinct but the boundaries between work and home get blurred (Kossek et al., 2021). It is therefore needed to adjust the WH-R model so that it remains applicable for working-from-home arrangements. We extend the WH-R model and introduce working-from-home as a boundary condition by drawing on principles of boundary management theory (Ashforth et al., 2000). Boundary management theory is a role-based approach that suggests that employees hold different roles in the work and home domain (Ashforth et al., 2000). For example, an employee holds the role of subordinate at work, whereas during nonwork time the same employee can transition into nonwork roles such as parent or partner at home. Boundary management theory suggests that the roles associated with each domain are segmented by boundaries. For instance, boundaries can be physical (e.g., when holding the role of subordinate at the company premises and not at home) or temporal (e.g., when holding the role of subordinate during work hours; Haun et al., 2022; Scheibe et al., 2024). However, when working from home, these boundaries between the work and home domains get blurred (Ashforth et al., 2000; Kossek et al., 2021), making it necessary to integrate these theoretical assumptions into the WH-R model.

Recovery Experiences at Home

Recovery from work is a core process at the work-home interface. Recovery refers to the "process of psychophysiological unwinding that counteracts the strain process triggered by job demands" (Sonnentag et al., 2017, p. 365). Recovery experiences are the underlying psychological experiences that foster the restoration of resources during nonwork time (Sonnentag & Fritz, 2007). The four recovery

experiences originally introduced by Sonnentag and Fritz (2007) include psychological detachment from work (i.e., forgetting about work during nonwork time), relaxation (i.e., low sympathetic activation), mastery experiences (i.e., experiencing challenging situations), and control (i.e., deciding oneself how to spend nonwork time). These psychological experiences help to restore personal resources during nonwork time and, thereby, can contribute to beneficial outcomes at work. Accordingly, beneficial recovery experiences are not only positively related to well-being indicators but also predict performance-related outcomes (Headrick et al., 2022; Steed et al., 2019), underlining the relevance of examining the recovery experiences as a core outcome at home.

Although the benefits of recovery at home are well documented (Sonnentag et al., 2022), the role of supervisor support in subordinates' daily recovery processes remains unclear. Previous research examined how supervisor's general tendency to support their subordinates affects between-person differences in psychological detachment (Bendixen & Scheel, 2024; Sonnentag et al., 2024). Bendixen and Scheel (2024) found that supervisors' general support moderates the relationship of cognitive demands and psychological detachment when modeled cross-sectionally. Sonnentag et al. (2024) reported that supervisors' general tendency to support subordinates' recovery (such as by showing empathy for recovery or respect for boundaries) can explain between-person differences in psychological detachment. These studies underline our idea that supervisor support is crucial for subordinates' recovery experiences. Going beyond this research, based on the WH-R model (ten Brummelhuis & Bakker, 2012a), we investigate whether higher-than-usual supervisor support matters for subordinates' short-term recovery experiences. Moreover, we suggest that supervisor support aimed at distinct life domains of subordinates can benefit subordinates' recovery processes. Domain-specific support may be particularly relevant when examining recovery experiences in the home domain because the two types of support are directed specifically to both life domains.

Supervisor Work Support and Supervisor Nonwork Support

Based on principles of boundary management theory (Ashforth et al., 2000), we distinguish between supervisor support aimed at subordinates' work and nonwork roles. Thus, we differentiate between supervisor work support and supervisor nonwork support, taking into account the domain-specificity of perceived support (Kossek et al., 2011). First, supervisor work support refers to perceptions of social support with respect to the employees' work role (Thacker & Stoner, 2012) and can entail emotional and instrumental support with respect to the work role. In particular, work support includes supervisors answering questions about work tasks and helping subordinates cope with stressful experiences at work. Work support can also happen on days when subordinates work from home, for example, when the supervisor gives suggestions about how to approach a new task in an online meeting or provides emotional support for challenging work situations. Work support has been linked to various favorable subordinate outcomes (lower emotional exhaustion, Halbesleben, 2006; and higher job satisfaction, Mathieu et al., 2019) and could also benefit subordinates' recovery experiences at home.

Second, supervisor nonwork support is defined as perceived supervisor support that help subordinates manage their nonwork roles (Hammer et al., 2009) and encompasses emotional and instrumental support with respect to nonwork roles. Supervisor nonwork support includes helping subordinates with scheduling conflicts between work and nonwork life or listening to private problems. For example, when subordinates need to deal with unexpected private demands during work time, supervisors can signal emotional support and support subordinates in flexibly dealing with the private demand. When a subordinate works from home and needs to deal with private demands during work time, supervisors could communicate their support of fulfilling private responsibilities.

Whereas supervisor work support is traditionally studied in organizational research (for reviews, see Luchman & González-Morales, 2013; Skakon et al., 2010), in more recent years scholars turned their attention to employees' private lives (Crain & Stevens, 2018; Guo et al., 2024). As working conditions changed over the past decades (e.g., increasing number of dual-earner couples), supervisor nonwork support got more central (Crain & Stevens, 2018; Guo et al., 2024). Indeed, former studies have found that especially supervisor nonwork support is important for home outcomes (Kossek et al., 2011) such as work-family enrichment (Guo et al., 2024).

Subordinates' Vitality After Work as a Personal Resource Linking Supervisor Support With Recovery

The W-HR model describes a work-home enrichment process explaining why resources in the work domain can affect outcomes during nonwork time when employees occupy private roles (ten Brummelhuis & Bakker, 2012a). Specifically, contextual resources foster the development of personal resources inside the individual which are then available to the individual in the home domain, positively affecting home outcomes during nonwork time (Aw et al., 2021; Rodríguez-Muñoz et al., 2020). ten Brummelhuis and Bakker (2012a, p. 549) conceptualize personal resources as the "linking pins between the work and home domains". Specifically, when examining short-term processes, these personal resources are considered volatile personal resources or "energies" (ten

Brummelhuis & Bakker, 2012a, p. 552). We focus on subordinates' subjective energy after work by examining vitality as a volatile personal resource.

Accordingly, we propose that subordinates' vitality is the mechanism that links supervisor support to recovery experiences at home. Vitality – defined as "a positive feeling of having energy available" (Nix et al., 1999, p. 266) – is an indicator of employees' physical energy. When employees have sufficient vitality, they can fully engage in their private lives, positively contributing to home outcomes. The energetic level of the subordinate after work is highly relevant because (1) a workday is generally effortful and requires the investment of energetic resources (Hülsheger, 2016), and (2) former recovery studies have shown that effective recovery depends on current states after work (Sonnentag et al., 2022), with more positive states such as high vitality leading to better recovery. In line with the W-HR model (ten Brummelhuis & Bakker, 2012a), receiving support from one's supervisor regarding work and nonwork roles could help employees to preserve their energy, resulting in higher vitality. In turn, leaving work with higher vitality – a personal resource – fosters recovery experiences (Balk et al., 2021; Cangiano et al., 2021).

First, we propose indirect effects of supervisor work support on subordinates' recovery experiences via subordinates' vitality. When supervisors support subordinates with respect to work-related issues, subordinate can work more effectively on their tasks (Siegall & Cummings, 1986), investing less energy in unnecessary processes, and, thereby, preserving energy. In addition, subordinates might feel validated when supervisors acknowledge their potentially stressful work situation, helping them to cope with challenging situations (Sawhney et al., 2018) and, consequently, fostering subordinates' vitality. In turn, leaving work with higher vitality can foster subordinates' recovery experiences during nonwork time because subordinates might invest this additional energy in their private lives, for example in effortful activities (Sonnentag & Jelden, 2009). Engaging in these activities can foster detachment during nonwork time because employees focus their attention on nonwork issues (Feuerhahn et al., 2014). Moreover, high vitality can foster relaxation because employees might use the remaining evening after engaging in effortful activities to pursue more relaxing leisure pursuits, in order to actively down-regulate their arousal before going to sleep (Zijlstra et al., 2014). Supporting this idea, effortful activities are related to increased relaxation (ten Brummelhuis & Bakker, 2012a). Additionally, mastery experiences during nonwork time depend on energetic resources because these activities require effort and the investment of energy (Kinnunen et al., 2011). Moreover, employees could feel more in control over their private activities because they have the energetic resources to deal with challenging situations in their nonwork time.

Hypothesis 1: There are positive indirect effects of supervisor work support on (a) psychological detachment, (b) relaxation, (c) mastery experiences, and (d) control via vitality.

Second, we propose indirect effects of supervisor nonwork support on subordinates' recovery experiences via vitality. By receiving nonwork support, subordinates are not forced to divide their energy between work and private life, for example, when unexpected private issues come up. Supporting this idea, former research has shown that multitasking between work and nonwork demands drains employees' energetic resources (Leroy et al., 2021). However, if subordinates receive nonwork support, they can preserve their energy, even when private demands occur. Moreover, by providing nonwork support, supervisors communicate that they acknowledge and respect subordinates' nonwork roles which is a positive experience for the subordinate at work, and this positive experience may result in the experience of vitality (Ellis et al., 2019). Higher vitality after work can promote subordinates' recovery experiences because subordinates have the energetic resources to engage in effortful activities.

Hypothesis 2: There are positive indirect effects of supervisor nonwork support on (a) psychological detachment, (b) relaxation, (c) mastery experiences, and (d) control via vitality.

Supervisor Work and Nonwork Support Predicting Subordinates' Recovery Experiences

Based on the WH-R model, we focused on the process connecting supervisor support with subordinates' recovery in the first two hypotheses. Nonetheless, we suggest that supervisor support relates to recovery also directly. This suggestion goes beyond the assumptions of the WH-R model (ten Brummelhuis & Bakker, 2012a) but is in line with principles of boundary management theory (Ashforth et al., 2000). We propose that work support directly predicts subordinates' recovery experiences because supervisors support subordinates in fulfilling their work role. When subordinates successfully fulfilled their work-related responsibilities throughout the workday, this should also benefit their recovery experiences at home. In addition, supervisor nonwork support should directly foster subordinates' recovery experiences because supervisors support subordinates in fulfilling their nonwork roles (Ashforth et al., 2000). Receiving support for nonwork roles is a strong signal for employees that supervisors acknowledge subordinates' private lives. This could help subordinates to prioritize their private roles at home, benefitting their recovery experiences.

Providing first empirical support to our assumption, Sonnentag et al. (2024) found that 'respect for boundaries' is directly related to subordinates' detachment on the between-person level. Moreover, evidence from two meta-analysie

provide support for the associations of supervisor support with well-being outcomes at home (Guo et al., 2024; Hao et al., 2025).

Hypothesis 3: Supervisor work support is positively related to subordinates' (a) psychological detachment, (b) relaxation, (c) mastery experiences, and (d) control in the evening.

Hypothesis 4: Supervisor nonwork support is positively related to subordinates' (a) psychological detachment, (b) relaxation, (c) mastery experiences, and (d) control in the evening.

The Moderating Effect of Working From Home

Despite an increasing trend towards working from home (OECD, 2021), the WH-R model does not hold specific assumptions on working in the home domain and treats work and home as two distinct domains (ten Brummelhuis & Bakker, 2012a). The WH-R model specifies key resources (e.g., personality traits such as optimism) and macro resources (e.g., characteristics of the larger system such as culture) as moderators. Thereby, the WH-R model omits aspects of the work environment during the workday that could serve as important boundary conditions. Integrating principles of boundary management theory inside the WH-R framework, we suggest that working from home is a relevant moderator at the work-home interface (Gajendran et al., 2024). In particular, we assume that supervisor support may be particularly important on days when subordinates work from home (Ashforth et al., 2000). Employees maintain boundaries between work and nonwork roles to navigate life domains (Ashforth et al., 2000). When working from home, however, boundaries between work and home are increasingly blurred (Ashforth et al., 2000; Kossek et al., 2021). Thus, people lack clear physical and temporal boundaries between work and home life when working from home (Kerman et al., 2022; Kossek et al., 2021). Due to these blurred boundaries between work and private roles, experiences at work (i.e., receiving supervisor support) can affect subordinates' off-job time when employees occupy private roles more strongly.

We suggest that both types of supervisor support have *stronger* associations with subordinates' recovery experiences during nonwork time when employees work at home than when they work at the office. Employees are more prone to take work experiences into their nonwork life on working-from-home days because of blurred boundaries (Kerman et al., 2022). In line with this idea, previous work emphasizes that supervisor support is particularly important when subordinates work from home (Charalampous et al., 2019; Perrigino & Raveendhran, 2020). Specifically, research on virtual leadership suggests that supervisor support has a stronger impact on subordinate outcomes in virtual environments because supervisors can protect subordinates' well-being by helping them deal with blurred boundaries when working from home (Bell et al., 2023).

First, working from home moderates the associations of work support with subordinates' recovery experiences. Receiving support (e.g., in meetings with supervisors that help prioritize work tasks), helps subordinates to focus on their work, especially when working from home where boundaries might be blurred and distractions might occur (Leroy et al., 2021), benefitting their recovery experiences during nonwork time. Focusing on their work role during work time due to supervisor work support can help subordinates' to accomplish their work tasks, benefitting their recovery experiences during nonwork time due to fewer unfinished tasks (Syrek & Antoni, 2014). When working at the office, subordinates might need this support less to focus on their work role because stronger boundaries prevent private issues from intruding into work life. Second, on days when working from home, subordinates need nonwork support more because of blurred boundaries (Leroy et al., 2021). By flexibly dealing with private demands due to nonwork support, employees experience less work-family conflict (Kossek et al., 2011) which can benefit their recovery experiences during nonwork time. In addition, when working from home, employees may extend their work hours due to the blurred boundaries between work and home (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin [BAuA], 2021; Felstead & Henseke, 2017). Accordingly, supervisor nonwork support on working-from-home days may be a strong cue that acknowledges private roles and helps subordinates to protect recovery time in the evening, benefitting subordinates' recovery experiences during nonwork time.

Hypothesis 5: Working from home moderates the direct relationship of supervisor work support with (a) psychological detachment, (b) relaxation, (c) mastery experiences, and (d) control such that the relationship is stronger when subordinates work from home than when subordinates work at the office.

Hypothesis 6: Working from home moderates the direct relationship of supervisor nonwork support with (a) psychological detachment, (b) relaxation, (c) mastery experiences, and (d) control such that the relationship is stronger when subordinates work from home than when subordinates work at the office.

Method

Procedure and Sample

The study was part of a larger research project in Germany on the interface between work and nonwork life. We recruited participants via social media websites (e.g., www.facebook.com) and personal contacts of the first author.

Participants received up to 25€ as monetary compensation. Employees were eligible to participate if they worked at least 20 h per week on four or more days, had regular working hours, and had regular contact with their supervisor (i.e., at least twice a week). Employees who have varying daily work times or do not report to an immediate supervisor were excluded from participation (e.g., teachers, shift workers, and self-employed workers).[1]

Data were collected from June 2021 to April 2022.[2] We conducted a daily diary study over two work weeks with measurement points in the morning, after work, and at bedtime. In total, 256 employees registered for the study and filled in an entry survey that assessed demographic information. During the registration process, participants selected two weeks for their participation. Additionally, they could decide at what time the after-work survey (i.e., 1 p.m., 3 p.m., 4 p.m., or 5 p.m.) and the bedtime survey (i.e., 9 p.m. or 10 p.m.) was send. The morning survey was sent out to all participants at 5 a.m. and was available until 10 a.m. The after-work survey could be filled in until 8 p.m. and the bedtime survey until 2 a.m. All surveys were administered online via the survey tool Sosci Survey (Leiner, 2019a).

Overall, 233 employees provided 1,731 morning surveys, 1,684 after-work surveys and 1,580 bedtime surveys. We excluded diary data when (1) participants did not report any contact with their supervisor that day or reported less than two days of contact during the diary phase, (2) participants neither worked at the office nor worked from home, but somewhere else (e.g., business trip), and (3) the survey was filled in much quicker than in the rest of the sample (Leiner, 2019b).[3] The final sample consists of 171 employees who provided 831 morning surveys, 871 after-work surveys and 748 bedtime surveys which fulfilled our inclusion criteria. All in all, the sample includes 871 workdays. On 305 days (35%) employees worked from home with a mean of $M = 1.8$ working-from-home days per person ($SD = 2.3$, Range: 0 to 9).

In our final sample, 112 participants (65.5%) were female. Most participants (66.6%) were younger than 40 years (range: 18 to 65). Moreover, 126 participants (73.7%) worked in a full-time position (i.e., 36 or more hours per week), 112 participants (65.5%) held a university or similar degree, and 47 participants (27.5%) were in a leadership position. Participants worked in various sectors, with 14% from culture, education, and science; 14% from health and social services; 9.4% from economic services; and 8.8% from the industrial sector. On average, participants reported regularly working from home on 1.94 days per week, with 102 participants (59.6%) reporting working from home at least one day per week.

To rule out selective attrition, we compared our final sample to those employees who filled in the entry survey but were not included in the final sample (dropout sample). We found no significant differences between the final sample and the dropout sample regarding age, $\chi^2(9, N = 253) = 8.79$, $p = .46$; gender, $\chi^2(2, N = 253) = 2.70$, $p = .26$; working hours per week, $\chi^2(9, N = 253) = 10.45$, $p = .32$; or frequency of supervisor contact, $\chi^2(4, N = 253) = 3.23$, $p = .52$. Moreover, the final sample did not differ from the dropout sample with respect to supervisor work support, $t(254) = -0.84$, $p = .404$, supervisor nonwork support, $t(254) = 0.03$, $p = .974$, and participants' general vitality, $t(254) = -1.32$, $p = .189$. However, employees in the dropout sample reported in the entry survey more working-from-home days compared to the final sample ($M = 1.94$ in the final sample, $M = 2.62$ in the dropout sample, $t(254) = 2.58$, $p = .01$).

Daily Measures

We measured supervisor nonwork support, supervisor work support, and vitality in the after-work survey and recovery experiences in the bedtime survey. All daily measures were administered in German and were back translated if needed (Brislin, 1970). All items were rated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) and were adapted to the daily use if needed.[4] Table 1 displays descriptive statistics, level-specific Cronbach's α (Geldhof et al., 2014), and intraclass correlation coefficients. Table 2 shows correlations on the within-person level and between-person level.

Supervisor Work Support

We assessed supervisor work support with the relationship function inventory (RFI; Colbert et al., 2016) and adapted it

[1] Additionally, because our study was part of a larger research project, participants were required to use information and communication technologies (ICTs, e.g., smartphone) for work-related purposes during off-job time. Importantly, the study did not include an intervention but only measured naturally occurring ICT use during off-job time. However, the criterion on ICT use during off-job time was not relevant for the current study.

[2] Note that, despite not being a lockdown period, there was an official recommendation in Germany to work from home from November 2021 to March 2022 due to the COVID-19 pandemic. Fifty employees (29%) of our final sample participated in the study during that time frame. Employees who participated during that time worked at the office on 178 days and worked from home on 121 days, indicating that employees still worked at the office despite the official recommendation.

[3] To rule out the potential effects of careless responding in our data, we excluded daily questionnaires that were filled in relatively quickly compared to the other questionnaires (Leiner, 2019b). Specifically, Sosci Survey provides the relative speed index TIME_RSI with a recommended cut-off value (TIME_RSI > 2; Leiner, 2019b). A relative speed index TIME_RSI of 2 refers to a questionnaire that was completed twice as fast as the typical questionnaire.

[4] A list of all items is available upon request from the first author.

Table 1 Descriptive statistics and reliabilities

Variable	*M*	SD_w	SD_b	ICC	α_w	α_b
1. Supervisor work support	1.76	0.86	0.84	.46	.86	.93
2. Supervisor nonwork support	1.67	0.83	0.92	.48	.89	.98
3. Workload	2.98	1.04	1.04	.58	.80	.97
4. Vitality (M)	2.63	0.92	0.92	.55	.89	.97
5. Vitality (AW)	2.70	0.88	0.88	.48	.88	.96
6. Working from home	0.36	0.48	0.48	.71	-	-
7. Psychological detachment	3.54	1.13	1.13	.56	.87	.99
8. Relaxation	3.31	1.05	1.05	.45	.84	.96
9. Mastery experiences	2.46	0.99	0.99	.42	.79	.97
10. Control	3.76	0.84	0.96	.56	.81	.99

$N = 171$ persons, $n = 871$ days. SD_w refers to the standard deviation at the within-person level, SD_b refers to the standard deviation at the between-person level. α_w indicates the within-person Cronbach's alpha and α_b the between-person Cronbach's alpha

We did not report Cronbach's alpha for the working from home variable because we measured it with a single item. Working from home was coded as 1, working at the office was coded as 0

Abbreviations: *M* morning survey, *AW* after-work survey, *ICC* intraclass correlation

Table 2 Within-person and between-person correlations

Variable	1	2	3	4	5	6	7	8	9	10
1. Supervisor work support		.58***	.09*	-.01	.07†	-.04	-.06	.03	.03	.05
2. Supervisor nonwork support	.87***		-.01	-.01	.03	-.07*	-.03	.05	-.04	.05
3. Workload	.23*	.18*		-.06	-.17***	-.04	-.12*	-.15**	-.09*	-.06
4. Vitality (M)	.08	.07	.23*		.23***	-.02	.05	.17***	.10*	.10*
5. Vitality (AW)	.10	.04	.06	.68***		.02	.12**	.21***	.14***	.18***
6. Working from home	-.11	-.20**	-.09	.05	.11		-.05	-.02	-.06	-.03
7. Psychological detachment	-.08	-.06	-.30**	.16†	.43***	.06		.45***	.12**	.39***
8. Relaxation	.12	-.03	-.19†	.22*	.38***	.09	.73***		.11*	.61***
9. Mastery experiences	.07	.11	.05	.39***	.52***	.20*	.41***	.41***		.25***
10. Control	.08	-.04	-.15	.26**	.38***	.10	.71***	.81***	.38***	

Correlations above the diagonal refer to the within-person level ($n = 871$ days), correlations below the diagonal refer to the between-person level ($N = 171$ persons)

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$

Abbreviations: *M* morning survey, *AW* after-work survey

to the supervisor. We used three items to assess emotional support ("Today, my supervisor helped me cope with stress at work") and three items to assess instrumental support ("Today, my supervisor helped me get my work done").

Supervisor Nonwork Support

We measured supervisor nonwork support with two scales from the family supportive supervisor behaviors questionnaire (Hammer et al., 2009). Four items reflected emotional support (e.g., "Today, my supervisor was willing to listen to my problems in juggling work and nonwork life") and three items assessed instrumental support (e.g., "Today, my supervisor helped me with scheduling conflicts between work and private life").

End-of-Workday Vitality

We used five items of subjective vitality scale (Ryan & Frederick, 1997). We shortened the originally seven-item scale to reduce participant burden in the daily surveys.[5] Participants reported how vital they felt right now (e.g., "At the moment, I'm feeling alive and vital").

[5] Specifically, we dropped a reverse-coded item and the item „I look forward to every new day " because we deemed this item unsuitable for the daily use. We measured the seven-item version in the entry survey and, when dropping the two items, the seven-item version and the five-item version correlated at $r = .98$, $p < .001$. Both the seven-item version ($\alpha = .92$) and the five-item version ($\alpha = .91$) achieved comparable reliabilities in the entry survey.

Recovery Experiences

We measured recovery experiences with four items for each recovery experience from the Recovery Experience Questionnaire (Sonnentag & Fritz, 2007). Sample items are "Tonight, I forgot about work" (psychological detachment), "Tonight, I did relaxing things" (relaxation), "Tonight, I did things that challenge me" (mastery), and "Tonight, I decided my own schedule" (control).

Working From Home

We measured working from home with a dummy-coded variable with 0 indicating *working at the office* and 1 indicating *working from home*. In the after-work survey, participants reported where they had worked on the respective day.[6]

Control Variables

We controlled for morning vitality (i.e., measured in the same way as after-work vitality; Ryan & Frederick, 1997) to predict change in vitality and to rule out the possibility that high subordinate vitality drove supervisor support toward them (Gabriel et al., 2019). In addition, we controlled for daily workload. Work demands such as workload require the investment of personal resources and can impair home outcomes (ten Brummelhuis & Bakker, 2012a). Both vitality and the recovery experiences may be impaired on days with high workload (Sonnentag & Niessen, 2008; Steed et al., 2019). We measured workload in the after-work survey with the workload scale from Spector and Jex (1998), which was shortened to a four-item version and adapted to the day-level (e.g., Casper & Wehrt, 2022; Wiegelmann et al., 2023, e.g., "Today, my job required me to work very fast").

Construct Validity

We conducted multilevel confirmatory factor analysis using Mplus version 8.7 (Muthén & Muthén, 1998–2011) to test construct validity. Because we measured supervisor work support and nonwork support with two subscales each reflecting perceived emotional and instrumental support, and in line with prior research on supervisor nonwork support (Hammer et al., 2009), we computed two higher-order support factors representing work support and nonwork support. We modeled higher-order support factors because we were interested in the domain-specificity of the support dimensions rather than the type of support. A model with two higher-order support factors fit the data well, $\chi^2 = 410.67$, $df = 125$, $p < .001$, Scaling Correction Factor (SCF) = 1.17, Root Mean Square Error of Approximation (RMSEA) = .05, Comparative Fit Index (CFI) = .95, Tucker-Lewis Index (TLI) = .94, AIC = 26,176.65, within-person standardized root mean square residual ($SRMR_{within}$) = .04, between-person standardized root mean square residual ($SRMR_{between}$) = .06. On the within-person level, the lower-order factors of emotional and instrumental work support correlated with $r = .71$, $p < .001$, and the lower-order factors of emotional and instrumental nonwork support correlated with $r = .66$, $p < .001$. On the between-person level, the lower-order factors of emotional and instrumental work support correlated with $r = .67$, $p < .001$, and the lower-order factors of emotional and instrumental nonwork support correlated with $r = .97$, $p < .001$. Importantly, the two-higher-order-factor model fit the data better than a two-factor model without lower- and higher-order factors where all items loaded directly on their respective factor, $\chi^2 = 1{,}069.19$, $df = 131$, $p < .001$, SCF = 1.26, RMSEA = .09, CFI = .83, TLI = .80, AIC = 27,035.34, $SRMR_{within} = .07$, $SRMR_{between} = .12$, Satorra-Bentler $\Delta\chi^2(6) = 276.46$, $p < .001$, better than a model with one overall higher-order factor reflecting general support, $\chi^2 = 661.20$, $df = 127$, $p < .001$, SCF = 1.12, RMSEA = .07, CFI = .90, TLI = .88, AIC = 26,434.52, $SRMR_{within} = .08$, $SRMR_{between} = .11$, Satorra-Bentler $\Delta\chi^2(2) = -129.71$,[7] and better than a two-higher-order factor model where the higher order factors reflect emotional and instrumental support, $\chi^2 = 614.74$, $df = 125$, $p < .001$, SCF = 1.12, RMSEA = .07, CFI = .91, TLI = .89, AIC = 26,387.74, $SRMR_{within} = .07$, $SRMR_{between} = .10$. In addition, we tested whether the factor structure is isomorphic across levels (i.e., whether the two higher-order factor structure is suitable both at the within-person and between-person level, Tay et al., 2014). Taken together, we found that the two higher-order factor structure achieves good fit across levels (see the Online Supplement for further details), providing evidence for an isomorphic factor structure across levels. Thus, for hypothesis testing, we used the two-higher-order-factor model because (1) this model is more parsimonious than the four-factor

[6] In addition to the two response options (i.e., *working at the office*, *working from home*), participants could openly describe where they had worked that day. This option was selected on 51 days. We screened these answers and aimed to classify them as one of the two options. For example, on days when people indicated that they had worked both at home and at the office, we classified it as *working at the office* because – most probably – on those days, participants had opportunities for interpersonal contact in the office. When we could not allocate the answer to one of the two options (e.g., when participants were on a business trip or worked at a conference), we excluded this day from analyses ($n = 23$ days).

[7] Because in this case, the Satorra-Bentler scaled chi-square difference test resulted in negative values, we used the AIC for model comparison, with lower values indicating a better model fit (Hox et al., 2017).

model, and (2) we did not predict any differences regarding emotional and instrumental support (Matick et al., 2022). An overall model with the two higher-order factors, workload, and end-of-work vitality fit the data well, $\chi^2 = 931.15$, $df = 404$, $p < .001$, SCF = 0.98, RMSEA = .04, CFI = .95, TLI = .95, $SRMR_{within} = .03$, $SRMR_{between} = .07$. For the bedtime survey, the four-factor model reflecting the four recovery experiences fit the data well, $\chi^2 = 324.43$, $df = 198$, $p < .001$, SCF = 1.06, RMSEA = .03, CFI = .98, TLI = .98, $SRMR_{within} = .04$, $SRMR_{between} = .06$.

Data Analysis

With days nested within persons, our data has a multilevel structure. Accordingly, we analyzed our data with multilevel path models in Mplus 8.7 (Preacher et al., 2010). Taking into account variance on the within-person and between-person level, we modeled the specified paths on both levels, with the exception of the paths including working from home which was specified as a within-person variable and was only used at the within-person level. Accordingly, working from home was not latently centered at the person mean (i.e., did not reflect the ratio of working from home versus working at the office). Thus, working from home captured the actual workspace where participants worked on a specific day. Because employees might differ in their slopes regarding the hypothesized relationships, we tested whether there was significant variance in the slopes. We modeled only those paths to vary between persons (i.e., as random slopes) which showed significant variance in their slope.[8] All other paths were calculated with fixed slopes. To deal with missing data, we used multiple imputation to make use of all available data (Newman, 2014). Our analysis is based on 50 imputed data sets.

To obtain higher-order factor scores for supervisor nonwork support and supervisor work support, we calculated factor scores using the DEFINE command in Mplus. We used the within-person factor loadings of the lower-order factors on the respective higher-order factors from the multilevel confirmatory factor analysis. Accordingly, we weighed the individual day-level mean score of one of the support dimensions (emotional work support, instrumental work support, emotional nonwork support, and instrumental nonwork support) with the respective factor loading. Thus, the higher-order factor in the main analysis was calculated as a weighted mean across the respective two dimensions. Similarly, we used the between-person factor loadings as weight for the factor scores of the between-person higher order factor.

We estimated two models. First, we specified a main-effects-only model which included predictors, the mediator, and outcomes. We used this model to calculate indirect effects using the MODEL CONSTRAINT command in Mplus. Additionally, we applied the Monte Carlo method to calculate confidence intervals for the indirect effects (Selig & Preacher, 2008). Second, we estimated one overall model which, in addition, included the interaction terms of working-from-home with supervisor work support and supervisor nonwork support. The working-from-home variable was uncentered and specified as a within-person variable. We used simple slopes tests for significant interactions to interpret the interaction results, calculating simple slopes separately for working-from-home days and working-at-the-office days with the MODEL CONSTRAINT command in Mplus. Lastly, we calculated the explained variance by comparing the explained variance of a null model with the residual variance of our interaction-effects model (LaHuis et al., 2014; Raudenbush & Bryk, 1992). The syntax of our overall model and our data are available online (https://osf.io/bghxy/overview?view_only=17da1543e80c4f9c826f922171e13f40).

Results

Results of the main-effects-only model are displayed in Table 3 and indirect effects are displayed in Table 4. Hypothesis 1 proposed positive indirect effects of work support on subordinates' recovery experiences via subordinates' vitality. Supporting this hypothesis, we found significant indirect effects on (a) psychological detachment, estimate = 0.01, *SE* = 0.01, 95% CI [0.001, 0.032], (b) relaxation, estimate = 0.03, *SE* = 0.01, 95% CI [0.002, 0.051], (c) mastery experiences, estimate = 0.02, *SE* = 0.01, 95% CI [0.001, 0.036], and control, estimate = 0.02, *SE* = 0.01, 95% CI [0.001, 0.039].[9] Hypothesis 2 suggested positive indirect effects of nonwork support on subordinates' recovery experiences via subordinates'

[8] Only the path of workload predicting mastery experiences showed significant between-person variance and was set random in our analysis.

[9] When excluding workload as a control variable from our analysis, the relationship between work support and vitality was marginally significant, estimate = 0.08, *SE* = 0.05, *p* = .094, suggesting a suppressor effect of workload (Conger, 1974). Vitality, in turn, predicted detachment, estimate = 0.15, *SE* = 0.05, *p* = .001, relaxation, estimate = 0.26, *SE* = 0.05, *p* = < .001, mastery experiences, estimate = 0.16, *SE* = 0.05, *p* = .001, and control, estimate = 0.18, *SE* = 0.04, *p* < .001. Accordingly, the indirect effects of work support via vitality on detachment, estimate = 0.01, *SE* = 0.01, 95% CI [-0.0020, 0.0310], 90% CI [0.0002, 0.0272], on relaxation, estimate = 0.02, *SE* = 0.01, 95% CI [-0.0035, 0.0502], 90% CI [0.0006, 0.0451], on mastery experiences, estimate = 0.01, *SE* = 0.01, 95% CI [-0.0020, 0.0328], 90% CI [0.0002, 0.0288], and on control, estimate = 0.02, *SE* = 0.01, 95% CI [-0.0025, 0.0350], 90% CI [0.0001, 0.0315], only the 90% confidence intervals did not include 0.

Table 3 Model with main effects only

	Vitality (AW)		Psychological Detachment		Relaxation		Mastery Experiences		Control	
Predictor Variable	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*
Within-person level										
SWS	0.10 (0.05)	.033	−0.06 (0.06)	.324	0.01 (0.06)	.848	0.09 (0.06)	.148	0.03 (0.05)	.584
SNWS	−0.04 (0.05)	.463	−0.01 (0.07)	.874	0.05 (0.07)	.424	−0.11 (0.07)	.099	0.03 (0.05)	.626
Workload	−0.15 (0.03)	< .001	−0.12 (0.06)	.039	−0.14 (0.05)	.006	−0.10 (0.05)[a]	.070	−0.03 (0.04)	.450
Vitality (M)	0.25 (0.04)	< .001								
Vitality (AW)			0.13 (0.05)	.006	0.24 (0.05)	< .001	0.15 (0.05)	.001	0.18 (0.04)	< .001
WFH			−0.12 (0.08)	.145	−0.05 (0.09)	.529	−0.01 (0.09)	.947	−0.05 (0.07)	.509
Between-person level										
SWS	0.17 (0.14)	.241	−0.09 (0.18)	.640	0.39 (0.18)	.028	−0.05 (0.15)	.715	0.27 (0.19)	.158
SNWS	−0.07 (0.14)	.606	−0.02 (0.17)	.922	−0.25 (0.15)	.083	0.11 (0.13)	.408	−0.20 (0.18)	.266
Workload	0.02 (0.10)	.837	−0.33 (0.10)	< .001	−0.21 (0.09)	.016	0.11 (0.09)	.232	−0.17 (0.08)	.050
Vitality (AW)			0.67 (0.12)	< .001	0.43 (0.12)	< .001	0.50 (0.11)	< .001	0.45 (0.12)	< .001

$N = 171$ persons, $n = 871$ days. Estimates are unstandardized and resulted from one overall model including main effects. Standard errors are displayed in parentheses

[a]This path was set random due to significant between-person variance in this slope

Abbreviations: *est.* estimates, *M* morning survey, *AW* after-work survey, *SWS* supervisor work support, *SNWS* supervisor nonwork support, *WFH* working from home

Table 4 Indirect effects at the within-person level

	est	*SE*	95% CI
Supervisor work support ➞ Vitality (AW) ➞ Psychological detachment	0.01	0.01	[0.001, 0.032]
Supervisor work support ➞ Vitality (AW) ➞ Relaxation	0.03	0.01	[0.002, 0.051]
Supervisor work support ➞ Vitality (AW) ➞ Mastery experiences	0.02	0.01	[0.001, 0.036]
Supervisor work support ➞ Vitality (AW) ➞ Control	0.02	0.01	[0.001, 0.039]
Supervisor nonwork support ➞ Vitality (AW) ➞ Psychological detachment	−0.01	0.01	[−0.020, 0.008]
Supervisor nonwork support ➞ Vitality (AW) ➞ Relaxation	−0.01	0.01	[−0.033, 0.015]
Supervisor nonwork support ➞ Vitality (AW) ➞ Mastery experiences	−0.01	0.01	[−0.023, 0.009]
Supervisor nonwork support ➞ Vitality (AW) ➞ Control	−0.01	0.01	[−0.025, 0.011]

$N = 171$ persons, $n = 871$ days. Estimates are unstandardized and resulted from the main-effects model. Confidence intervals were calculated with the Monte Carlo method by Selig and Preacher (2008)

Abbreviations: *est.* estimates, *AW* after-work survey

vitality. Failing to support Hypothesis 2, we found no empirical support for the indirect effects of supervisor nonwork support via vitality on (a) psychological detachment, estimate = −0.01, *SE* = 0.01, 95% CI [−0.020, 0.008], (b) relaxation, estimate = −0.01, *SE* = 0.01, 95% CI [−0.033, 0.015], (c) mastery experiences, estimate = −0.01, *SE* = 0.01, 95% CI [−0.023, 0.009], and (d) control, estimate = −0.01, *SE* = 0.01, 95% CI [−0.025, 0.011].[10]

Hypothesis 3 suggested that supervisor work support is positively associated with subordinates' recovery experiences. This hypothesis was not supported as work support was not significantly related to (a) psychological detachment, estimate = −0.06, *SE* = 0.06, $p = .32$, (b) relaxation, estimate = 0.01, *SE* = 0.06, $p = .85$, (c) mastery experiences, estimate = 0.09, *SE* = 0.06, $p = .15$, and (d) control, estimate = 0.03, *SE* = 0.05, $p = .58$. Hypothesis 4 stated that supervisor nonwork support predicts subordinates' recovery experiences. We found no empirical support for this hypothesis as nonwork support did not significantly predict, (a) psychological detachment, estimate = −0.01, *SE* = 0.07, $p = .87$, (b) relaxation, estimate = 0.05, *SE* = 0.07, $p = .42$, (c)

[10] When we excluded workload as a control variable from our analysis, the indirect effects of nonwork support via vitality on the recovery experiences remained insignificant.

mastery experiences, estimate = −0.11, *SE* = 0.07, *p* = .10, and (d) control, estimate = 0.03, *SE* = 0.05, *p* = .63.

Unstandardized path estimates of the overall model including the interaction terms are presented in Table 5. Hypothesis 5 suggested that working from home moderates the relationship between work support and subordinates' recovery experiences. In our overall model, the interaction term between work support and working from home significantly predicted (d) control, estimate = −0.21, *SE* = 0.09, *p* = .023. However, simple slope tests revealed that the slopes of work support on control were neither significant on days when working from home, slope estimate = −0.10, *SE* = 0.07, *p* = .142, nor on days when working at the office, slope estimate = 0.12, *SE* = 0.07, *p* = .099. Interaction terms between work support and working from home did not significantly predict (a) psychological detachment, estimate = −0.07, *SE* = 0.11, *p* = .530, (b) relaxation, estimate = −0.20, *SE* = 0.11, *p* = .067, and (c) mastery experiences, estimate = 0.04, *SE* = 0.13, *p* = .770. Accordingly, we found no empirical support for Hypothesis 5.

Hypothesis 6 suggested that working from home moderates the relationship between supervisor nonwork support and subordinates' recovery experiences. The interaction effects of nonwork support with working from home significantly predicted (a) psychological detachment, estimate = 0.45, *SE* = 0.12, *p* < .001, (b) relaxation, estimate = 0.44, *SE* = 0.12, *p* < .001, and (d) control, estimate = 0.43, *SE* = 0.10, *p* < .001, but not (c) mastery experiences, estimate = −0.02, *SE* = 0.16, *p* = .905. Thus, Hypothesis 6c was not supported. Plots of the significant interactions are displayed in Fig. 2. Simple slope tests revealed a significant positive relationship between nonwork support and psychological detachment on days when working from home, slope estimate = 0.30, *SE* = 0.09, *p* = .001, and a non-significant negative relationship on days when working at the office, slope estimate = −0.15, *SE* = 0.08, *p* = .062. Thus, Hypothesis 6a was supported. In support of Hypothesis 6b, simple slope tests showed a significant positive association between nonwork support and relaxation on days when working from home, slope estimate = 0.35, *SE* = 0.09, *p* < .001, and a non-significant relationship on days when working at the office, slope estimate = −0.09, *SE* = 0.08, *p* = .254. Simple slope tests also revealed a significant positive relationship between nonwork support and control on days when working from home, slope estimate = 0.31, *SE* = 0.09, *p* < .001, but a significant negative relationship on days when working at the office, slope estimate = −0.11, *SE* = 0.05, *p* = .032. Because we expected a stronger positive relationship between nonwork support and control on days when working from home but did not predict a negative relationship on days when working at the office, Hypothesis 6d was partially supported.

Lastly, we calculated the explained variance. Our full model explained 8.5% of the within-person variance in

Table 5 Full model including main effects and interaction effects with working from home

	Vitality (AW)		Psychological Detachment		Relaxation		Mastery Experiences		Control	
Predictor variable	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*
Within-person level										
SWS	0.10 (0.05)	.033	−0.03 (0.07)	.667	0.08 (0.08)	.276	0.07 (0.08)	.350	0.12 (0.07)	.099
SNWS	−0.04 (0.05)	.464	−0.15 (0.08)	.062	−0.09 (0.08)	.254	−0.10 (0.08)	.188	−0.11 (0.05)	.032
Workload	−0.15 (0.03)	< .001	−0.11 (0.05)	.038	−0.12 (0.05)	.010	−0.10 (0.05)[a]	.049	−0.02 (0.04)	.588
Vitality (M)	0.25 (0.04)	< .001								
Vitality (AW)			0.14 (0.05)	.002	0.24 (0.05)	< .001	0.15 (0.05)	.002	0.18 (0.04)	< .001
WFH			−0.13 (0.08)	.128	−0.05 (0.09)	.552	−0.01 (0.09)	.918	−0.03 (0.07)	.629
SWS * WFH			−0.07 (0.11)	.530	−0.20 (0.11)	.067	0.04 (0.13)	.770	−0.21 (0.09)	.023
SNWS * WFH			0.45 (0.12)	< .001	0.44 (0.12)	< .001	−0.02 (0.16)	.905	0.43 (0.10)	< .001
Between-person level										
SWS	0.16 (0.14)	.260	−0.09 (0.18)	.620	0.37 (0.18)	.035	−0.06 (0.15)	.677	0.25 (0.19)	.185
SNWS	−0.07 (0.14)	.612	0.00 (0.16)	.992	−0.23 (0.14)	.105	0.11 (0.13)	.418	−0.19 (0.19)	.185
Workload	0.03 (0.09)	.793	−0.33 (0.09)	< .001	−0.21 (0.09)	.017	0.11 (0.09)	.204	−0.16 (0.08)	.053
Vitality (AW)			0.65 (0.12)	< .001	0.42 (0.12)	.001	0.49 (0.11)	< .001	0.43 (0.12)	< .001

N = 171 persons, *n* = 871 days. Estimates are unstandardized and resulted from one overall model including all main effects and interaction effects with working from home. Standard errors are displayed in parentheses

[a]This path was set random due to significant between-person variance in this slope

Abbreviations: *est.* estimates, *M* morning survey, *AW* after-work survey, *SWS* supervisor work support, *SNWS* supervisor nonwork support, *WFH* working from home

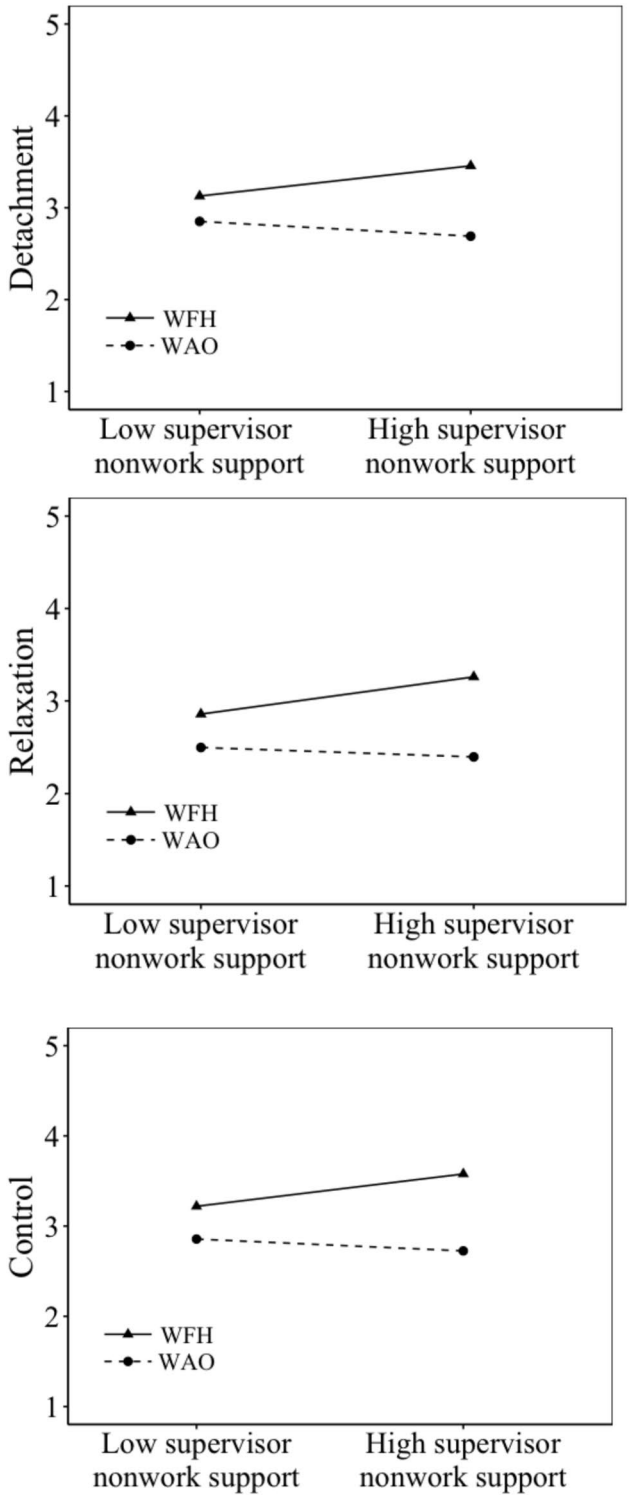

Fig. 2 Plots of the interaction effects of supervisor nonwork support with daily working from home on psychological detachment, relaxation, and control. Note. WFH = working from home; WAO = working at office. High versus low supervisor nonwork support referred to the mean ± 1 standard deviation

vitality, 6.3% of the within-person variance in psychological detachment, 8.1% of the within-person variance in relaxation, 4.2% of the within-person variance in mastery experiences, and 6.9% of the within-person variance in control.

Additional Analyses

We ran several additional analyses. First, we tested supervisor work support and supervisor nonwork support as moderators of the associations of workload with the recovery experiences (see Table S2 in the Online Supplement). One might argue that, in line with the job demands-resources model (Bakker & Demerouti, 2017; Demerouti et al., 2001), supervisor support during the workday buffers adverse effects of workload on the recovery experiences. However, work support did not moderate the associations of workload with psychological detachment, estimate = 0.08, $SE = 0.10$, $p = .454$, relaxation, estimate = −0.05, $SE = 0.10$, $p = .606$, mastery experiences, estimate = −0.15, $SE = 0.09$, $p = .076$, and control, estimate = −0.08, $SE = 0.08$, $p = .341$. Moreover, nonwork support did not moderate the associations of workload with psychological detachment, estimate = −0.14, $SE = 0.11$, $p = .229$, relaxation, estimate = −0.00, $SE = 0.12$, $p = .987$, mastery experiences, estimate = 0.11, $SE = 0.09$, $p = .245$, and control, estimate = 0.05, $SE = 0.09$, $p = .578$. Thus, we found no support for the buffering role of supervisor work support and supervisor nonwork support in the associations of workload with the recovery experiences.

Second, we tested whether working from home also moderates the associations of work and nonwork support with end-of-work vitality (see Table S3 in the Online Supplement), because beneficial effects of supervisor support may also be apparent earlier during the workday. However, working from home neither moderated the relationship of work support with vitality, estimate = −0.03, $SE = 0.09$, $p = .782$, nor the relationship of nonwork support with vitality, estimate = −0.04, $SE = 0.10$, $p = .702$. Importantly, in this additional analysis, the results of the moderation of working from home on the associations of nonwork support with the recovery experiences remained significant (detachment, estimate = 0.45, $SE = 0.12$, $p < .001$; relaxation, estimate = 0.44, $SE = 0.13$, $p = .001$; and control, estimate = 0.43, $SE = 0.10$, $p < .001$). Thus, our finding regarding the moderation on the direct path was robust.

Third, one might argue that other personal resources link work and nonwork support with the recovery experiences (see Tables S4 and S5 in the Online Supplement). Therefore, we examined free leisure time during the evening and positive affect as a capital and affective personal resource, respectively (ten Brummelhuis & Bakker, 2012a), and tested leisure time and positive affect as alternative mediators. We

measured free leisure time in the after-work survey with one self-developed item. Participants were asked to rate in minutes how much free leisure time they anticipated to have during the evening. Specifically, participants were instructed to think about the time between the end of work and going to bed that they can spend with pleasurable activities (e.g., meeting friends, reading a book). We assessed positive affect with six items of the PANAS in the after-work survey (e.g., active Watson et al., 1988). Neither work support, estimate = 0.64, $SE = 6.27$, $p = .919$, nor nonwork support, estimate = −3.57, $SE = 7.51$, $p = .634$, significantly predicted free leisure time during the evening, providing no support for leisure time as an alternative mediator. Moreover, neither work support, estimate = 0.08, $SE = 0.05$, $p = .077$, nor nonwork support, estimate = 0.00, $SE = 0.04$, $p = .953$, significantly predicted positive affect, providing no support for positive affect as an alternative mediator. Taken together, we found no support for other personal resources as mediators linking work and nonwork support with the recovery experiences, underlining that vitality is the most relevant mechanism.

Fourth, we tested remote work intensity as a cross-level moderator (see Table S6 in the Online Supplement) by aggregating our within-person variable working from home to the between-person level coded as −1 (*employees who only work at the office*), 0 (*hybrid workers who work at the office and from home*), 1 (*employees who only work from home*). The result pattern largely mirrored our results with working from home as a within-person moderator. We provide detailed results of this analysis in the Online Supplement.

Discussion

Using a daily diary design, we found that supervisor nonwork support positively was positively related to psychological detachment, relaxation, and control on working-from-home days. In contrast, supervisor work support indirectly related to subordinates' recovery experiences via increased vitality.

Theoretical Implications

Integrating the WH-R model (ten Brummelhuis & Bakker, 2012a) with principles of boundary management theory (Ashforth et al., 2000) proved fruitful as we found empirical support for both perspectives. With respect to the social support literature (Hammer et al., 2009; Kossek et al., 2011), our findings highlight the importance of separately examining supervisor work support and nonwork support (Kelemen et al., 2020). Boundary management theory suggests that employees hold different roles in the work and home domain (Ashforth et al., 2000) and mirroring these domains in our conceptualization of supervisor support turned out to be relevant. While both types of support are associated with recovery on the day-level, they relate to recovery experiences in different ways. Our differential findings point towards the benefit of differentiating between domain-specific types of support in research on the work-home interface. Consequently, supervisors should consider both life domains in their leadership.

Our findings suggest that supervisor work support matters for recovery processes because the support helps subordinates to preserve energetic resources. With this finding, our study partly offers empirical support for the assumptions of the W-HR model (ten Brummelhuis & Bakker, 2012a). Therefore, by providing work support, supervisors can offset a "gain spiral" (Hobfoll et al., 2018, p. 107) where supervisor support positively predicts subordinates' vitality and vitality, in turn, positively predicts recovery experiences during nonwork time. Interestingly, when we excluded workload as a control variable from our model, the association of work support with vitality was marginally significant which was in line with the marginally significant bivariate correlation between work support and vitality. This pattern of findings suggests a suppressor effect of workload (Conger, 1974). Workload seems to explain irrelevant variance in work support and, thus, increases the association of the predictor (i.e., work support) with the outcome (i.e., vitality; Conger, 1974). Because workload negatively predicted vitality, accounting for the resource-depleting effects of workload enhanced the association of work support with vitality. Thus, only when including workload as a work demand within the WH-R framework did we find indirect effects at the conventional significance level of work support on subordinates' recovery experiences via vitality.

Working from home did not moderate the direct relationship between supervisor work support and recovery experiences. This could mean that supervisor work support does not help to deal with blurred boundaries (Ashforth et al., 2000) because the focus of the support is on the work domain. The domain-specificity hypothesis assumes that domain-specific support is particularly relevant for the respective domain that the support focuses on (French et al., 2018; Kossek et al., 2011). Hence, supervisor work support may be more relevant for the work domain – as we found a positive relationship with end-of-work vitality – but cannot directly account for beneficial recovery experiences at home.

Nevertheless, integrating principles of boundary management theory (Ashforth et al., 2000) into the WH-R model (ten Brummelhuis & Bakker, 2012b) proved highly relevant because working from home is a boundary condition of the relationship of work resources with home outcomes. Thus, an extension of the WH-R model with the moderating effect of working from home is needed. Supervisor nonwork support was directly related to subordinates' recovery experiences on working-from-home days, suggesting that nonwork support

is particularly important for subordinates' recovery on these days. Possibly, when working from home, supervisor nonwork support is more important because private demands are higher (Kossek et al., 2021; Leroy et al., 2021), contributing to blurred boundaries between the life domains. By supporting the nonwork domain, supervisors acknowledge subordinates' nonwork roles which could help subordinates to draw clearer boundaries. Again, in line with the domain-specificity hypothesis (French et al., 2018; Kossek et al., 2011), the focus of nonwork support on the home domain could explain why this type of support is more closely related to home outcomes. Supervisor nonwork support is a "more psychologically and functionally useful resource" in the nonwork domain (Kossek et al., 2011, p. 294), leading to direct relationships with recovery experiences on working-from-home days. Unexpectedly, there was a negative relationship between supervisor nonwork support and control on days when working at the office. It might be that, by providing nonwork support at the office, supervisors bridge the border between work and home and therefore, unintentionally contribute to blurred boundaries (Wepfer et al., 2018). Employees might expect to have stronger boundaries between work and home on working-at-the-office days and, thus, nonwork support might impair feelings of control.

Overall, we demonstrate the benefit of including working from home in the WH-R model (ten Brummelhuis & Bakker, 2012a) and empirical research on the work-home interface (Bell et al., 2023; Kerman et al., 2022). Because employees have to deal with blurred boundaries between work and home when working from home (Ashforth et al., 2000), work resources with a nonwork focus (i.e., supervisor nonwork support) seem to be more relevant when working from home than resources with a work focus (i.e., supervisor work support). Future studies should replicate and extend our findings to guide extensions of the WH-R model (ten Brummelhuis & Bakker, 2012a) and strengthen informed practical recommendations on working from home.

Interestingly, we found no indirect effects of supervisor nonwork support on recovery experiences via vitality. It might be that nonwork support only reduces additional strain which goes along with private challenges, but the demand itself remains unaffected and still costs energetic resources. For example, supervisor nonwork support can ensure that subordinates can deal with unexpected private issues during work time but dealing with these private demands on top of daily work tasks still drains subordinates' vitality. Moreover, because supervisor nonwork support may particularly affect outcomes at home (French et al., 2018; Kossek et al., 2011), the direct relationship of nonwork support on work outcomes may be less pronounced on the day level, leading to a non-significant relationship with end-of-work vitality. Although studies identified numerous work-related positive outcomes of having a nonwork supportive supervisor, these results mainly stem from cross-sectional research on the between-person level (Crain & Stevens, 2018). Within the short timeframe of one single day, the positive within-person outcomes of daily nonwork support may be limited to the home domain.

With our study, we move the recovery literature forward by introducing an interpersonal angle. We paint a more complete picture of employees' everyday work lives and demonstrate that supervisor support matters for subordinates' recovery. Particularly, we advance recovery research by investigating positive experiences with the supervisor and, thereby, we identify interpersonal antecedents that have the potential to benefit recovery processes. Because previous work mostly emphasized work characteristics that harm recovery experiences (Bennett et al., 2018), introducing interpersonal antecedents that are beneficial for recovery improves the understanding of recovery processes. We demonstrate that supervisors supporting work and nonwork roles during the workday matters for subordinates' daily recovery experiences during nonwork time, contributing to recent research that underlines the role of supervisor support for subordinates' recovery (Bendixen & Scheel, 2024; Sonnentag et al., 2024).

Our study also contributes to the broader literature on daily supervisor support and well-being related home outcomes. Specifically, our study complements research on direct effects of social support on well-being outcomes (e.g., Seiger & Wiese, 2009; Xanthopoulou et al., 2012), providing empirical support for the main-effect model of social support rather than the buffering model (Cohen & Wills, 1985) as our additional analysis revealed no moderation of daily supervisor support on the association of workload with the recovery experiences. Moreover, we show that investigating domain-specific types of supervisor support simultaneously can provide new insights. Whereas previous research focused on only one type of support, such as general perceptions of supervisor support without focusing on a specific domain (e.g., Pluut et al., 2018), work support (e.g., Jones & Johnston, 2012; Xanthopoulou et al., 2012), or nonwork support (e.g., Liu et al., 2015; Shockley & Allen, 2013), our study shows that it is worthwhile to differentiate several kinds of supervisor support and investigate them simultaneously. In addition, we go beyond supervisor support preventing negative home outcomes (such as work-family conflict, Pluut et al., 2018; Seiger & Wiese, 2009) and show that supervisor support can also contribute to beneficial processes at home by promoting subordinates' recovery.

Limitations and Directions for Future Research

Our study is not without limitations. First, we used self-reports to measure our study variables which increases the

risk of overestimating relationships due to common method variance (CMV; Podsakoff et al., 2012). However, by modeling relationships on the within- and between-person level, between-person sources of potential CMV (e.g., social desirability) cannot explain the within-person findings. To further reduce CMV, we separated the constructs in time by using different measurement points for predictors and home outcomes.

Second, we assessed predictors (i.e., work and nonwork support) and the mediator (i.e., vitality) at the same time point to minimize participant burden. However, these constructs have distinct time references. Supervisor support was assessed retrospectively referring to the whole workday, while vitality referred to the current state. Moreover, we controlled for vitality in the morning and thereby predicted a change in vitality (Gabriel et al., 2019).

Third, due to another research question on information and communication technologies (ICT) use during off-job time in our larger research project, we recruited employees who generally use ICTs for work-related purposes during off-job time. Accordingly, we recruited a rather specific sample, limiting the generalizability of our findings. Specifically, participants in our sample might generally have difficulties with their recovery from work due to their ICT use (Kühner et al., 2023). However, because we examined within-person relationships, between-person differences in recovery cannot explain our findings. Moreover, mean levels of the recovery experiences in our sample were similar compared to other studies (Arnold & Sonnentag, 2023; Chawla et al., 2020). Nevertheless, future studies could replicate our results with a broader sample.

Fourth, because it is especially subordinates' subjective perception of supervisor support that is relevant for their experiences, we focused on subordinates, as is consistent with prior research (Kelemen et al., 2020). Nevertheless, with this approach, we cannot make inferences about what providing support means for supervisors themselves. A study by Lanaj and Jennings (2020) showed that helping subordinates with personal problems predicted supervisors' increased negative affect. This relationship was stronger when supervisors also helped subordinates with task-related problems, suggesting that supporting subordinates can come at a cost for supervisors themselves. Future studies should therefore include supervisor ratings of support and investigate how providing support influences supervisors' recovery.

In addition, we suggested that supervisor support is more important on working-from-home days because of blurred boundaries on these days (Ashforth et al., 2000). However, we did not empirically test this theoretical assumption. Future studies could investigate the role of blurred boundaries for employees' recovery on days when employees work from home (Haun et al., 2022; Scheibe et al., 2024).

Moreover, we focused on vitality as a volatile personal resource that links supervisor support with subordinates' recovery experiences at home. Although our additional analyses revealed that the personal resources positive affect and free leisure time during the evening did not link supervisor support with recovery experiences, other personal resources (e.g., self-efficacy) may play a role in this process. Future studies could unravel how different personal resources mediate the associations of positive perceived supervisor behaviors with subordinates' recovery at home.

Future studies could consider longitudinal designs to further investigate the role of supervisor support for subordinates' recovery over longer time periods (Zyphur et al., 2020). Supervisor work support and nonwork support had relatively low daily means which indicates that both types of support do not occur with high intensity on the day level. Beneficial effects of supervisor support on recovery might accumulate over time and, therefore, could have long-term effects beyond the day level.

Practical Implications

Our study offers practical implications for supervisors, employees, and organizations. First, supervisors should be aware that both work support and nonwork support relates to subordinates' recovery at home. Therefore, supervisors can help subordinates with work tasks and provide emotional support for stressful work experiences. At the same time, it is critical to show concern for subordinates' private lives and help subordinates deal with nonwork demands. Importantly, perceptions of supervisor support matter in subordinates' daily lives, underlining the need to be supportive on a daily basis. Moreover, supervisors should consider the "new normal" in their leadership and provide support also on days when subordinates work from home (Bell et al., 2023; Perrigino & Raveendhran, 2020) because nonwork support is especially relevant on working-from-home days. Supervisors should therefore also provide support on days without face-to-face contact, for instance, by offering online meeting opportunities when subordinates work from home.

Second, employees should be aware that resources at work can positively relate to their daily recovery at home and especially supervisor support is important. Our study showed that vitality after work is an important antecedent of recovery during nonwork time. Hence, employees could foster their energetic resources after work, for example, by pursuing physical activities (Dodge et al., 2022) which can protect their recovery.

Third, organizations should implement a supportive culture and provide training opportunities for employees and supervisors. For example, employees can benefit from a work-family enrichment intervention (Heskiau & McCarthy, 2021), while supervisors can develop their leadership in a supportive leadership training (Stein et al., 2021).

Conclusion

By integrating assumptions of boundary management theory (Ashforth et al., 2000) with the W-HR model (ten Brummelhuis & Bakker, 2012a), we demonstrated that supervisor work and nonwork support are antecedents of subordinates' recovery experiences. Whereas work support was indirectly related to subordinates' recovery experiences via increased vitality, nonwork support was directly related to subordinates' recovery experiences (i.e., detachment, relaxation, control) on working-from-home days. Thus, domain-specific types of supervisor support aimed at work versus nonwork roles are important for subordinates' recovery experiences.

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Author Contributions Julia Iser-Potempa played a lead role in conceptualization, formal analysis, methodology, writing–original draft, and writing–review and editing and an equal role in data curation and project administration. Hadar Nesher Shoshan played a supporting role in conceptualization, methodology, and writing–review and editing. Sabine Sonnentag played a supporting role in conceptualization, formal analysis, methodology, and writing–review and editing, an equal role in data curation and project administration, and a lead role in supervision.

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Data Availability The analysis code and data are available online on the Open Science: https://osf.io/bghxy/overview?view_only=17da1543e80c4f9c826f922171e13f40

Declarations

Ethics Approval We obtained no ethics approval for this study because it is not a legal requirement for correlational data in Germany. APA ethical standards were followed throughout the study.

Consent to Participate/Consent to Publish Participants provided an informed consent to participate and to publish their data.

Competing interests The authors have no conflict of interest to disclose.

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