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The Role of Supervisor Behaviors for Subordinates' Recovery Experiences

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Be bold, not modest.

CONTENTS

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Conference Presentations

Iser-Potempa, J., Nesher Shoshan, H., & Sonnentag, S. (2023, May). *A work-home resources perspective on recovery experiences: The role of supervisor work support, supervisor nonwork support, workload, and subordinates' vitality*. Paper presented in a symposium session at the 21st Congress of the European Association of Work and Organizational Psychology in Katowice, Poland.

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SUMMARY

Recovery from work is highly important for employees' well-being as well as their performance at work. However, understanding interpersonal predictors of recovery remains unclear because recovery research neglected the social environment at work and, specifically, failed to include supervisor behaviors as antecedents of subordinates' recovery. Previous research has shown that supervisors – due to their important role at work – can substantially contribute to subordinates' well-being. Therefore, the goal of this dissertation is to link research on recovery with the leadership literature by investigating different supervisor behaviors as antecedents of subordinates' recovery experiences. Drawing on boundary management theory and the work-home resources model (WH-R model), I examine supervisor behaviors as both work resources (i.e., supervisor supportive behaviors) and as work stressors (i.e., abusive supervision and expectations to work during nonwork time) that can promote versus hinder subordinates' recovery processes in the nonwork domain. In addition, I include the broader social environment as moderators in my studies by examining interpersonal resources in the work domain (i.e., by examining co-worker) as well as interpersonal stressors in the nonwork domain (i.e., by examining partners, children, parents, and friends). Across three studies, I provide empirical evidence how interpersonal resources and stressors can shape subordinates' recovery.

In the first study, I investigate if supervisor supportive behaviors can promote subordinates' recovery experiences (i.e., psychological detachment, relaxation, mastery experiences, control). I differentiate between supervisor supportive behaviors that support the work role (i.e., work support) and nonwork roles (i.e., nonwork support). Drawing on the WH-R model, I suggest that supervisor work and nonwork support are work resources that can affect the recovery experiences at home via increased personal resources. Specifically, I investigate the personal resource vitality as a mediating mechanism. In addition, because

supervisor support is particularly important when working from home due to blurred boundaries, I examine the moderating role of working from home on the associations of supervisor supportive behaviors with the recovery experiences. In a daily diary study (171 employees, 871 days), I found indirect effects of supervisor work support on the recovery experiences via increased vitality. In contrast, supervisor nonwork support directly predicted subordinates' psychological detachment, relaxation, and control on working-from-home days. My findings suggest that supervisors can indeed promote subordinates' recovery experiences by showing supportive behaviors throughout the workday.

In the second study, I examined abusive supervision as a severe workplace stressor that can harm subordinates' recovery experiences (i.e., psychological detachment and relaxation). The recovery paradox suggests that workplace stressors – such as abusive supervision – harm recovery from work, although recovery would be highly necessary on days with high stressors. I investigate a cognitive (via rumination) and an affective mechanism (via anger) that can explain this paradox. Moreover, I examined co-worker reappraisal support as a moderator that buffers cognitive and affective reactions to abusive-supervision-events. In a daily diary study (171 employees, 786 days), I found an indirect effect of abusive supervision on psychological detachment via rumination and indirect effects of abusive supervision on psychological detachment and relaxation via anger. Co-worker reappraisal support moderated the cognitive mechanism, such that the indirect effect of abusive supervision on psychological detachment via rumination was weaker when co-worker reappraisal support was high. These results demonstrate that abusive supervision is a severe stressor that has negative downstream consequences on subordinates' recovery and that co-workers can buffer adverse effects of abusive supervision by providing reappraisal support.

In the third study, I examined supervisors' expectations to work during nonwork time as a work stressor predicting subordinates' impaired recovery experiences (i.e., psychological detachment and relaxation). I differentiated between supervisors' explicit expectations (i.e., supervisors' direct requests to work) and implicit expectations (i.e., indirect expectations to work not directly requested) to take into account subtle forms of expectations. Drawing on the role episode model and boundary management theory, I examined three mediating mechanisms in this process (i.e., role conflict, boundary control, working during nonwork time). Moreover, I examined nonwork expectations of partners, children, parents, and friends as a moderator. I conducted a within-person experimental vignette study (N = 201 participants, n = 1,809 scenarios) and a between-person three-wave field study (N = 222) to test my hypotheses. I found indirect effects of supervisors explicit and implicit expectations to work during nonwork time on the recovery experiences via role conflict, boundary control, and working during nonwork time. In addition, nonwork expectations moderated some of the effects of supervisors' expectations to work during nonwork time one the mediators in the vignette study, but not in the field study. The findings suggest that supervisors' expectations to work during nonwork time impair subordinates' recovery experiences down the line. Theoretically, I refine role theory by disentangling explicit and implicit expectations.

My dissertation moves the recovery literature forward by focusing on supervisor behaviors as antecedents of subordinates' recovery. Drawing on the WH-R model, I demonstrated that supervisor behaviors are important resources and stressors in the work domain that affect recovery in the nonwork domain via increased versus decreased personal resources. Hence, energetic, cognitive, and affective personal resources linked supervisor behaviors with subordinates' recovery experiences in the nonwork domain. Moreover, as suggested by boundary management theory, supervisors' behaviors that violate work-nonwork boundaries can foster subordinates' work-related role stressors and behaviors that,

in turn, harm recovery. I take a dynamic approach to leadership by examining fluctuations of daily supervisor behaviors in Study 1 and 2 and combining episodic supervisor behaviors with more enduring perceptions of supervisor behaviors in Study 3. Thus, my study not only advances the recovery literature but also contributes to an upcoming stream of research focusing on dynamic supervisor behaviors.

CHAPTER I: GENERAL INTRODUCTION

In today's society, the prevalence of mental health disorders is rising (Goodwin et al., 2020; Santomauro et al., 2021), putting a significant strain on the workforce (Dewa et al., 2014). Mental health problems considerably contribute to employees' sick days, with psychological disorders coming third place after respiratory diseases and musculoskeletal disorders as reason for why people call in sick (Meyer et al., 2023). This is not surprising, given that employees face numerous demanding experiences every day at work (Bowling et al., 2015; Ng & Feldman, 2008), straining their personal resources. To cope with these challenges and remain healthy, it is highly necessary that employees recover from work. Recovery is crucial to restore energetic, cognitive, and affective resources that have been threatened by work demands (Sonnentag et al., 2017, 2022).

Recognizing the importance of recovery from work, occupational health psychologists intensively studied employees' recovery over the past two decades (for reviews, see Sonnentag et al., 2017, 2022). Taking the time to recover in the nonwork domain is highly necessary to restore personal resources (e.g., Chawla et al., 2020; Sonnentag et al., 2008). Not only are recovery processes related to better well-being (for meta-analyses, see Bennett et al., 2018; Headrick et al., 2022), but recovery has also been linked to performance-related outcomes (e.g., work engagement, Sonnentag et al., 2012; or organizational citizenship behavior, Binnewies et al., 2009). The extensive evidence that recovery has beneficial consequences on well-being and productivity makes it necessary to study how organizations may promote their employees' recovery.

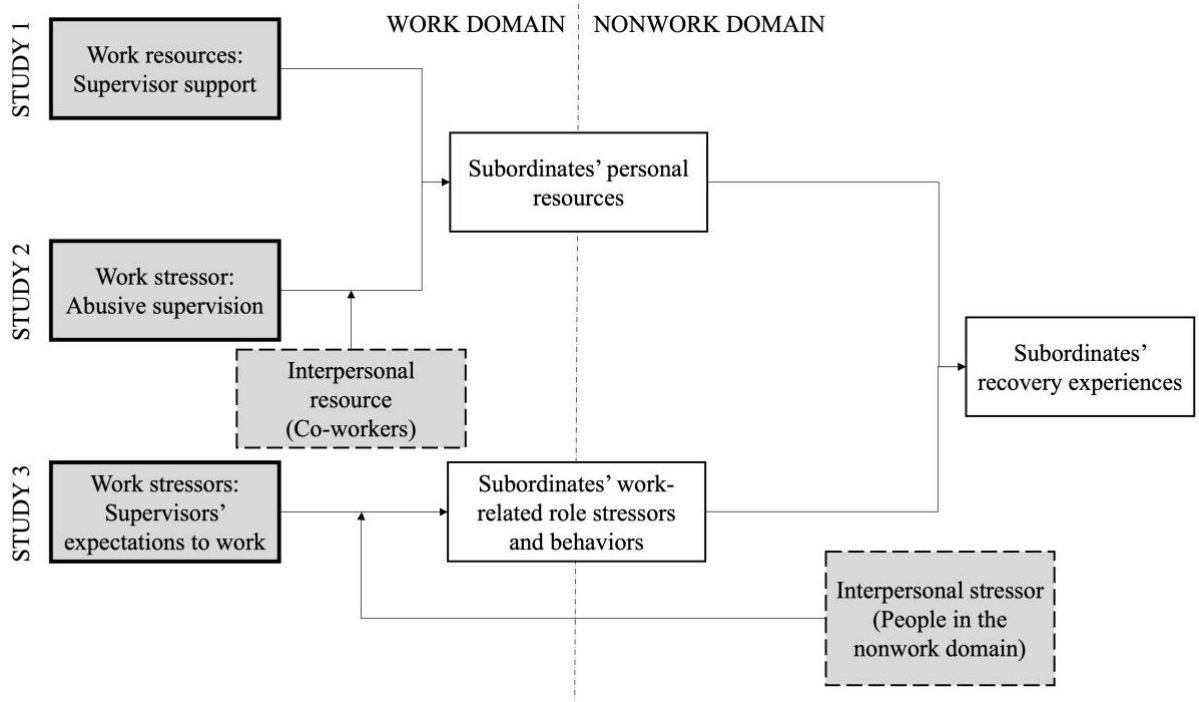
Because supervisors are important facilitators of organizational strategies across hierarchies (Uhle & Treier, 2019), it is crucial to investigate how supervisors' behaviors can affect their subordinates' recovery in the nonwork domain. Supervisors have a core role in the work domain because they can assign work tasks (Delfgaauw et al., 2020) and provide or

withhold important resources (J. R. French & Raven, 1959). Accordingly, supervisor behaviors have consistently been linked to subordinates' well-being (Inceoglu et al., 2018; Montano et al., 2017). For example, whereas supervisors' supportive behaviors are linked to subordinates' enrichment between the work and nonwork domain (Odle-Dusseau et al., 2012), supervisors' hostile behaviors predict conflict between the work and nonwork domain (D. Carlson et al., 2012). Failing to recognize the important role of supervisor behaviors for subordinates' nonwork domain, research on recovery from work so far has mostly neglected the social environment at work (Sonnentag et al., 2017, 2022). Therefore, including supervisor behaviors in research on recovery from work is an important next step to move the field forward.

In my dissertation, I aim to combine the recovery literature with the long tradition of leadership research (Lord et al., 2017). Drawing on boundary management theory (Ashforth et al., 2000) and the work-home resources model (ten Brummelhuis & Bakker, 2012a), I examine how supervisor behaviors functioning either as important resources or stressors in the work domain affect subordinates' recovery in the nonwork domain. In three empirical studies, I focus on different supervisor behaviors that can either foster or hinder subordinates' recovery processes. Specifically, I examine purely positive supervisor behaviors (i.e., supportive behaviors, Study 1), highly negative supervisor behaviors (i.e., abusive supervision, Study 2), and supervisor behaviors that harm boundaries between work and nonwork (i.e., expectations to work during nonwork time, Study 3). The overall conceptual model of my dissertation is displayed in Figure 1.1.

Figure 1.1

Conceptual Framework of the Dissertation



In the following General Introduction of my dissertation, I explain the overarching theoretical background of my dissertation, followed by a summary of research on recovery from work with a specific focus on studies examining interpersonal aspects. I continue by summarizing the most relevant insights of the leadership literature. Lastly, I provide an overview over my three empirical studies and describe the contributions of my dissertation to the work and organizational literature.

The Work-Nonwork Interface

In the last decades, researchers in work and organizational psychology acknowledged that employees not only have to fulfill their work-related roles, but their private roles are just as important to feeling satisfied and content with their lives (Cooke & Rousseau, 1984; Thomas & Ganster, 1995). Accordingly, researchers examined not only how experiences at work affect work outcomes but increasingly focused on the spillover of work experiences

into the nonwork domain (Greenhaus & Beutell, 1985; Greenhaus & Powell, 2006). Thus, because the life domains can affect each other, the simultaneous examination of both domains is critical. There are two overarching theoretical approaches that explain processes that link the work and nonwork domain. First, boundary management theory is a role-based approach that describes distinct work and private roles (Ashforth et al., 2000). Second, the work-home resources model (WH-R model) is a resource-based approach that suggests the spillover of personal resources between the life domains (ten Brummelhuis & Bakker, 2012a). I explain both theories in the following sections in greater detail.

Role-Based Approach: Boundary Management Theory

Boundary management theory assumes that employees hold various roles in different life domains (Ashforth et al., 2000). Roles refer to an individual's different positions in life that have different role identities with "specific goals, values, beliefs" (Ashforth et al., 2000, p. 475). For example, people can occupy the roles of employee or subordinate in the work domain, while holding roles as partner, parent, or friend in the nonwork domain. The life domains are segmented by role boundaries because certain roles are associated with a specific domain (e.g., the employee role is linked to the work domain). For example, there can be physical boundaries between roles (such that the employee role is only occupied at the company premises) or temporal boundaries (such that the employee role is held during work hours; Haun et al., 2022; Sonnentag & Braun, 2013). Moreover, people *transition* between roles which refers to the psychological exit of one role in favor of another role. Thus, when commuting from the workplace to the nonwork domain, people exit the role of employee and enter the role of partner or parent. However, boundaries between work and nonwork may be not that clear in everyday life because role boundaries are to a certain degree flexible (roles can be enacted in different settings) and permeable (one can physically occupy one role but psychologically hold another role; Ashforth et al., 2000). Thus, boundaries between work and

nonwork roles can be blurry because, for example, people are able to cognitively transition to their work roles while in the nonwork domain. Throughout my studies, I focus on recovery processes in the nonwork domain and, therefore, I examine the cognitive transition to the work role while employees are in the nonwork domain (rather than the cognitive transition to private roles while in the work domain).

Resource-Based Approach: The Work-Home Resources Model

The WH-R model describes resource spillover processes between the work and the home domain (ten Brummelhuis & Bakker, 2012a). Thus, in contrast to boundary management theory, the focus lies specifically on the home domain rather than the broader nonwork domain which includes other social domains besides the home domain (e.g., sports clubs).[1] Drawing on conservation of resources theory (Hobfoll, 1989; Hobfoll et al., 2018), Ten Brummelhuis and Bakker (2012) differentiate between different types of resources that comprise the core assumptions of their theory. Contextual resources such as social support are located in employees' social environment, whereas personal resources such as energetic, cognitive and affective resources lie within a person. Contextual resources in the work domain can affect home outcomes via increased personal resources within the individual. Thus, beneficial experiences in the work domain can spill over into the home domain because of the development of personal resources. In addition to this enrichment process, the WH-R model describes depletion processes. Specifically, contextual work demands (i.e., demanding work experiences that require the investment of personal resources) can affect home outcomes via decreased personal resources. Relatedly, because the work and home domains

[1] For the sake of theoretical correctness, I use the terms work and home domain when I draw on the assumptions of the WH-R model. Throughout Study 1, I exclusively refer to the work and home domain, although the findings can also be applied to the broader nonwork domain.

mutually affect each other, home resources and demands can also predict work outcomes via increased versus decreased personal resources (ten Brummelhuis & Bakker, 2012a). However, the focus of this dissertation is on work-to-home spillover processes. Specifically, I examine recovery from work as an important outcome in the nonwork domain.

The Nonwork Domain: Recovery From Work

Both role-based and resource-based theories emphasize the relevance of the nonwork domain. The nonwork domain is critical to restore personal resources that have been diminished by demanding work experiences (Sonnentag, 2003). An influential stream of research in occupational health psychology refers to this restoration of resources as *recovery from work* (Sonnentag et al., 2017, 2022). Recovery is defined as "unwinding and restoration processes during which a person's strain level that has increased as a reaction to a stressor or any other demand returns to its prestressor level" (Sonnentag et al., 2017, p. 366). Because work is generally effortful (Van Iddekinge et al., 2023) and employees are confronted with various work demands (Bowling et al., 2015; Ng & Feldman, 2008), recuperating one's personal resources is highly relevant to remain healthy and productive (Headrick et al., 2022; Steed et al., 2021). For example, recovery is associated with next-day well-being (e.g., high positive affect, McGrath et al., 2017; or low exhaustion, Chawla et al., 2020) and performance-related outcomes at work (e.g., work engagement, Sonnentag et al., 2012; or organizational citizenship behavior, Binnewies et al., 2009). Thus, recovery from work affects subsequent work outcomes, underlining the relevance of examining recovery.

The time that employees spend in the nonwork domain is an important recovery period because work demands are mostly absent and, thus, employees can restore their personal resources. A core recovery period is the evening after work hours (Sonnentag et al., 2008) because this recovery period occurs in employees' everyday work lives (rather than, for example, vacations which are less frequent; Syrek et al., 2018). Therefore, starting with a

noteworthy study from Sonnentag (2001), numerous studies investigated recovery processes during the evening using daily diary designs (e.g., Bakker et al., 2013; Demerouti et al., 2012; Hahn et al., 2014; Mojza et al., 2010; Sonnentag et al., 2008). Accordingly, due to the relevance of this recovery period, in Study 1 and Study 2 I focus on evening recovery in the nonwork domain.

Recovery Experiences

When studying recovery in the nonwork domain, recovery scholars oftentimes examine recovery experiences which are specific experiences that underlie the recovery process (Sonnentag et al., 2017, 2022). Sonnentag and Fritz (2007) introduced four recovery experiences to the literature. *Psychological detachment* refers to mentally distancing oneself from work. *Relaxation* is defined as the experience of low physiological activation. *Mastery experiences* include challenging situations and learning opportunities that go along with achievement. *Control* refers to deciding oneself how to spend nonwork time. While all recovery experiences are central to the recovery process, psychological detachment received most research attention (Sonnentag & Fritz, 2015; Wendsche & Lohmann-Haislah, 2017).

Beneficial recovery experiences in the nonwork domain have been linked to favorable outcomes in the evening (Feuerhahn et al., 2014; Sanz-Vergel et al., 2011) and the following day (Dettmers, Deci, et al., 2016; Sonnentag et al., 2008; ten Brummelhuis & Bakker, 2012b). For example, detachment in the nonwork domain is associated with lower negative affect (e.g., Feuerhahn et al., 2014) and lower work-family conflict (Sanz-Vergel et al., 2011); relaxation is related to increased vigor (ten Brummelhuis & Bakker, 2012b); mastery experiences are linked with higher positive affect (Sonnentag et al., 2008); and control predicts energetic arousal (Dettmers, Deci, et al., 2016). Thus, beneficial outcomes of the recovery experiences are well-documented in the literature, supporting the importance of recovery experiences in the nonwork domain. Therefore, as beneficial recovery experiences

are critical for well-being and productivity, studying the antecedents of recovery is an important next step to understand how to promote recovery in the nonwork domain.

Work Predictors of Recovery in the Nonwork Domain

The WH-R model suggests that work resources and demands predict recovery experiences in the nonwork domain (ten Brummelhuis & Bakker, 2012a). Whereas work resources positively affect recovery in the nonwork domain due to enrichment processes, work demands negatively affect recovery due to depletion processes. There is vast empirical evidence that underlines this theoretical argument. On the between-person level, work resources are positively related to mastery experiences and control, whereas work demands are negatively related to psychological detachment, relaxation, and control (for a meta-analysis, see Steed et al., 2021). When examining short-term within-person processes, research mostly focused on daily work demands as predictors of recovery experiences rather than work resources (Sonnentag et al., 2022). Interestingly, on days with high work demands, recovery processes in the evening are particularly impaired, although recovery would be highly necessary on those days to restore drained resources (Sonnentag, 2018). Sonnentag (2018) labeled this finding *recovery paradox*. For example, work demands that characterize the workday such as workload (e.g., DeArmond et al., 2014; Smit & Barber, 2016), time pressure (Bennett et al., 2016; Chawla et al., 2020), self-control demands (e.g., Germeys & De Gieter, 2018; Rivkin et al., 2018), and unfinished tasks (e.g., Gadeyne et al., 2023; Völker et al., 2023) impair evening recovery experiences.

These demands during the workday can encourage employees to continue working in the nonwork domain, for example to deal with unfinished tasks after the end of the workday (Gadeyne et al., 2023). However, engaging in work-related tasks during nonwork time hinders effective recovery (for a meta-analysis, see Kühner et al., 2023). Because employees transition to the work role while they are in the nonwork domain (Ashforth et al., 2000), it is

particularly difficult to detach from work (Barber & Jenkins, 2014; Braukmann et al., 2018; Derks et al., 2014). Accordingly, employees cannot mentally distance themselves from their work role when engaging in work-related role behavior in the nonwork domain, threatening their recovery. Thus, there is vast empirical evidence that (1) demanding work characteristics in the work domain and (2) pursuing work-related tasks in the nonwork domain negatively predict recovery.

Interpersonal Predictors of Recovery

Despite the importance of the social environment at work for employees' well-being (Gerhardt et al., 2021; Mathieu et al., 2019), recovery research has largely neglected to examine interpersonal experiences at work (Sonnentag et al., 2017, 2022). Although "[w]ork relationships may be among our most significant" (Colbert et al., 2016, p. 1215), only a few studies examined how interpersonal experiences at work affect recovery.

The majority of those studies focused on experiences with co-workers and customers. With respect to interpersonal work resources, the few existing studies have examined positive experiences with co-workers as antecedents of recovery experiences (i.e., positive interactions with co-workers, McGrath et al., 2017; co-worker mindfulness, Rodríguez-Muñoz et al., 2020). However, most research on interpersonal predictors of recovery focused on work stressors. For example, studies examined negative experiences with customers (i.e., customer mistreatment, Park & Kim, 2019; social conflicts with customers, Volmer et al., 2012). In addition, studies on recovery examined an aggregation of stressful experiences with different social actors, such as by examining a mixture of co-worker and supervisor behaviors (Nicholson & Griffin, 2015; Völker et al., 2024) or without a reference to a specific group of people (Rodríguez-Muñoz et al., 2017; Schulz et al., 2021). Thus, as most recovery research focused on interpersonal experiences with customers and co-workers or did not differentiate

between different actors, the important role of supervisors has been largely neglected (Sonnentag et al., 2017, 2022).

Although supervisor behaviors could have important downstream consequences on subordinates' recovery, scholars mostly failed to examine how supervisor behaviors affect recovery. This is an important oversight, given that supervisors are particularly important actors in subordinates' social environment at work because supervisors can provide central resources such as promotions (Vermunt, 2015). In everyday life, supervisors can shape subordinates' working conditions, for example, by assigning work tasks (Delfgaauw et al., 2020).

In the following section, I will elaborate on the important role of supervisors at work by describing the long tradition of leadership research in work and organizational psychology. After describing well-being consequences of leadership and first studies on leadership and recovery, I will move on to an overview of my empirical studies and the contributions of this dissertation.

The Work Domain: The Role of Supervisors

The interpersonal environment in the work domain is characterized by different actors with specific work roles. Depending on the interpersonal context, employees can have different roles at work such as the role of supervisor or the role of subordinate (Ashforth et al., 2000; Katz & Kahn, 1978). The specific role that an employee takes on in a given situation depends on the respective person they interact with (Katz & Kahn, 1978). Thus, while an employee takes on the role of supervisor when talking to a subordinate, the same employee takes on the role of subordinate when talking to their supervisor.

Supervisors are core agents in the work domain because their behaviors can affect those employees who are below them in the organizational hierarchy (i.e., their subordinates; Fiedler, 1967; Lord et al., 2017). Due to their high position in the organizational hierarchy,

supervisors have a formal position of power (Bass, 1960; J. R. French & Raven, 1959) because they can make decisions about working conditions that concern their subordinates. Within leadership research, a supervisor refers to the individual in the group who carries the responsibility and coordinates task-relevant activities (Fiedler, 1967). Thus, the role of supervisor is tied to a formal job position that goes along with specific duties to guide subordinates and manage teams. Throughout my studies, I take a role-based approach when examining supervisor behaviors (Fiedler, 1967). Thus, I investigate how perceived behaviors of the formal supervisor of the focal employee (referred to as *subordinate*) affects this subordinates' recovery.

Leadership research oftentimes investigates how *leaders* influence their *followers*. Leadership refers to a social interaction between two or more group members with an exertion of influence from one person to another person (Bass, 1960). Leaders influence their followers' goals and the ability to obtain those goals and, thereby, leaders can change followers' "attitudes, faiths and beliefs" (Bass, 1960, p. 91). Thus, leadership per se is not tied to formal job positions but rather refers to a social influence process. In line with that reasoning, different group members can show varying degrees of leadership within the work group (which is, for example, investigated in research on leadership emergence; Badura et al., 2022). Accordingly, an employee with a formal supervisor role may act as a leader by displaying behaviors that influence their subordinates. However, a supervisor not necessarily has to act like a leader but can even show abusive behaviors that harm their subordinates (as, for example, in the case of abusive supervision, see Study 2). Thus, taking a role-based approach, I focus on behaviors of supervisors with formal authority over the subordinate to account for the different roles of supervisors and subordinates in the workplace.

Leadership Styles and Supervisor Behaviors

Leadership research has a rich research tradition with a large base of studies, as is reflected in numerous review papers (e.g., Gardner et al., 2010, 2020; Lord et al., 2017; Lowe & Gardner, 2000) and meta-analysis (e.g., Gerstner & Day, 1997; Guo et al., 2024; Judge et al., 2004; Judge & Piccolo, 2004). Early leadership research focused on identifying characteristics that supervisors possess which subordinates lack (Lord et al., 2017). Therefore, researchers attempted to identify traits that define supervisors such as intelligence or personality (Flemming, 1935; Kohs & Irle, 1920). However, because it proved difficult to identify leader personality traits that distinguish supervisors from subordinates (Jenkins, 1947), leadership research moved towards a behavioral approach. Researchers of the Ohio State University investigated two central leadership behaviors labeled *consideration* (i.e., being considerate of subordinates' feelings such as by being friendly and showing support) and *initiating structure* (i.e., clarifying work roles such as by assigning tasks; Fleishman, 1953). In a meta-analysis, both consideration and initiating structure were related to leadership outcomes, with consideration displaying higher relationships with subordinates' satisfaction, motivation, and supervisor effectiveness, whereas initiating structure was more strongly related to performance (Judge et al., 2004). Thus, examining the behavioral style of supervisors rather than supervisors' characteristics proved highly beneficial.

This initial interest in supervisors' behavioral styles sparked great research interest in leadership styles that include different sets of supervisors' behaviors, with the most prominent leadership styles being transformational leadership (i.e., transforming subordinates by appealing to higher motives and motivating subordinates to perform beyond expectations) and transactional leadership (i.e., traditional leadership such as by rewarding specific subordinate behaviors; Bass, 1985). In addition, there is vast empirical research on countless other leadership styles such as, for example, authentic leadership (i.e., acting consistent with

one's personal values; Avolio et al., 2004), ethical leadership (i.e., displaying and fostering ethical behavior; Brown et al., 2005), servant leadership (i.e., serving others by prioritizing subordinates' needs; Eva et al., 2019), or benevolent leadership (i.e., showing individualized, holistic concern for subordinates' well-being that is reciprocated with subordinates' loyalty; J.-L. Farh & Cheng, 2000). Thus, the examination of leadership styles is an important cornerstone of leadership research.

However, I focus on specific supervisor behaviors in my dissertation because examining leadership styles is problematic in three ways. First, leadership styles comprise of several different supervisor behaviors, making it difficult to disentangle unique contributions of single supervisor behaviors. For example, transformational leadership consists of idealized influence (i.e., showing trust and emphasizing commitment), inspirational motivation (i.e., articulating a vision), intellectual stimulation (i.e., stimulating new ideas), and individualized consideration (i.e., providing individual support; Avolio et al., 1999). Because these are very distinct behaviors of supervisors, summarizing these behaviors in one leadership style reduces information on supervisors' specific behavior (Breevaart et al., 2014; Diebig et al., 2017). Second, due to the high relevance of certain supervisor behaviors (e.g., supportive behaviors), leadership scholars tend to develop new leadership constructs that differ only in certain characteristics. Therefore, specific behaviors such as social support can be part of numerous leadership styles (e.g., individualized consideration in transformational leadership, Avolio et al., 1999; servant leadership, Eva et al., 2019; or benevolent leadership, J.-L. Farh & Cheng, 2000) but each leadership style holds additional assumptions. Consequently, because the same behavior can be relevant for several leadership styles, examining specific and distinct behaviors of supervisors is an important next step. Third, measures of positive leadership styles capture not only supervisors' behaviors but also subordinates' subjective evaluation of those behaviors (e.g., an underlying altruistic motive in the case of servant

leadership; Eva et al., 2019; Fischer et al., 2024). Thereby, positive leadership styles conflate supervisor behaviors (i.e., the cause) with subordinates' evaluations (i.e., the outcome), creating "causal illusions" (Fischer et al., 2024, p. 1). Fischer et al. (2024, p. 3) claim that "[w]hereas the description of behaviors can be made according to an objective referent (e.g., whether a behavior was displayed or not), evaluations of leadership require a subjective referent (e.g., whether a behavior is 'good' […])". Because leadership styles confound supervisors' actual behavior with an evaluative component, Fischer et al. (2024) recommend the use of measures that examine supervisor behaviors and subordinates' evaluations of those behaviors separately (e.g., items such as "My supervisor helped me with scheduling conflicts between work and private life" as a behavioral indicator of supervisor behaviors supporting nonwork roles, see Study 1; or "My supervisor put me down in front of others" as a behavioral indicator of abusive supervision, see Study 2).

Throughout my dissertation, I focus on specific supervisor behaviors rather than leadership styles to disentangle unique consequences of different supervisor behaviors. Thus, I investigate two types of supervisor supportive behaviors in Study 1, abusive supervision in Study 2, and two types of supervisors' expectations to work during nonwork time in Study 3.

Daily and Episodic Supervisor Behaviors

A more recent stream of leadership research has moved away from examining stable leadership styles and focused on dynamic variations in supervisor behaviors (Kelemen et al., 2020; McClean et al., 2019). First, by using daily diary studies, researchers can examine daily supervisor behaviors and their short-term consequences on subordinates' outcomes on the within-person level (Kelemen et al., 2020). This yields the benefit of "capturing life as it is lived" (Bolger et al., 2003, p. 579) because leadership is studied in its natural environment (Kelemen et al., 2020). Supervisors vary their behaviors across days and, consequently, supervisors can show beneficial behaviors on some days to a greater extent than on other

days which could have important proximal consequences for subordinates (Kelemen et al., 2020). Adapting the concept of leadership styles to the day-level, a growing number of studies examined daily leadership styles as predictors of daily subordinate outcomes (e.g., Breevaart et al., 2014; Kuonath et al., 2021; Tims et al., 2011). These findings contribute to the idea that specific supervisor behaviors are relevant in subordinates' everyday lives.

Second, supervisor behaviors can also be considered episodic. Specifically, supervisor behaviors can occur in specific situations and stimulate immediate reactions in subordinates (e.g., C. I. C. Farh & Chen, 2014; Wang et al., 2023). Thus, the respective time frame of consequences of episodic supervisor behaviors is even shorter than when examining daily behaviors (which refer to an overall assessment of one single workday). Although first field studies used event-based sampling in field studies (e.g., Liao et al., 2019; Meier & Gross, 2015), typically, researchers examine consequences of episodic supervisor behaviors with experimental designs (e.g., in studies on abusive supervision, C. I. C. Farh & Chen, 2014; supervisor integrity, Kundro et al., 2024; ethical leadership, Wang et al., 2023; or servant leadership, Schowalter & Volmer, 2023). Experimental designs yield the additional benefit of addressing causality (Antonakis, 2017) and researchers can examine supervisor behaviors that occur infrequently in field settings. Thus, to examine immediate reactions to supervisor behaviors, an episodic approach to leadership is valuable.

To reflect these emerging trends in the leadership literature, I investigate daily supervisor behaviors with two daily diary studies in Study 1 and Study 2 and episodic, situation-specific supervisor behaviors with an experimental vignette study in Study 3. This focus on dynamic changes in supervisor behaviors aligns well with theoretical assumptions and methodological approaches in the recovery literature where researchers oftentimes focus on short-term, within-person processes (e.g., Sonnentag, 2001; ten Brummelhuis & Bakker, 2012b).

Integrating Supervisor Behaviors and Recovery From Work

The WH-R model (ten Brummelhuis & Bakker, 2012a) suggests that supervisor behaviors can be a resource as well as a stressor for subordinates in the work domain (e.g., Hammer et al., 2024; Mackey et al., 2017). Therefore, supervisor behaviors can foster versus harm subordinates' energetic, cognitive, and affective personal resources which, in turn, spill over into the nonwork domain, affecting subordinates' outcomes in the nonwork domain (e.g., K. A. French et al., 2018; Guo et al., 2024). Accordingly, supervisor behaviors can affect subordinates' recovery experiences in the nonwork domain via the spillover of personal resources. Recovery is an important outcome in the nonwork domain because subordinates' can cognitively transition between work and private roles while they are in the nonwork domain (Ashforth et al., 2000). Boundary management theory suggests that boundaries between the work and nonwork domain may be blurry, leading subordinates to cognitively switch to work roles while in the nonwork domain (Ashforth et al., 2000). This transition to the work role in the nonwork domain harms subordinates' recovery experiences. Supervisor behaviors could either help to deal with blurred boundaries (e.g., by showing supportive behaviors, particularly when subordinates work from home, Study 1) or harm boundaries between work and private roles (e.g., by expecting subordinates to work during nonwork time, Study 3). Supervisors violating the boundary between work and nonwork can elicit stress between work and private roles and subordinates might feel compelled to work while in the nonwork domain. Accordingly, work-related role stressors and behaviors while subordinates are in the nonwork domain also link supervisor behaviors with subordinates' impaired recovery experiences. Taken together, the WH-R model (ten Brummelhuis & Bakker, 2012a) and boundary management theory (Ashforth et al., 2000) suggest that the spillover of personal resources as well as work-related role stressors and behaviors are the

underlying mediating mechanisms that explain the link of supervisor behaviors with subordinates' recovery experiences.

While researchers have empirically linked supervisor behaviors with subordinates' well-being (Inceoglu et al., 2018; Montano et al., 2017), research on supervisor behaviors and subordinates' recovery remains scarce. In the next section, I give an overview over research on supervisor behaviors and subordinates' well-being in general, followed by a review of the few existing studies on supervisors' role for subordinates' recovery.

Supervisor Behaviors and Subordinates' Well-Being

Due to supervisors' core role at work (Ashforth et al., 2000; Katz & Kahn, 1978), supervisor behaviors can generally have a tremendous impact on their subordinates' well-being (Inceoglu et al., 2018; Montano et al., 2017). Because the leadership literature "has largely neglected research on employee health and well-being in favor of employee performance" (Inceoglu et al., 2018, p. 179), supervisor behaviors and subordinates' well-being is an emerging topic that has gained increasing relevance over the last decade.

First, with respect to work resources, researchers have linked subordinates' beneficial well-being outcomes with traditional leadership styles such as transformational leadership (Arnold, 2017; Hildenbrand et al., 2018; Scheel et al., 2019) or authentic leadership (e.g., Ilies et al., 2005; Laschinger & Fida, 2014). In a between-person meta-analysis, transformational leadership, task-oriented leadership (similar to the concept of initiating structure), and relations-oriented leadership (similar to the concept of consideration) predicted several indicators of mental health (e.g., higher psychological functioning and lower stress; Montano et al., 2017). However, in addition to examining these traditional leadership constructs in the context of subordinates' well-being, researchers started to examine more specific leadership styles (Rudolph et al., 2020). Focusing on specific supervisor behaviors, Hammer (2009) developed a conceptual framework to assess

supervisor behaviors that support subordinates to manage the work-nonwork interface. The concept of family supportive supervisor behaviors (referred to as supervisor nonwork support in Study 2) is defined as helping subordinates to manage nonwork roles and has been linked to several work-family and well-being outcomes (for a meta-analysis, see Guo et al., 2024). For example, family supportive supervisor behaviors have been positively linked to subordinates' work-nonwork enrichment (Odle-Dusseau et al., 2012), work-home segmentation behaviors (Koch & Binnewies, 2015), and sleep quality (Sianoja et al., 2020). Thus, because family supportive supervisor behaviors are particularly relevant to manage the work-nonwork interface, these behaviors could also benefit subordinates' recovery. In addition to supportive behaviors that help subordinates to manage their work role (i.e., supervisor work support), I, therefore, explore the role of family supportive supervisor behaviors (i.e., supervisor nonwork support) in Study 1.

Second, supervisor behaviors can also be a work stressor. Under the umbrella term of destructive leadership (i.e., violating social norms and showing aggressive behaviors towards subordinates), negative behaviors of supervisors have been linked to subordinates' higher affective symptoms, burnout, and lower well-being (Montano et al., 2017). The concept abusive supervision particularly dominated the literature on destructive leadership behaviors (for meta-analyses, see Mackey et al., 2017; Schyns & Schilling, 2013). Abusive supervision refers to subordinates' perception of supervisors' hostile verbal and non-verbal behaviors (Tepper, 2000). Overall, abusive supervision is a severe workplace stressor (Tepper et al., 2017). Over longer periods of time, abusive supervision is related to impaired physical health (Liang et al., 2018). However, even over the short periods of time examined in diary studies, daily abusive supervisory behaviors have been linked to impaired well-being outcomes such as reduced daily sleep quality (Tariq et al., 2020), indicating that abusive supervision could harm subordinates' recovery processes. In addition, demanding supervisor behaviors can be

more subtle than abusive supervision and still put a strain on subordinates' personal resources. In particular, supervisor behaviors can violate the boundaries between work and nonwork when supervisors expect subordinates to take on the work role during nonwork time (Dettmers, 2017; Dettmers, Bamberg, et al., 2016). In a meta-analysis, availability expectations were related to technology-assisted supplemental work (Kühner et al., 2023), indicating that expecting subordinates to work during nonwork time can drive subordinates to show work-related role behavior in the nonwork domain which harms subordinates' recovery processes (Barber & Jenkins, 2014; Braukmann et al., 2018). Consequently, both openly hostile behaviors such as abusive supervision and subtle supervisor behaviors such as expectations to work during nonwork time could harm subordinates' recovery. Accordingly, I examine the association of abusive supervision with subordinates' recovery experiences in Study 2 and supervisors' expectations to work during nonwork time as predictor of subordinates' recovery experiences in Study 3.

Supervisor Behaviors and Recovery From Work

Because supervisor behaviors are linked with subordinates' well-being, supervisor behaviors may also affect subordinates' recovery experiences. Supervisor behaviors can foster or deplete subordinates' personal resources (ten Brummelhuis & Bakker, 2012a) which can affect subordinates' recovery experiences as an important outcome in the nonwork domain. In addition, because supervisor behaviors can help to maintain versus violate boundaries between work and nonwork roles (Ashforth et al., 2000), this affects whether subordinates can (cognitively) remain in their private roles while they are in the nonwork domain, resulting in subordinates' improved or impaired recovery experiences, respectively.

First studies provide support for the notion that supervisor behaviors are relevant for subordinates' recovery. In a cross-sectional study, Sonnentag and Schiffner showed that supervisors' psychological detachment predicts subordinates' psychological detachment

(2019). In a study on recovery profiles, supervisor recovery support increased the probability to belong to the more adaptive *leaving work behind* profile in comparison to the *recovering ponderer* or *pondering* profiles (Bennett et al., 2016). Moreover, supervisor support moderated the relationship of subordinates' cognitive demands and psychological detachment but only when modeled cross-sectionally (Bendixen & Scheel, 2024). Two very recent diary studies focused on daily supervisor-related antecedents and investigated within-person effects on subordinates' recovery processes (Tu & Chi, 2024; Volmer et al., 2023). Volmer et al. (2023) found that daily LMX (i.e., fluctuations in the perception of the relationship quality of supervisor and subordinate) indirectly predicted the recovery experiences relaxation and mastery experiences via increased positive affect, but only when the variability of LMX over the workweek was low. In another diary study, abusive supervision predicted different recovery activities (i.e., activities that employees pursue that can benefit their recovery processes; e.g., social activities) via increased need for recovery (Tu & Chi, 2024). While these studies offer promising support that supervisor behaviors are indeed relevant for subordinates' recovery experiences, there is also a need to examine specific supervisor behaviors in subordinates' recovery processes in greater detail and investigate the underlying mechanisms.

Dissertation Outline and Overview of Empirical Studies

I conducted three empirical studies on different supervisor behaviors as predictors of subordinates' recovery experiences. Specifically, I focus on supervisors' supportive behaviors in Study 1, abusive supervision in Study 2, and supervisors' expectations to work during nonwork time in Study 3. I present my three studies in Chapter II to IV of this dissertation. All studies are accepted or currently under review at peer-reviewed journals, so they are individual manuscripts that include separate Theory, Method, Results, and Discussion sections.

In the second chapter, I present a daily diary study (Study 1) investigating the role of supervisor supportive behaviors regarding work roles (i.e., work support) and nonwork roles (i.e., nonwork support). Drawing on the WH-R model (ten Brummelhuis & Bakker, 2012a), I examine these supportive behaviors as work resources that can enrich the home domain due to increased personal resources that spill over from work to home. I propose that supervisor work and nonwork support predict subordinates' recovery experiences via increased vitality at the end of work. Moreover, I examine the moderating role of working from home in this process to reflect challenges in the work-nonwork interface. I tested my hypotheses with a sample of 171 employees who provided data on 871 days.

In the third chapter, I present a daily diary study (Study 2) on abusive supervision predicting subordinates' impaired recovery experiences. Drawing on research on the recovery paradox (Sonnentag, 2018), I propose that psychological detachment and relaxation in the nonwork domain will be impaired on days with high abusive supervision in the work domain, although recovery would have been highly important on those days. I simultaneously examine a cognitive mechanism (via rumination) and an affective mechanism (via anger) to explain this paradox. Moreover, taking into account the broader social environment of subordinates, I investigate the moderation effect of co-worker reappraisal support (i.e., co-workers supporting cognitive reappraisal of negative work experiences). I tested my hypotheses with a sample of 171 employees who provided data on 786 days.

In the fourth chapter, I present a research project (Study 3) focusing on supervisors' expectations to work during nonwork time and subordinates' recovery. I take a role theory and boundary management perspective (Ashforth et al., 2000; Katz & Kahn, 1978). Taking into account subtle forms of expectations, I look at explicit expectations (i.e., supervisors' direct requests to work) and implicit expectations (i.e., indirect expectations to work not directly requested). I investigate indirect effects via three mechanisms (i.e., role conflict,

boundary control, and working during nonwork time) that explain the associations of supervisors' explicit and implicit expectations to work during nonwork time and subordinates' psychological detachment and relaxation. Moreover, I compare whether explicit versus implicit expectations have stronger effects on the mediators and the recovery experiences. Taking into account the broader social environment of subordinates' nonwork domain, I examine nonwork expectations (e.g., of the partner, children, or friends) as a moderator. I conducted a within-person experimental vignette study with 201 participants (1,809 scenarios) and a between-person three-wave field study with 222 participants.

In the fifth chapter, I discuss the findings of my three studies more broadly. I integrate my findings into the literature on recovery from work and the leadership literature. After discussing the theoretical and practical implications of my dissertation, I reflect on strengths and limitations and infer directions for future research.

Contributions of the Dissertation

With my dissertation, I contribute to research on the work-nonwork interface by linking the mostly separate research streams on recovery from work and leadership. My goal is to advance research on recovery and provide new insights for the leadership literature.

Contributions to the Recovery Literature

I contribute to the recovery literature in three ways. First, I add an important perspective to the literature by focusing on supervisor behaviors as antecedents of subordinates' recovery experiences. Thereby, I answer the repeated calls to examine supervisor behaviors in recovery research (Sonnentag et al., 2017, 2022). Although leadership research consistently linked leadership with subordinates' well-being (Montano et al., 2017), this perspective has largely been neglected by recovery scholars (for recent exceptions, see Tu & Chi, 2024; Volmer et al., 2023). Supervisors are important agents in the work domain because they can provide and withhold important resources at work (J. R.

French & Raven, 1959). Accordingly, due to supervisors' powerful role, supervisor behaviors could spill over in the nonwork domain and affect subordinates' recovery experiences. By linking supervisor behaviors with subordinates' recovery experiences, I advance the literature on recovery from work.

Second, drawing on the WH-R model (ten Brummelhuis & Bakker, 2012a), I conceptualize supervisor behaviors as work resources (i.e., by examining supervisor supportive behaviors in Study 1) and as work stressors (i.e., by examining abusive supervision in Study 2 and expectations to work during nonwork time in Study 3). Because studies mostly focused on work demands that characterize the workday as antecedents of recovery (e.g., time pressure, Chawla et al., 2020; or unfinished tasks, Gadeyne et al., 2023), the current literature lacks insights in how recovery can be fostered. Introducing supervisor behaviors as work resources is particularly important to understand how supervisors may promote subordinates' recovery processes. In addition, although studies examined interpersonal work stressors as antecedents of recovery (e.g., Nicholson & Griffin, 2015; Volmer et al., 2012), the specific role of supervisor behaviors as work stressors has been neglected. This limits our understanding of how negative supervisor behaviors affect subordinates' recovery. Unraveling how supervisor behaviors both promote and harm subordinates' recovery processes is important to give informed recommendations about how supervisors should behave to promote subordinates' recovery.

Third, I contribute to research on recovery from work by including the broader social environment in my studies which was mostly neglected in previous research (Sonnentag et al., 2017, 2022). Therefore, I not only focus on supervisor behaviors but – by also including behaviors of other persons (e.g., co-workers, partner, children, parents, friends) – I paint a more realistic picture of employees' social environment. Most employees work and live with other people and, therefore, including their behavior is crucial (Colbert et al., 2016; Ford et

al., 2007). Accordingly, I integrate interpersonal resources in the work domain (i.e., by examining co-worker reappraisal support in Study 2) and interpersonal stressors in the nonwork domain (i.e., by examining expectations of people in the nonwork domain in Study 3) as boundary conditions in my studies. In the face of negative supervisor behaviors, other people may either help subordinates to deal with this work stressor (by providing reappraisal support, Study 2) or their behavior may even exacerbate adverse effects of this work stressor (by holding opposing expectations, Study 3). Therefore, investigating how other people may influence the effects of supervisor behaviors is particularly important to examine how different social actors contribute to downstream consequences on employees' recovery. In addition, I not only focus on the social environment in the work domain but also include people in the nonwork domain. Given that the focus of my dissertation is on work-to-nonwork spillover processes (ten Brummelhuis & Bakker, 2012a), including behaviors of nonwork actors is especially important when examining recovery experiences in the nonwork domain. Although previous studies examined experiences with the partner (e.g., Hahn et al., 2012; Y. Park & Haun, 2017), not all employees live with a partner but still have meaningful social relationships in the nonwork domain such as with their parents or friends. For example, in 2022, 15.8% of the population in the European Union lived alone and 48.9% lived together with children (Eurostat, 2024). Taking into account different living arrangements and private situations, I examine nonwork expectations of a broader group of people (i.e., partner, children, parents, and friends) in Study 3.

Contributions to the Leadership Literature

My dissertation makes three important contributions to the leadership literature. First, my dissertation contributes to a behavioral approach in the leadership literature (Fischer et al., 2024). Moving beyond traditional research on leadership styles (Lord et al., 2017), I examine specific supervisor behaviors and disentangle how different types of behaviors can

contribute to subordinates' recovery from work. Thereby, I answer the calls to examine specific supervisor behaviors in leadership research (Fischer et al., 2024; Kelemen et al., 2020). Specifically, I differentiate between supervisor supportive behaviors that promote work versus nonwork roles (work support versus nonwork support, Study 1) and supervisors' explicit versus implicit expectations to work during nonwork time (Study 3). Examining distinct behaviors rather than a composite of different behaviors is crucial to infer which behaviors really promote or hinder recovery in everyday life. In addition, both supervisor supportive behaviors (Study 1) and supervisors' expectations to work during nonwork time (Study 3) could be part of different leadership styles (e.g., expectations to work during nonwork time could be reflected in transformational leadership, Bass, 1985; Endriulaitienė & Morkevičiūtė, 2020; or task-oriented leadership, Yukl et al., 2002). Examining these behaviors in isolation of additional assumptions of these leadership styles yields the benefit of drawing concrete, theoretical conclusions about the specific behavior. Moreover, I separate subordinates' perception of supervisor behaviors from subordinates' evaluations of those behaviors (Fischer et al., 2024). This is an important next step in behavioral leadership research to account for the actual behavior rather than the subordinates' assessment of the supervisor's underlying characteristics. Consequently, I assessed specific supportive behaviors (e.g., supervisors supporting subordinates with scheduling conflicts between work and nonwork, Study 1) and concrete abusive supervisory behaviors (e.g., supervisors putting subordinates down in front of others, Study 2) from the subordinates' point of view rather than using measures that mix supervisors behaviors with evaluations of those behaviors (e.g., by asking subordinates whether they view their supervisor as trustworthy to assess ethical leadership, Brown et al., 2005).

Second, I take a dynamic approach to leadership by examining within-person consequences of supervisor behaviors on subordinates' recovery (Kelemen et al., 2020;

McClean et al., 2019). Supervisors can vary their behavior from day to day or from one situation to the next (Kelemen et al., 2020). Zooming in on fluctuations in supervisors' behaviors yields the benefit of examining short-term consequences of supervisor behaviors in subordinates' everyday lives (e.g., Breevaart et al., 2014; Kuonath et al., 2021). I show in my studies that not only the general level of certain supervisor behaviors are relevant (Lord et al., 2017) but also higher-than-usual perceptions of positive (Study 1) and negative (Study 2) daily supervisor behaviors have downstream consequences on subordinates' recovery in the evening. Moreover, I demonstrate that experimentally manipulated supervisor behaviors in specific situations have within-person effects on recovery (Study 3). With this dynamic approach to supervisor behaviors, I go beyond previous recovery studies on general supervisor behaviors (Bendixen & Scheel, 2024; Bennett et al., 2016) and contribute to an emerging research stream on fluctuations in supervisor behaviors as antecedents of subordinates' recovery processes (Tu & Chi, 2024). This is a crucial step to make specific recommendations how supervisors can behave in everyday life to foster their subordinates' recovery. Changing day-to-day behaviors should be easier to implement for supervisors than modifying stable personal tendencies to show different behaviors.

Third, by linking supervisor behaviors with recovery, I add a new perspective to the leadership literature. My dissertation adds to research on leadership and well-being (Inceoglu et al., 2018; Montano et al., 2017) and refines previous findings by introducing subordinates' recovery processes as yet another outcome of positive versus negative supervisor behaviors. Hence, leadership scholars can gain insights from a vast and growing literature on recovery from work. For example, recovery from work has been consistently linked to beneficial subsequent outcomes, such as affective and energetic resources (Liu et al., 2021; McGrath et al., 2017) as well as performance-related outcomes (Binnewies et al., 2009; Sonnentag et al., 2012). Hence, by connecting supervisor behaviors with subordinates' recovery, leadership

scholars can gain insights in the underlying process of how beneficial supervisor behaviors may contribute to well-being and performance (Montano et al., 2017). Successful recovery from work could be the central process that links leadership with well-being across domains. Overall, connecting the leadership literature with research on recovery from work provides an insightful addition to both fields.

CHAPTER II: STUDY 1

I'll Support You Either Way: Examining Supervisor Supportive Behaviors as Antecedents of Subordinates' Recovery Experiences at Home

Summary

Recovery from work substantially contributes to employees' well-being and productivity but it remains unclear how recovery can be fostered. We introduce supervisor supportive behaviors regarding both work roles (i.e., work support) and nonwork roles (i.e., nonwork support) as interpersonal work resources that positively affect recovery. Drawing on the work-home resources model (W-HR model), we examine supervisor supportive behaviors as predictors of recovery experiences in the home domain (i.e., psychological detachment from work, relaxation, mastery experiences, control). We test the mediating role of vitality as a personal resource linking the work and home domains. In addition, we examine the moderating role of working from home in this process. In a daily diary study over the course of two work weeks (171 employees, 871 days), we found indirect effects of supervisor work support via vitality on subordinates' recovery experiences in the evening. In contrast, supervisor nonwork support directly predicted subordinates' recovery experiences on working-from-home days (psychological detachment from work, relaxation, control). Our results suggest that integrating supervisor supportive behaviors in recovery research is crucial because supervisors supporting both work and nonwork roles benefit subordinates' recovery. Our results highlight that working from home is an important boundary condition in research on the work-home interface.

Introduction

Recovery from work refers to employees' restoration of personal resources during nonwork time (Sonnentag et al., 2017). Recovery processes in the home domain are crucial because recovery contributes to employees' well-being as well as their future productivity at work (Bennett et al., 2018; Steed et al., 2021). Not only is recovery related to next-day affective states (McGrath et al., 2017; Sonnentag et al., 2008) but recovery also predicts performance-related outcomes (e.g., work engagement, Sonnentag et al., 2012; and performance, Binnewies et al., 2009). Due to the relevance of beneficial recovery processes at home, 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' recovery in the evening (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., 2021). Consequently, the literature lacks insights into how employees' recovery in the evening can be fostered. Although supervisors could be important facilitators of organizational strategies to promote recovery among employees, their role in subordinates' recovery was largely neglected (Sonnentag et al., 2017, 2022).

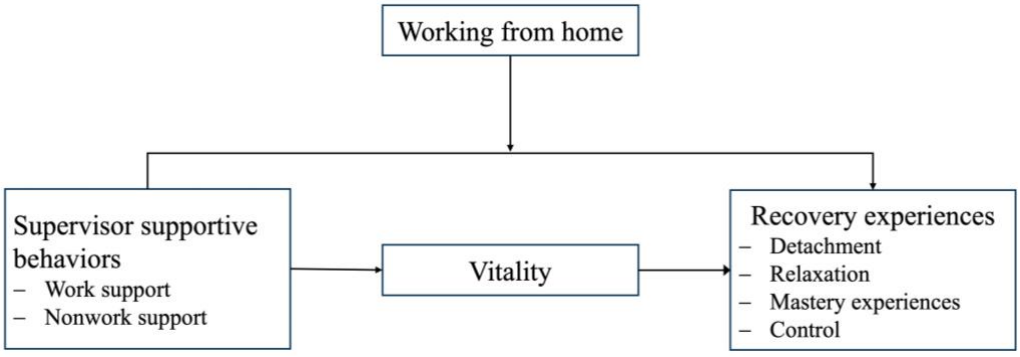
Supervisors are important agents in subordinates' daily work lives because they are in a central position to provide task-relevant resources and can help to fulfill socio-emotional needs at work (Mathieu et al., 2019). Supervisor support is a highly critical resource for employees' daily well-being (Guo et al., 2024; Kossek et al., 2023) and can, therefore, play an important role in employees' daily recovery processes. Supervisor support can positively contribute to subordinates' recovery because supervisors can help with challenging work and private situations (Crain & Stevens, 2018; Skakon et al., 2010). We thus examine supervisor supportive behaviors as work resources that have positive downstream consequences on subordinates' recovery in the home domain. We differentiate between domain-specific

supervisor behaviors that support work versus private roles. Accordingly, we examine supervisor work support (supporting subordinates in fulfilling their work role; Thacker & Stoner, 2012) and supervisor nonwork support (helping subordinates with nonwork demands during the workday; Hammer et al., 2009) as predictors of subordinates' recovery experiences.

The work-home resources model (W-HR model) is a resource-based framework that describes a work-home enrichment process suggesting that work resources impact home outcomes via increased personal resources (ten Brummelhuis & Bakker, 2012a). Thus, we look at supervisor supportive behaviors as work resources that positively impact home outcomes (i.e., recovery experiences). 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 to the application of the WH-R model, we seek to extend the theory by examining working from home as a boundary condition of the association of supervisor supportive behaviors with subordinates' recovery. When working from home, employees lack segmentation between the work and home domain and boundaries become blurred. Drawing on principles of boundary management theory (Ashforth et al., 2000), we thus propose that the associations of supervisor supportive behaviors with recovery will be stronger on days when working from home. Figure 2.1 displays our conceptual model.

Figure 2.1

Conceptual Model



Our study offers important insights both for the recovery and the leadership literature. First, we contribute to recovery research by identifying a work-home enrichment process of how supervisor supportive behaviors affect recovery. Previous work has already recognized the need to include supervisor behaviors in studies on recovery (Sonnentag et al., 2017, 2022). Adding a social angle to the recovery literature is critical because experiences with the supervisor have a tremendous impact on subordinates' well-being (Inceoglu et al., 2018; Montano et al., 2017). By examining supervisor supportive behaviors as predictors that have the potential to foster recovery, we offer a new perspective to recovery research that has mostly focused on antecedents that harm recovery (Bennett et al., 2018). Work and personal resources may benefit recovery, suggesting that the prior focus on negative antecedents is too narrow. Knowing how supervisors can support subordinates' recovery processes can also have important practical implications (e.g., for interventions).

Second, by looking at fluctuating daily supervisor behaviors, our study contributes to a dynamic perspective on leadership (Kelemen et al., 2020; McClean et al., 2019). In addition, we answer the call to study specific supportive behaviors of supervisors (Kelemen et al., 2020). By differentiating between supervisor supportive behaviors directed at a subordinate's distinct roles (i.e., work and private roles), our conceptualization of supervisor supportive behaviors reflects the two domains specified by the WH-R model. We show that supervisors should consider 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. By integrating recovery into the leadership literature, leadership scholars can gain relevant insights from recovery research because recovery is associated with subordinates' beneficial next-day work outcomes.

Third, we contribute to research on the WH-R model by introducing working from home as a moderator. The WH-R model does not make specific assumptions about working from home and treats work and home as separate domains (ten Brummelhuis & Bakker, 2012a). However, currently, more employees than ever regularly work from home (OECD, 2021), making the integration of working from home necessary to consider the "new normal". 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 particularly important (Bell et al., 2023; Perrigino & Raveendhran, 2020).

Theoretical Background and Hypothesis Development

The W-HR model (ten Brummelhuis & Bakker, 2012a) is a resource approach based on the conservation of resources theory which assumes that individuals strive to gain additional resources and protect their current ones (Hobfoll, 1989). Resources are "objects, personal characteristics, conditions, or energies that are valued by the individual" (Hobfoll, 1989, p. 516). The W-HR model (ten Brummelhuis & Bakker, 2012a) builds on these assumptions and specifically applies them to the work-home interface. Ten Brummelhuis and Bakker (2012a) further offer a detailed resource taxonomy which lies the groundwork for work-home spillover processes. Contextual resources of the individual's social environment lie outside the self (e.g., supervisor support), whereas personal resources such as energy are characteristics inside the self. Moreover, the authors distinguish between structural and volatile resources: Structural resources are stable characteristics of the individual or the environment and can last for longer time periods (e.g., skills, employment). In contrast, volatile resources are fleeting and are only temporarily available to the individual. Crossing the source of the resource (i.e., contextual vs. personal) with the transience of the resource (i.e., volatile vs. structural), results in a resources matrix of four quadrants. We focus on the volatile half by examining fluctuating resources. Previous research indicates that recovery

experiences show considerable day-to-day variation (for reviews, see Sonnentag et al., 2017, 2022) which is why we focus on contextual and personal volatile resources as short-term and within-person predictors of recovery.

Recovery Experiences at Home

Recovery from work 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 (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 during nonwork time), mastery experiences (i.e., experiencing challenging situations which result in success or achievement), and control (i.e., deciding oneself how to spend nonwork time). Recovery experiences have been linked to favorable outcomes at home (e.g., Feuerhahn et al., 2014; Sanz-Vergel et al., 2011) and the following day at work (e.g., (Dettmers, Vahle-Hinz, et al., 2016; ten Brummelhuis & Bakker, 2012b), underlining the idea that the recovery experiences are important home outcomes.

Supervisor Work Support and Supervisor Nonwork Support

Within the resource taxonomy of the WH-R model (ten Brummelhuis & Bakker, 2012a), the quadrant of volatile and contextual resources is labeled social support which emphasizes the core role of supervisor support inside the WH-R framework. Because – at least partly – supervisors vary their behaviors towards their subordinates across situations (Kelemen et al., 2020), supervisor supportive behaviors fluctuate over time and within persons. Hence, we examine daily supervisor work support and supervisor nonwork support as volatile contextual resources.

Specifically, we differentiate between supervisor work support and supervisor nonwork support to take into account the domain-specificity of supportive behaviors (Kossek et al., 2011). First, supervisor work support refers to helping behaviors which target employees' work role (Thacker & Stoner, 2012). In particular, work support includes supervisors answering questions about work tasks as well as 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 has a videoconference with the subordinate and gives suggestions about how to approach a new task. Supervisor work support has been linked to various favorable subordinate outcomes such as lower emotional exhaustion (Halbesleben, 2006) and higher job satisfaction (Mathieu et al., 2019). Because supervisor work support helps subordinates to deal with challenging work situations, work support could be beneficial to the work-home enrichment process that ultimately leads to improved recovery at home.

Second, supervisor nonwork support is defined as supervisor behaviors that help subordinates manage their nonwork roles (Hammer et al., 2009). Supervisor nonwork support includes helping subordinates with scheduling conflicts between work and nonwork life or listening to private problems. For example, when a subordinate's sick child calls at the office, the supervisor could signal their support by asking about the child. When a subordinate works from home and needs to pick up their children from school during work time, the supervisor could communicate to the subordinate that they understand the need to take care of private responsibilities. However, nonwork support is not specific to childcare duties but can refer to other aspects of nonwork life as well (e.g., caring for elders, voluntary work, hobbies).

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 also turned their attention to employees' private lives and examined outcomes

of supervisor nonwork support (Crain & Stevens, 2018; Guo et al., 2024). As working conditions changed over the past decades (e.g., increasing number of dual-earner couples, extended availability due to technological innovations), supervisor nonwork support got more central (Crain & Stevens, 2018; Guo et al., 2024). By providing nonwork support, supervisors acknowledge subordinates' private roles and help them deal with nonwork challenges. This helps subordinates to balance work and nonwork roles and can be beneficial for enrichment processes between work and home. Indeed, former studies have found that especially supervisor nonwork support is important for home outcomes (Kossek et al., 2011). For example, supervisor nonwork support positively predicts work-family enrichment (for a meta-analysis, see Guo et al., 2024).

Supervisor Work and Nonwork Support Predicting Subordinates' Recovery Experiences

Although the benefits of recovery at home are well documented (for an overview, see Sonnentag et al., 2017), the role of supervisor support in subordinates' recovery processes remains unclear. A first study on the role of supervisor support for various person-level recovery profiles found that supervisor recovery support increased the probability to belong to the more adaptive *leaving work behind* profile in comparison to the *recovering ponderer* or *pondering* profiles (Bennett et al., 2016), suggesting that supervisor support is beneficial for employees' recovery. However, a closer look at Bennett et al.'s operationalization of supervisor recovery support reveals that the items reflect supervisors' low availability expectations rather than behaviors that are explicitly supportive (e.g., "The ideal employee is someone who is available 24 hours a day", reverse coded item, Bennett et al., 2016). Thus, it is important to know how supervisors can actively support subordinates' recovery other than not expecting them to work during nonwork time.

We suggest that supervisor work support can predict subordinates' recovery experiences. First, by helping subordinates fulfill their work role and thereby reducing work stressors (e.g., unfinished tasks; Leger et al., 2022), supervisors can support psychological detachment from work in the evening (Syrek & Antoni, 2014). Second, supervisor work support could prevent unfavorable work events resulting in goal frustration which, in turn, would undermine subordinates' relaxation (Parker et al., 2020). Third, by reducing work stressors, supervisor work support could encourage subordinates to pursue challenging activities in the evening that have the potential to foster mastery experiences (Mojza et al., 2010). Fourth, on days with supervisor work support, subordinates are less likely to engage in work-related activities during off-job time which could result in greater feeling of control over their nonwork time.

Hypothesis 1: Supervisor work support is positively related to subordinates' (a) psychological detachment, (b) relaxation, (c) mastery experiences, and (d) control in the evening.

In addition to work support, supervisor nonwork support should foster subordinates' recovery experiences for various reasons. First, receiving support for nonwork roles is a strong signal for employees that supervisors acknowledge subordinates' private lives. This cue to prioritize nonwork roles could lead subordinates to spend their off-job time with private activities that benefit their psychological detachment (ten Brummelhuis & Bakker, 2012b). Second, positive interactions with supervisors can assist in decreasing arousal (e.g., blood pressure; Wong & Kelloway, 2016) which can promote relaxation (Coss & Keller, 2022). Third, by being able to deal with unexpected private demands during the workday, subordinates have fewer personal tasks left after work and can pursue activities that foster mastery experiences (Mojza et al., 2010). Fourth, supervisor nonwork support predicts perceptions of control (Aryee et al., 2013; Thompson & Prottas, 2006). Specifically, nonwork

support has been shown to foster work boundary flexibility (i.e., the perception that one has control over when and where to work; Ferguson et al., 2015) which could benefit subordinates' control.

Hypothesis 2: Supervisor nonwork support is positively related to subordinates' (a) psychological detachment, (b) relaxation, (c) mastery experiences, and (d) control in the evening.

Subordinates' Vitality After Work as Personal Resource

Volatile personal resources (or "energies", ten Brummelhuis & Bakker, 2012a, p. 552) are the mechanism that links volatile contextual resources with home outcomes on a day-to-day basis. Ten Brummelhuis & Bakker (2012a, p. 549) conceptualize personal resources as the "linking pins between the work and home domains". The W-HR model describes a work-home enrichment process of how work resources influence home outcomes. Specifically, contextual resources foster the development of personal resources inside the individual which are then available to the individual in the home domain and can positively influence home outcomes.

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 which positively contributes to home outcomes. In line with the W-HR model (ten Brummelhuis & Bakker, 2012a), vitality is a personal resource that explains the enrichment processes of supervisor work support and supervisor nonwork support on recovery experiences at home. The energetic level of the subordinate after work as indicated by their subjective vitality 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 during the evening.

Supervisor Support Predicting Subordinates' Vitality After Work

In line with the W-HR model (ten Brummelhuis & Bakker, 2012a), supervisor work support and nonwork support are contextual resources and these work resources foster personal resources such as vitality. Receiving support from one's supervisor regarding work and nonwork roles could help employees to preserve their energy, resulting in higher vitality.

Supervisor work support positively predicts vitality because supervisors helping with work tasks assists subordinates with challenging work situations. If subordinates share problems concerning their work with their supervisors, subordinates have to invest less personal resources in the task. Moreover, supervisors providing clear instructions help subordinates to work more effectively on the task (Siegall & Cummings, 1986). Therefore, they might invest less energy in unnecessary processes. In addition, subordinates might feel validated when supervisors acknowledge their stressful work situation. Supervisor work support could put things into perspective and help subordinates manage challenging situations (Sawhney et al., 2018). This could help them to preserve energetic resources, resulting in increased vitality.

Hypothesis 3a: Supervisor work support is positively related to subordinates' vitality after work.

Supervisor nonwork support is positively related to subordinates' vitality. By receiving nonwork support, subordinates are not forced to divide their personal resources between work and private life, for example, when unexpected private issues come up (such as the subordinate's sick child calling during worktime). 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 supervisor

nonwork support, they can preserve their energy, even when private demands occur. Moreover, by providing supervisor nonwork support, supervisors communicate that they acknowledge and respect subordinates' nonwork roles (e.g., as a parent). Empathic concern for subordinates' private lives could provide a positive experience at work, and this positive experience may result in the experience of vitality (Ellis et al., 2019).

Hypothesis 3b: Supervisor nonwork support is positively related to subordinates' vitality after work.

Subordinates' Vitality Predicting Recovery Experiences

The WH-R model suggests that personal resources influence outcomes at home (ten Brummelhuis & Bakker, 2012a) and we apply this theoretical argument to recovery processes. We propose that leaving work with higher vitality – as a personal resource – fosters recovery experiences. There is first indirect evidence that vitality matters for subsequent recovery processes as studies demonstrated that drained energetic resources in the evening impair recovery (Balk et al., 2021; Cangiano et al., 2021).

We propose that subordinates' vitality after work is positively related to recovery experiences during the evening for two reasons. On days when employees feel more vital, (1) they experience higher self-regulation capacity (Gombert et al., 2020; Zijlstra et al., 2014) and (2) they might invest this additional energy in their private lives, for example in effortful activities (Sonnentag & Jelden, 2009). First, self-regulation capacity due to high vitality is important for controlling thoughts (Wegner et al., 1987) and can thereby foster subordinates' detachment at home (Smit & Barber, 2016). This also benefits subordinates' relaxation because, with high self-regulation capacity, subordinates are able to focus their attention on experiences at home that they find relaxing (e.g., reading a book). Moreover, higher self-regulation capacity because of high vitality can foster creativity (Zielińska et al., 2023) which could result in higher mastery experiences. Subordinates may also feel higher control over

nonwork time because they are vital and have the regulatory resources to spend their leisure time as they wish. Second, engaging in effortful activities due to high vitality facilitates detachment as 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, 2012b). Additionally, mastery experiences depend on energetic resources because these activities require effort and the investment of personal resources (Kinnunen et al., 2011). Moreover, employees could feel more in control over their private activities because they have the energetic resources to engage in effortful activities.

Hypothesis 4: Subordinates' vitality after work is positively related to subordinates' (a) psychological detachment, (b) relaxation, (c) mastery experiences, and (d) control in the evening.

Vitality as Mechanism Linking Supervisor Support With Recovery

According to the W-HR model, work resources affect home outcomes via personal resources (ten Brummelhuis & Bakker, 2012a). Accordingly, we propose indirect effects of supervisor work and nonwork support on subordinates' recovery experiences at home via vitality. Initial studies showed that resources at work foster personal resources which in turn predict positive home outcomes (Aw et al., 2021; Rodríguez-Muñoz et al., 2020).

Hypothesis 5: There are positive indirect effects of supervisor work support on (a) psychological detachment, (b) relaxation, (c) mastery experiences, and (d) control via vitality.

Hypothesis 6: There are positive indirect effects of supervisor nonwork support on (a) psychological detachment, (b) relaxation, (c) mastery experiences, and (d) control via vitality.

The Moderating Effect of Working From Home

The W-HR model conceptualizes work and home as two distinct domains and is, therefore, mute about the possibility that work is done from home. However, recent developments (e.g., technological innovations, the COVID-19 pandemic) show an increasing trend towards hybrid work arrangements where employees partly work at the office and partly work from home (Bell et al., 2023), making the integration of working from home in the WH-R model highly necessary. Boundary management theory suggests that 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). We suggest that supervisor supportive behaviors have *stronger* associations with home outcomes 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 between the work and home domains (Kerman et al., 2022). 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 association of supervisor work support with recovery experiences. On working-from-home days, high supervisor work support (e.g., online meetings with supervisors that help prioritize tasks) helps subordinates cope better

with the specific challenges of working from home (e.g., distractions at home; Leroy et al., 2021) and subordinates will be better able to master blurred boundaries. When working at the office, subordinates might need this support less to focus on their work because stronger boundaries prevent nonwork issues from intruding into work life. Second, on days when working from home, subordinates need supervisor nonwork support more because private demands are higher due to blurred boundaries (Leroy et al., 2021). For example, having to pick up children during the workday is more likely on working-from-home days. By flexibly dealing with private demands during the workday due to supervisor nonwork support, employees experience less work-family conflict (Kossek et al., 2011) which benefits their recovery.

Hypothesis 7: 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.

Hypothesis 8: 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.

Method

Procedure and Sample

The study was part of the data collection 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 hours 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)[2].

Data was collected from June 2021 to April 2022[3]. We conducted a daily diary study over the course of 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). The final sample consists of 171 employees who provided

[2] Additionally, because our study was part of a larger research project, participants were required to use technologies (e.g., smartphone) for work-related purposes during off-job time. However, this criterion was not relevant for this study.

[3] 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.

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. In terms of age, 40.9% of the participants were younger than 30, 25.7% between 31 and 40, 19.3% between 41 and 50, and 14% older than 51 (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, $\chi^2(4, N = 253) = 3.23$, $p = .52$. 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. Table 2.1 displays descriptive statistics, level-specific Cronbach's α (Geldhof et al., 2014), and intraclass correlation coefficients. Table 2.2 shows correlations on the within-person level and between-person level.

Table 2.1

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

Note. 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 2.2

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***	

Note. 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).

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Abbreviations: M = morning survey; AW = after-work survey.

Supervisor Work Support

We assessed supervisor work support with the relationship function inventory (RFI; Colbert et al., 2016) and adapted it 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"). Cronbach's α_w (referring to the within-person level) was .86 and α_b (referring to the between-person level) was .93.

Supervisor Nonwork Support

We measured supervisor nonwork support with two scales from the family supportive supervisor behaviors questionnaire (FSSB; 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"). Cronbach's α_w was .89 and α_b was .98.

End-of-Workday Vitality

We used five items of the subjective vitality scale (Ryan & Frederick, 1997). Participants reported how vital they felt right now (e.g., "At the moment, I'm feeling alive and vital"). Cronbach's α_w was .88 and α_b was .96.

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). Cronbach's α_w was .87 for psychological detachment, .84 for

relaxation, .79 for mastery experiences, and .81 for control. Cronbach's α_b was .99 for psychological detachment, .96 for relaxation, .97 for mastery experiences, and .99 for 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[4].

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 behavior toward them (Gabriel et al., 2019). Cronbach's α_w was .89 and α_b was .97. In addition, work demands 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., 2021). Thus, we controlled for daily workload. We measured workload with four items in the after-work survey (e.g., "Today, my job required me to work very fast"; Spector & Jex, 1998). Cronbach's α_w was .80 and α_b was .97.

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

[4] In addition to the two response options (i.e., *working at the office*, *working from home*), participants could select "other" and 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. Therefore, we excluded 23 days from the data analysis.

nonwork support and supervisor work support with two subscales each reflecting emotional and instrumental supportive behaviors, we computed two higher-order support factors representing supervisor nonwork support and supervisor work 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. This approach is in line with the W-HR model that assumes two distinct domains (work and nonwork) and with prior research on supervisor nonwork support (Hammer et al., 2009). 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. 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, $\chi^2 = 1069.19$, $df = 131$, $p < .001$, SCF = 1.26, RMSEA = .09, CFI = .83, TLI = .80, AIC = 27,035.34, Satorra-Bentler $\Delta\chi^2(6) = 276.46$, $p < .001$, and 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, Satorra-Bentler $\Delta\chi^2(2) = -129.71$[5]. For hypothesis testing, we used the two-higher-order-factor model because

[5] 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).

(1) this model is more parsimonious than the four-factor 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. 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.

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 within-person variable and was only used at the within-person level. 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.[6] 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 weighted means using the DEFINE command in Mplus. We used the within-person factor loadings from the multilevel confirmatory factor analysis as

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

weight for the within-person higher order factor, and the between-person factor loadings as weight for 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).[7] 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. The syntax of our overall model and our data are available online (https://osf.io/pmdk6/?view_only=4e9ddc41b5d54dde9bc61053eaf14416).

Results

Results of the main-effects-only model are displayed in Table 2.3. Hypothesis 1 suggested that supervisor work support is positively associated with subordinates' recovery experiences. This hypothesis was not supported as supervisor 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 2 stated

[7] To receive the variances and covariances necessary for the Monte Carlo method, we had to compute a pooled asymptotic covariance matrix because Mplus generated 50 asymptotic covariance matrices based on the 50 imputed data sets. For this purpose, we saved the Tech3 output from Mplus, uploaded it in R Studio, generated 50 separate matrices and computed one pooled asymptotic covariance matrix (for further information, see Howard, 2021).

that supervisor nonwork support predicts subordinates' recovery experiences. We found no empirical support for this hypothesis as supervisor 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) mastery experiences, estimate = -0.11, *SE* = 0.07, *p* = .10, and (d) control, estimate = 0.03, *SE* = 0.05, *p* = .63.

Hypothesis 3a suggested that supervisor work support is positively related to subordinates' vitality. In support of this hypothesis, supervisor work support positively predicted vitality, estimate = 0.10, *SE* = 0.05, *p* = .033[8]. Hypothesis 3b stated that supervisor nonwork support is positively related to subordinates' end-of work vitality. We found no empirical support for this hypothesis, supervisor nonwork support was not significantly related to vitality, estimate = -0.04, *SE* = 0.05, *p* = .463. Hypothesis 4 suggested that subordinates' vitality is positively related to subordinates' recovery experiences. In full support of Hypothesis 4, vitality positively predicted (a) psychological detachment, estimate = 0.13, *SE* = 0.05, *p* < .01, (b) relaxation, estimate = 0.24, *SE* = 0.05, *p* < .001, (c) mastery experiences, estimate = 0.15, *SE* = 0.05, *p* < .01, and (d) control, estimate = 0.18, *SE* = 0.04, *p* < .001.

[8] When excluding workload as a control variable, the path of supervisor work support on vitality was marginally significant, estimate = 0.08, *SE* = 0.05, *p* = .092. All other results remain unchanged. Thus, workload explains variance in both supervisor work support and vitality and, when accounting for this shared variance, the association of workload and vitality reaches the conventional significance level.

Table 2.3

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)	0.016	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

Note. 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.

Results of the hypothesized indirect effects (i.e., Hypothesis 5 and 6) are displayed in Table 2.4. Hypothesis 5 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]. Hypothesis 6 suggested positive indirect effects of supervisor nonwork support on subordinates' recovery experiences via subordinates' vitality. Failing to support Hypothesis 6, 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].

Unstandardized path estimates of the overall model including the interaction terms are presented in Table 2.5. Hypothesis 7 suggested that working from home moderates the relationship between supervisor work support and subordinates' recovery experiences. In our overall model, the interaction term between supervisor work support and working from home significantly predicted (d) control, estimate = -0.21, *SE* = 0.09, *p* = .023. However, the slopes of supervisor 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 supervisor 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 7.

Table 2.4

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]

Note. 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 & Preacher (2008).

Abbreviations: est. = estimates; AW = after-work survey.

Table 2.5

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

Note. 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.

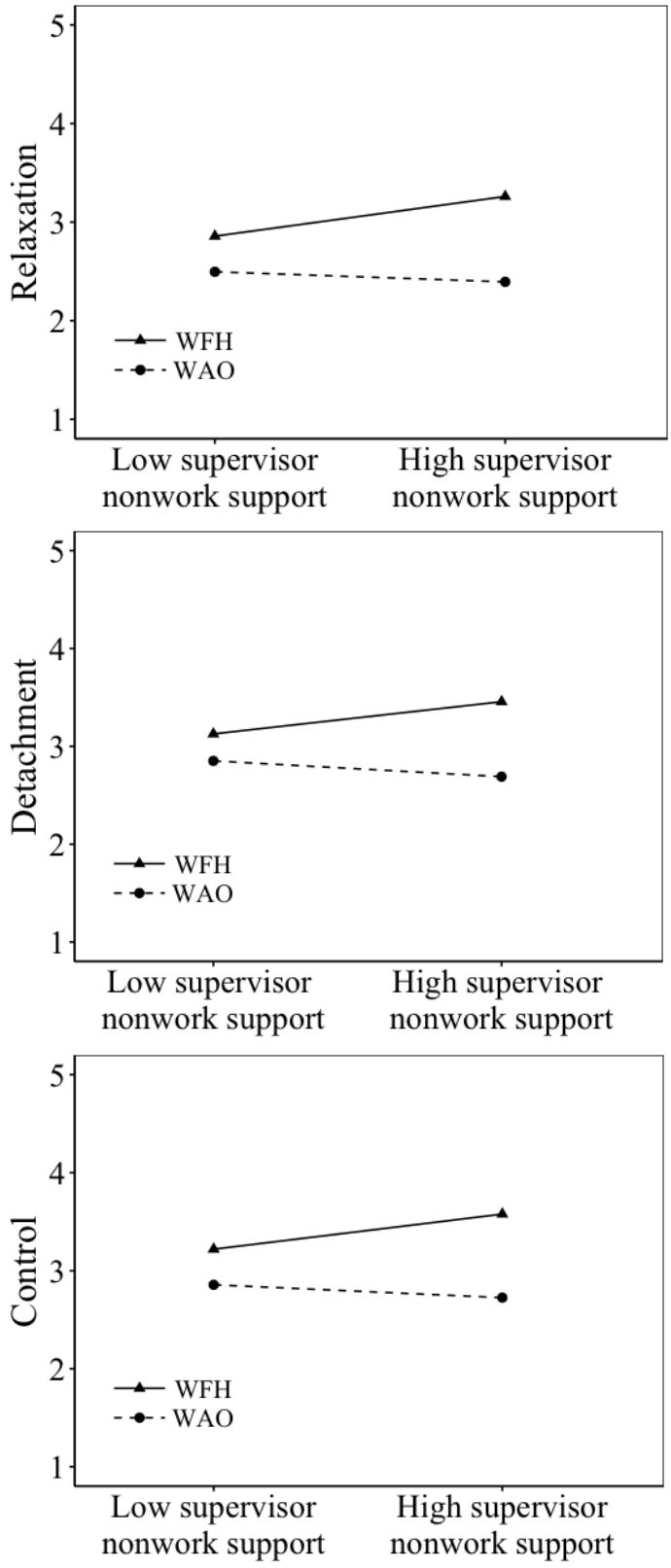
[a] This path was set random due to significant between-person variance in this slope.

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

Hypothesis 8 suggested that working from home moderates the relationship between supervisor nonwork support and subordinates' recovery experiences. The interaction effects of supervisor nonwork support with working from home were significant for (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 for mastery experiences, estimate = -0.02, *SE* = 0.16, $p = .905$. Thus, Hypothesis 8c was not supported. Plots of the significant interaction effects are displayed in Figure 2.2. Simple slope tests revealed a significant positive relationship between supervisor nonwork support and psychological detachment on days when working from home, slope estimate = 0.30, *SE* = 0.09, $p = .001$, and a marginally significant negative relationship on days when working at the office, slope estimate = -0.15, *SE* = 0.08, $p = .062$. Thus, Hypothesis 8a was supported. In support of Hypothesis 8b, 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 nonsignificant 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 8d was partially supported.

Figure 2.2

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.

Discussion

Using a daily diary design, our study provided empirical support for the indirect effects of supervisor work support on subordinates' recovery experiences via vitality. There were no indirect effects of supervisor nonwork support on recovery via vitality. However, in line with of our moderating hypothesis, supervisor nonwork support was significantly associated with psychological detachment, relaxation, and control on days when working from home.

Theoretical Implications

Our study offers several theoretical implications. With our study we move the recovery literature forward by introducing a social angle. We paint a more complete picture of employees' everyday work lives and demonstrate that supervisor supportive behaviors matter for subordinates' recovery. In particular, we advance the recovery field by including positive experiences with the supervisor in our model and thereby, identifying 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 refines the understanding of recovery processes. We demonstrate that supervisors can foster subordinates' recovery by displaying supportive behaviors throughout the workday.

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 supervisor nonwork support (Kelemen et al., 2020). The WH-R model specifies two different life domains (i.e., work and home; ten Brummelhuis & Bakker, 2012a) and mirroring these domains in our conceptualization of supervisor supportive behaviors proved highly relevant. While both supportive behaviors are beneficial for recovery on the day-level, they foster 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.

We demonstrate that supervisor work support matters for recovery processes at home because the support helps subordinates to preserve energetic resources. With this finding, our study offers strong 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 subordinates' enhanced vitality due to supervisor support can promote recovery experiences at home.

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. Because of this lack of focus on private roles, supervisors might not be able to contribute to clearer boundaries between work and home. The domain-specificity hypothesis assumes that domain-specific support is particularly relevant for the respective domain that the support focuses on (K. A. 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.

Supervisor nonwork support directly fosters recovery experiences on working-from-home days, suggesting that nonwork support is particularly important for subordinates' recovery on these days. Most likely, 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' private roles which could help

subordinates to draw clearer boundaries. Again, in line with the domain-specificity hypothesis (K. A. French et al., 2018; Kossek et al., 2011), the focus of nonwork support on the home domain can 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 at home 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 could contribute to impaired feelings of control. Moreover, supervisor nonwork support neither predicted mastery experiences on working-from-home days nor on office days. Thus, supervisor nonwork support may not help to engage in challenging activities at home that have the potential to foster mastery experiences (Mojza et al., 2010). Mastery experiences seem to depend more on current energetic resources rather than supervisor supportive behaviors at work.

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 tend to a sick child's needs but caring for the child on top of daily work tasks still drains subordinates' vitality. Moreover, because supervisor nonwork support may particularly affect outcomes at home (K. A. French et al., 2018; Kossek et al., 2011), the direct influence 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 stemmed from cross-sectional research on the between-person level (Crain & Stevens, 2018). Within the short timeframe of one single day, the positive within-person influence of daily nonwork support may completely unfold only in the home domain.

Our study offers strong support for the assumptions of the WH-R model because we demonstrate that work resources spill over into the home domain and are associated with subordinates' recovery experiences at home via enhanced personal resources (ten Brummelhuis & Bakker, 2012a). In addition, we extend the WH-R model by adding working from home to our model. We demonstrate the benefit of including working from home in theory and empirical research on the work-home interface to account for societal changes in work arrangements (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 confirm and extend our findings to strengthen informed practical recommendations on hybrid work settings.

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 such as 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 supportive behaviors were 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, 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.

Future studies could consider longitudinal designs to further investigate the role of supervisor support for subordinates' recovery over longer periods of time (Zyphur et al., 2020). Supervisor work support and nonwork support had relatively low daily means which indicates that these behaviors 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.

Additionally, it is important to further look at the role working from home plays in the W-HR model. Our study offers first evidence that supervisor nonwork support might be

particularly needed on working-from-home days. Therefore, working from home should be theoretically integrated into the W-HR model and additional studies should investigate the relationship between work resources and home outcomes when working at home.

Practical Implications

Our study offers practical implications for supervisors, employees, and organizations. First, supervisors should be aware that both work support and nonwork support benefit 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. Generally, 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). Showing nonwork support is especially relevant on working-from-home days. However, other types of support such as work support are critical as well, regardless of the subordinates' work location. Supervisors can therefore implement strategies to provide support, even on days without face-to-face contact. For example, supervisors could ask about subordinates' work and nonwork problems via e-mail or offer online meeting opportunities when subordinates work from home.

Second, employees should be aware that resources at work can positively influence their daily recovery at home and especially supportive behaviors of their supervisor are important. Our study showed that vitality after work is an important antecedent of recovery at home. Hence, on days with high work demands, employees could foster their energetic resources after work, for example by pursuing physical activities (Dodge et al., 2022) which can protect their recovery despite high work stressors.

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 focusing on social antecedents of recovery, we showed that supervisor work and nonwork support are important drivers of subordinates' recovery experiences. Our study provided support for the assumptions of the W-HR model by showing that supervisor work support is indirectly related to subordinates' recovery experiences via increased vitality. Furthermore, our study highlights the importance of including working from home in research on the work-home interface because supervisor nonwork support was directly related to subordinates' recovery experiences (i.e., detachment, relaxation, control) on working-from-home days.

CHAPTER III: STUDY 2

Investigating daily abusive supervision as antecedent of subordinates' low psychological detachment and relaxation during nonwork time: A diary study[9]

Summary

Recovery from work is highly relevant for employees, yet understanding the interpersonal antecedents of impaired recovery experiences remains unclear. Specifically, because former research neglected supervisor behaviors as predictor of impaired recovery, we examine daily abusive supervision as a predictor of subordinates' recovery experiences (i.e., psychological detachment and relaxation). We draw on research on the recovery paradox and propose that psychological detachment and relaxation will be impaired on days with high abusive supervision, although recovery would have been highly important on those days. We suggest a cognitive mechanism (via rumination) and an affective mechanism (via anger) to explain this paradox. We test co-worker reappraisal support as a moderator that buffers adverse effects of abusive supervision on rumination and anger. In a daily diary study (171 subordinates, 786 days) we found an indirect effect of abusive supervision on psychological detachment via rumination and indirect effects of abusive supervision on psychological detachment and relaxation via anger. Co-worker reappraisal support moderated the association of abusive supervision and rumination, such that the relationship was weaker

[9] Study 2 is a manuscript authored by Julia Iser-Potempa, Hadar Nesher Shoshan, and Sabine Sonnentag which is published in the *Journal of Occupational Health Psychology* (2024). The paper is published open access under a Creative Commons Attribution-Non Commercial-No Derivatives 4.0 International License (CC BY-NC-ND 4.0). Chapter III is identical to the published version, except for minor formatting edits.
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when co-worker support was high. Our results suggest that including negative supervisor behaviors such as abusive supervision in recovery research is highly relevant.

Introduction

Effective recovery from work during nonwork time is immensely important for employees to restore their resources after work so that they can stay productive (Headrick et al., 2022; Steed et al., 2021). Recovery from work refers to unwinding from current work stressors and is essential for employees to deal with upcoming demands (Sonnentag et al., 2022). Consequently, insufficient recovery increases the risk of impaired mental health outcomes and enhances the prevalence of reduced ability to work (Schulz et al., 2020), thus contributing to sick days, productivity loss, and rising costs for organizations (OECD, 2009; Pinheiro et al., 2017). Due to these downsides of insufficient recovery, it is crucial to understand which workplace factors hinder employees' recovery processes. Because most employees work in a social environment (Colbert et al., 2016; Sluss & Ashforth, 2007), examining how other people affect recovery is crucial. Social stressors are among the most stressful experiences at work (e.g., Bowling & Beehr, 2006; Spector & Jex, 1998) and have also been linked to impaired recovery processes. Specifically, negative interpersonal experiences at work like customer mistreatment (Y. Park & Kim, 2019), social conflicts with customers (Volmer et al., 2012), or incivility (Nicholson & Griffin, 2015) hinder employees' recovery in the evening.

Surprisingly, the specific role of negative supervisor behaviors has gained little attention within recovery research. Former studies particularly focused on customers (e.g., Park & Kim, 2019; Volmer et al., 2012), utilized a mixed measure of negative interpersonal experiences with different actors (e.g., Meier & Cho, 2019; Nicholson & Griffin, 2015) or examined general social stressors without a reference to a specific group of people (e.g., Rodríguez-Muñoz et al., 2017; Schulz et al., 2021). The particular role of supervisor

behaviors for recovery experiences was largely neglected (for an exception, see Gallegos et al., 2021). However, supervisors play a key role in organizations for employees' work lives and their psychological health (Inceoglu et al., 2018; Skakon et al., 2010). For example, supervisors have the power to allocate resources (Vermunt, 2015) and assign tasks (Delfgaauw et al., 2020). Consequently, their behavior has a substantial impact on their subordinates' mental health (Montano et al., 2017). If supervisors abuse this position of power and mistreat their subordinates, this is an extremely stressful experience for subordinates (Mackey et al., 2017; Tepper et al., 2017) and poses a severe threat to the self (Semmer et al., 2019; Vogel & Mitchell, 2017). Thus, negative interpersonal experiences with the supervisor during the workday should particularly undermine subordinates' recovery.

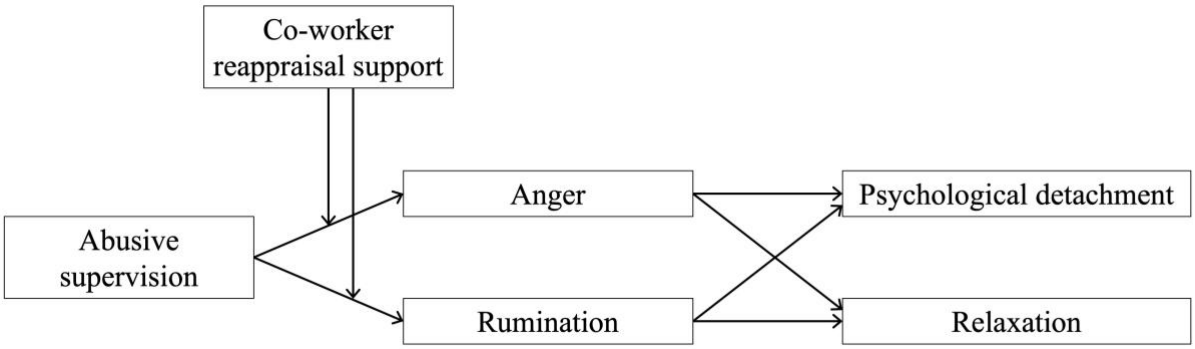
Abusive supervision (i.e., subordinates' perception of hostile behaviors displayed by the supervisor; Tepper, 2000) is a well-established interpersonal stressor described within the leadership literature (Tepper et al., 2017). Abusive supervision has been linked to various negative well-being outcomes such as impaired mental health (Montano et al., 2017) and impaired physical health (Liang et al., 2018). We aim to advance the recovery literature by examining abusive supervision as antecedent of subordinates' impaired psychological detachment and relaxation (i.e., two specific recovery experiences; Sonnentag & Fritz, 2007) during nonwork time.

We draw on research on the recovery paradox showing that although recovery is highly critical on days with high stressors, recovery processes are – paradoxically – particularly impaired on those days (Sonnentag, 2018). Accordingly, we suggest abusive supervision to be linked to subordinates' decreased psychological detachment and relaxation, although recovering during nonwork time would be most needed on days when abusive supervision is high. To explain this paradox, we examine two mechanisms that could link

abusive supervision at work with impaired recovery experiences at home. We propose subordinates' rumination about the supervisor's behavior as a cognitive mediator (Brosschot et al., 2006; Martin & Tesser, 1996) and subordinates' anger as a potential affective mechanism (Oh & Farh, 2017). In addition, we assume that co-workers can help subordinates deal with abusive supervision (Cohen & Wills, 1985; McKay, 1984). Therefore, we examine co-worker reappraisal support (i.e., co-workers supporting cognitive reappraisal of negative work experiences; Tremmel & Sonnentag, 2018) as a moderator that buffers the association of abusive supervision with rumination and anger. Figure 3.1 shows our conceptual model.

Figure 3.1

Conceptual model



With our study, we contribute to research on the recovery literature and research on abusive supervision. First, with respect to the recovery literature, we add to a better understanding of how the interpersonal environment at work can affect subordinates' recovery experiences. Examining how negative experiences with the supervisor relate to subordinates' recovery experiences is critical because supervisors play a particularly influential role for employees' health and well-being (Inceoglu et al., 2018; Montano et al., 2017). By focusing on abusive supervision as a daily interpersonal stressor, we address a clearly identified oversight to examine supervisor behaviors in recovery research (Sonnentag

et al., 2017, 2022). Moreover, we unravel the underlying processes of why negative interpersonal experiences with the supervisor spill over into recovery time at home by looking at a cognitive mechanism (i.e., rumination) and an affective mechanism (i.e., anger). Hence, we identify two psychological processes that link abusive supervision and recovery experiences at home.

Second, by examining co-worker reappraisal support as a daily moderator, we integrate a positive interpersonal experience into the study of a negative experience of abusive supervision, painting a more complete picture of social processes at work. Employees work in complex social systems (Colbert et al., 2016; Sluss & Ashforth, 2007) and behaviors of various actors at work can affect them both positively (Jolly et al., 2021; Mathieu et al., 2019) and negatively (Mackey et al., 2017; Pillemer & Rothbard, 2018). Our study, therefore, adds to the recovery literature by examining interactive effects of supervisor and co-worker behaviors at work. Moreover, we introduce a constructive type of co-worker support to the abusive supervision literature. In contrast to other, more negatively framed types of support (e.g., co-rumination; Haggard et al., 2011), co-worker reappraisal support could help subordinates to re-evaluate the supervisor's abusive behavior and subsequently, abusive supervision might have less severe consequences for subordinates' recovery experiences. Therefore, we aim to shed light on contradictory empirical results on the role of co-worker support in abusive supervision research (Hobman et al., 2009; Wu & Hu, 2009).

Third, we add to a large and rapidly growing literature on negative consequences of abusive supervision (Mackey et al., 2017; Martinko et al., 2013). Moreover, we contribute to a recent stream of research that investigates dynamic aspects of leadership (Kelemen et al., 2020; McClean et al., 2019). We show that abusive supervision threatens subordinates' psychological detachment and relaxation in their everyday lives. By introducing recovery experiences as an outcome to the abusive supervision literature, leadership researchers gain

insights from the recovery field. For example, low recovery in employees' daily work lives has been linked to decreased well-being outcomes (e.g., low vitality, Liu et al., 2021) and, hence, insufficient day-to-day recovery could be an explanation why abusive supervision is consistently linked with impaired well-being (Liang et al., 2018; Montano et al., 2017). Linking those mostly separate research fields can thereby offer a new perspective on the consequences of abusive supervision.

Theoretical Background and Hypotheses Development

Recovery from work is defined as the "process of psychophysiological unwinding that counteracts the strain process triggered by job demands and other stressors" (Sonnentag et al., 2017, p. 365). Recovery experiences are the underlying psychological experiences which promote the recovery process (Sonnentag & Fritz, 2007). We focus on two central recovery experiences (i.e., psychological detachment and relaxation) which have often been studied together in former research (e.g., Nicholson & Griffin, 2015; Völker et al., 2023). *Psychological detachment* refers to leaving work behind when being off the job and forgetting about work during nonwork time. *Relaxation* is defined as the experience of low sympathetic activation during nonwork time (Sonnentag & Fritz, 2007). Both psychological detachment and relaxation may be particularly threatened by abusive supervision. The choice of psychological detachment and relaxation is informed by the proposed underlying mediating mechanisms. We chose psychological detachment and relaxation because we expect abusive supervision to trigger cognitive (i.e., rumination) and affective processes (i.e., anger). When facing abusive behavior, subordinates continue to think about their supervisors' behavior and experience high arousal due to their high anger, and, because of these states, their psychological detachment and relaxation can be especially impaired.

Former studies have shown that on days with high work stressors subsequent recovery in the evening is particularly threatened, although recovery would be most needed on these

days (for an overview, see Sonnentag, 2018). Sonnentag (2018, p. 173) termed this finding *recovery paradox* which refers to the notion that "although the exposure to job stressors makes recovery necessary in an objective way […], empirical evidence suggests that job stressors are not associated with higher – but a lower – likelihood of recovery enhancing processes". For example, Smit and Barber (2016) showed that high workload predicts impaired psychological detachment in the evening, although psychological detachment from work would be beneficial on days with high workload to distance oneself from work and return to work the following day with renewed resources. We draw on research on the recovery paradox and propose that abusive supervision is such a factor that corresponds to the recovery paradox.

Abusive supervision refers to "subordinate's perceptions of the extent to which their supervisors engage in the sustained display of hostile verbal and non-verbal behaviors, excluding physical contact" (Tepper, 2000, p. 178). Specifically, we examine daily abusive supervisory behaviors which the subordinate experiences as hostile (Barnes et al., 2015). Abusive supervision is a subjective assessment of subordinate mistreatment and comprises of behaviors like putting subordinates down in front of others or expressing anger towards the subordinate (Tepper, 2000). In contrast to other social stressors (e.g., incivility, social conflicts), abusive supervision is exclusively tied to mistreatment behaviors of the supervisor (Hershcovis, 2011). Incivility, for example, is more ambiguous in nature and of lower intensity compared to abusive supervision (Hershcovis, 2011). Abusive supervision is a strong workplace stressor (Tepper et al., 2017) which can impair subordinates' well-being and optimal functioning (Harms et al., 2017). There is a large base of evidence that abusive supervision is associated with a number of unfavorable subordinate outcomes such as emotional exhaustion and work-family conflict (Martinko et al., 2013). On a day-to-day basis, abusive supervision is related to various work outcomes such as decreased intrinsic

motivation (Tariq & Ding, 2018), decreased work engagement (Barnes et al., 2015), and increased turnover intentions (Tariq & Ding, 2018).

We suggest that daily abusive supervision negatively predicts subordinates' psychological detachment and relaxation in the evening. According to the recovery paradox (Sonnentag, 2018), although subordinates would benefit immensely from psychological detachment and relaxation in the evening on days with high abusive supervision, it will be particularly difficult to recover during nonwork time on these days. First, subordinates' psychological detachment will be impaired because abusive supervision is a strong negative interpersonal experience at work. Abusive supervision threatens subordinates' relationship with the supervisor (Mackey et al., 2017) which puts the attainment of future resources at risk (e.g., promotions, social support). Therefore, subordinates might have difficulties leaving this abusive situation mentally behind after work and instead continue thinking about it. Moreover, subordinates might perceive the supervisor's abusive behavior as unfair (Mackey et al., 2017) which could trigger negative work-related thoughts in the evening (M. Kim et al., 2022). Second, abusive supervision will be related to subordinates' impaired relaxation. Threats to the relationship with the supervisor due to abusive supervision can also hinder relaxation in the evening (Volmer et al., 2023). Moreover, negatively perceived interactions with supervisors are associated with increased arousal at work (e.g., increased blood pressure; Wong & Kelloway, 2016) which impedes the potential for relaxation (Coss & Keller, 2022). Former research is in line with our proposition: Studies have shown that interpersonal stressors such as incivility negatively predict recovery experiences (Demsky et al., 2019; Nicholson & Griffin, 2015). Moreover, daily abusive supervision is associated with subordinates' impaired sleep quality (Tariq et al., 2020) which could result from insufficient recovery experiences before going to bed.

Hypothesis 1: Daily abusive supervision is negatively related to subordinates` (a) psychological detachment and (b) relaxation in the evening.

We propose two processes which explain the relationship between abusive supervision and subordinates' recovery experiences in the evening. We will elaborate on the cognitive mechanism via rumination and the affective mechanisms via anger in the following sections. We expect both processes to occur simultaneously because, in daily life, both processes are closely intertwined. Most probably, these states are mutually dependent and reinforce one another as there are no clear empirical indications that one state precedes the other (e.g., McCullough et al., 2007; Wang et al., 2013).

The Cognitive Mechanism: Subordinates' Rumination About Supervisors' Behavior as Mediator Linking Abusive Supervision and Impaired Recovery Experiences

Rumination refers to "a class of conscious thoughts that revolve around a common instrumental theme and that recur in the absence of immediate environmental demands requiring the thoughts" (Martin & Tesser, 1996, p. 7). In line with this definition, the content of ruminative thoughts involves a specific theme. In our study, we focused on rumination about the supervisor's behavior. Specifically, we were interested in ruminative thoughts during the workday (rather than during nonwork time). Ruminative processes are triggered when relevant goals are threatened (Martin & Tesser, 1996). Employees tend to ruminate if there is a mismatch between their actual state and their desired goal (i.e., a goal discrepancy). Abusive supervision is a negative interpersonal experience that threatens subordinates' desire of being successful in their job and signals the risk of losing interpersonal resources such as supervisor support (Perko et al., 2017). Therefore, subordinates experience a discrepancy between their desired goal (e.g., receiving supervisor support) and their current state (i.e., experienced abusive supervision). Hence, one of the reasons why subordinates ruminate

about their supervisor's behavior is due to experienced goal discrepancies which are triggered by abusive supervision.

Former long-term and short-term studies examined rumination in the home domain as an outcome of abusive supervision (Liao et al., 2021; Perko et al., 2017). A daily diary study offers first support for short-term and within-person processes of abusive supervision on rumination (Liao et al., 2021). In this study, rumination at home mediates the relationship between daily abusive supervision and next-day leader-directed deviance when subordinates generally attribute the supervisor's behavior to injury initiation motives (i.e., supervisor's intention to cause harm). With the focus of the literature on rumination at home (e.g., Liao et al., 2021; Perko et al., 2017), rumination during the workday and its consequences on subsequent recovery has been neglected in former research. Subordinates probably start ruminating about their supervisors' abusive behaviors in the domain where they experienced the goal discrepancy (i.e., in the work domain) because they might meet their supervisor again during the workday or the environment reminds them of the abuse, making it difficult to stop thinking about this interpersonal experience. To zoom in on the unfolding of ruminative thoughts, we focus on subordinates' rumination about supervisors' behavior during worktime to investigate whether these cognitive processes impair subsequent recovery in the evening.

Hypothesis 2: Daily abusive supervision is positively related to subordinates' rumination at work.

We propose that subordinates' rumination about supervisors' behavior negatively predicts psychological detachment and relaxation at home. Rumination theories (Brosschot et al., 2006; Martin & Tesser, 1996) assume that it is difficult to dissolve ruminative thoughts because – by definition – rumination can occur without immediate environmental demands to think about the recurring theme. In line with this reasoning, first, we suggest that rumination

will be negatively related to subordinates' psychological detachment. Rumination about the supervisor's behavior will likely persist after work, such that employees will have difficulties to stop thinking about work in the evening and psychological detachment will be impaired. Longitudinal studies have shown that rumination due to abusive supervision persists for longer periods of time (i.e., four months; Liang et al., 2018), providing empirical support for our assumption that rumination does not stop easily (Brosschot et al., 2006; Martin & Tesser, 1996). With our focus on daily processes, it is warranted that ruminative thoughts will persist until the evening and spill over from work to nonwork time, resulting in decreased psychological detachment.

Second, we propose that rumination will be negatively related to subordinates' relaxation in the evening. Rumination goes along with physiological activation (Brosschot et al., 2006). Because ruminative thoughts have the function to prepare the individual for anticipated future threats, rumination triggers a fight-or-flight response which is accompanied by physiological arousal (Brosschot et al., 2006). Meta-analysis have provided empirical support for this assumption, showing that rumination is associated with various physiological indicators of arousal (e.g., increased blood pressure and heart rate; Ottaviani et al., 2016). We propose that this physiological component of rumination hinders subordinates' relaxation in the evening. To experience subjective relaxation after work, employees would need to experience low physiological arousal (Coss & Keller, 2022).

Hypothesis 3: Subordinates' rumination at work is negatively related to subordinates' (a) psychological detachment and (b) relaxation in the evening.

Connecting our assumptions described above, we assume that subordinates' rumination mediates the negative association of abusive supervision with subordinates' psychological detachment and relaxation. In line with research on the recovery paradox (Sonnentag, 2018), although recovery would be particularly needed on days with abusive

supervision, subordinates' psychological detachment and relaxation will be impaired due to subordinates' prolonged rumination about the supervisor's abusive behavior. Although there is no empirical evidence on the day-level yet, former longitudinal studies provide first support that rumination mediates the relationship of abusive supervision with decreased health outcomes over longer periods of time (Liang et al., 2018).

Hypothesis 4: There are negative indirect effects of abusive supervision on subordinates' (a) psychological detachment and (b) relaxation in the evening via subordinates' rumination at work.

The Affective Mechanism: Subordinates' Anger as Mediator Linking Abusive Supervision and Impaired Recovery Experiences

Abusive supervision can trigger strong emotional responses in subordinates because "abusive supervision constitutes one of the most emotionally salient and disturbing affective events employees experience at work" (Oh & Farh, 2017; p. 208). We investigated whether daily abusive supervision elicits anger ("an intense, negatively valenced emotion", Oh & Farh, 2017, p. 217) and if anger, in turn, threatens subordinates' recovery experiences.

Anger is a high-arousal negative emotion that is a core consequence of abusive supervision (Hammer et al., 2021; Oh & Farh, 2017). As Peng et al. (2019, p. 397) noted, "nearly all victims of abusive supervision experience anger during or immediately after experiencing the abuse". Because abusive supervision represents a severe threat to the self (C. I. C. Farh & Chen, 2014; Vogel & Mitchell, 2017), the resulting experienced stress can elicit negative emotions such as anger (Semmer et al., 2019). In particular, we focus on subordinates' anger as an affective reaction because anger is conceptually close to abusive supervision. Abusive supervision can be considered a "behavioral manifestation of supervisor anger toward employees" (Hammer et al., 2021, p. 143). Because abusive supervision is an expression of the *supervisor's* anger, supervisor anger can contribute to subordinates' anger

through emotional contagion (Hatfield et al., 1994). Abusive supervision will be positively related to anger because abusive supervision violates moral standards such as interpersonal justice (A. Li, Liao, et al., 2021). Experiencing this injustice elicits anger (Volmer, 2015) because employees expect to be treated fairly at work. Moreover, interpersonal rejection due to experienced abusive supervision can also drive feelings of anger (Leary et al., 2006). Longitudinal (Peng et al., 2019; Simon et al., 2015) and diary studies (A. Li, Liao, et al., 2021; Yu & Duffy, 2021) provided support of the association of abusive supervision with subordinates' increased anger.

Hypothesis 5: Daily abusive supervision is positively related to subordinates' anger.

We propose a negative relationship between subordinates' anger and their psychological detachment and relaxation during nonwork time. First, subordinates' anger will be associated with reduced psychological detachment. Individuals use their feelings as a source for information (Schwarz, 2012; Schwarz & Clore, 1983) and, specifically, negative affective states signal threat and potential future resource loss, leading to increased attention on negative information (i.e., abusive supervision). In addition, people in a negative affective state are more likely to search for the source of their feelings than people in a positive affective state (Abele, 1985; Schwarz & Clore, 1983). Hence, subordinates might try to make sense of their own negative feelings at home and accordingly, they will detach less from work. Former studies have shown that negative affective states are associated with decreased psychological detachment (e.g., Cangiano et al., 2019; Volmer et al., 2012), providing first support for our proposition.

Second, subordinates' anger will be related to reduced relaxation during the evening. Negative feelings such as anger are accompanied by increased physiological arousal (Gendolla & Krüsken, 2002; Kreibig, 2010). To effectively relax during nonwork time, employees need to experience a state of low sympathetic activation (Coss & Keller, 2022). In

line with this reasoning, Parker et al. (2020) showed that heart rate variability during work as an indicator of physiological arousal is associated with employees' relaxation during nonwork time. Hence, due to increased arousal when subordinates are angry, it is less likely for subordinates to relax at home.

Hypothesis 6: Subordinates' anger is negatively related to subordinates' (a) psychological detachment and (b) relaxation in the evening.

Integrating our previous arguments, we propose that increased anger will mediate the association of abusive supervision with subordinates' psychological detachment and relaxation. Although subordinates would profit from psychological detachment and relaxation during nonwork time, it will be difficult to experience psychological detachment and relaxation on days with abusive supervision due to increased anger (Sonnentag, 2018).

Hypothesis 7: There are negative indirect effects of abusive supervision on subordinates' (a) psychological detachment and (b) relaxation in the evening time via subordinates' anger.

The Moderating Effect of Co-worker Reappraisal Support

We propose that co-worker support during the workday buffers (1) the association of abusive supervision with subordinates' rumination, and (2) the relationship of abusive supervision and subordinates' anger. Specifically, we focus on co-worker reappraisal support which we define as helping behaviors of co-workers that stimulate subordinates' cognitive processing of work experiences and other peoples' behavior at work (Rimé, 2009; Tremmel & Sonnentag, 2018). Reappraisal support helps subordinates to cognitively process situations at work, for example by encouraging subordinates to see the supervisor's behavior in a different light. Co-workers can offer a new perspective on the supervisor's behavior, for example, because co-workers might have more information on why the supervisor behaved the way they did (e.g., an upcoming deadline of the supervisor or private problems). Co-

workers are well equipped to give this kind of support because they work under the same supervisor and know the work environment well; hence, they can help subordinates with reappraising work experiences.

Although theoretical approaches generally assume that social support buffers the effects of negative work experiences (Cohen & Wills, 1985; McKay, 1984), empirical evidence from between-person studies that investigated the moderating effect of social support on the association of abusive supervision with negative subordinate outcomes remain inconclusive (Hobman et al., 2009; Wu & Hu, 2009). Whereas Hobman et al. (2009) found that the association between abusive supervision in student-advisor relationships and students' well-being indicators was weaker when team member support was high, Wu and Hu (2009) found that – contrary to their predictions – the relationship between abusive supervision and emotional exhaustion was *stronger* when co-worker support was high. By examining co-worker reappraisal support, we aim to shed light on the question whether co-worker support can help subordinates to deal with abusive supervision in their daily lives. In contrast to other, more general types of support (e.g., emotional or instrumental support) which have been studied in former research (Hobman et al., 2009; Wu & Hu, 2009), reappraisal support specifically helps subordinates to cognitively process the abuse by the supervisor. Therefore, reappraisal support could have beneficial consequences on how subordinates react to the abuse.

First, with regard to the cognitive mechanism, we suggest that co-worker reappraisal support buffers the relationship of abusive supervision and subordinates' rumination. Because co-worker reappraisal support helps subordinates to cognitively process the abuse, subordinates will ruminate less about the supervisor's behavior. Co-worker reappraisal support helps subordinates to re-evaluate the experienced goal discrepancy that arises because of abusive supervision (Martin & Tesser, 1996). For example, – although initially

perceived as threatening to desired resources and experienced as goal discrepancy – co-workers can encourage subordinates to find less stable reasons for the abuse (e.g., the supervisor was just in a bad mood that day) which, in turn, reduces the threat of losing resources in the future. Because subordinates can then dissolve goal discrepancies and threats to future resources due to co-worker reappraisal support, they will ruminate less about the supervisor's behavior. Moreover, distraction from desired goals helps to stop rumination (Martin & Tesser, 1996). Co-worker reappraisal support could encourage subordinates to focus less on the abusive behavior of the supervisor, but on other relevant goals (e.g., good relationships with co-workers).

Hypothesis 8: Co-worker reappraisal support moderates the association of abusive supervision with subordinates' rumination, such that the relationship is weaker when co-worker reappraisal support is high.

Second, with respect to the affective mechanism, we propose that co-worker reappraisal support moderates the association of abusive supervision with anger. Research on social sharing of emotions has focused on the question how talking about emotions with other people can reduce the emotional response (Rimé, 2009; Rimé et al., 2020). Rimé (2009) proposed that a *cognitive sharing mode* (i.e., another person encouraging the cognitive processing of the emotional experience during a conversation; similar to our concept of reappraisal support) fosters emotional relief, whereas an *affective sharing mode* (i.e., another person offering comfort and empathy regarding an emotional experience) reactivates and even enhances negative emotions. Studies have provided empirical evidence for the assumption that only a cognitive sharing mode fosters emotional relief (Lepore et al., 2004; Nils & Rimé, 2012; Tremmel & Sonnentag, 2018). For example, Tremmel and Sonnentag (2018) have shown in their diary study that the relationship between incivility at work and negative affect was buffered by talking at work in a cognitive sharing mode, whereas no

moderating effect was found for an affective sharing mode. Accordingly, we expect co-worker reappraisal support to help with the emotional relief of subordinates' anger due to abusive supervision. Specifically, the strength of the association of abusive supervision and anger depends on the subordinates' appraisal of the situation (Oh & Farh, 2017). The emotional response will be stronger (1) when subordinates attribute the supervisor's hostile character to be responsible for the situation that lead to the abuse, (2) when subordinates do not perceive a justifiable reason for the supervisor's behavior, or (3) when subordinates perceive the abusive behavior to be intentional (Oh & Farh, 2017). Because co-worker reappraisal support could provide reasons for the abusive behavior of the supervisor, co-worker reappraisal support can help subordinates to appraise the situation differently and, as a consequence, the anger response will be weakened. For example, co-workers could explain why the supervisor was not responsible for the abusive situation by illustrating that (1) it was not typical behavior of the supervisor, (2) there were situational reasons that triggered the behavior, and (3) the supervisor's behavior was not intentional.

Hypothesis 9: Co-worker reappraisal support moderates the association of abusive supervision with subordinates' anger, such that the relationship is weaker when co-worker reappraisal support is high.

Integrating our previous arguments, we propose conditional indirect effects of abusive supervision on subordinates' psychological detachment and relaxation via rumination and anger, such that co-worker reappraisal support buffers the indirect effects.

Hypothesis 10: Co-worker reappraisal support moderates the indirect effects of abusive supervision on (a) psychological detachment and (b) relaxation via subordinates' rumination, such that the negative indirect effects are weaker when co-worker reappraisal support is high.

Hypothesis 11: Co-worker reappraisal support moderates the indirect effects of abusive supervision on (a) psychological detachment and (b) relaxation via subordinates' anger, such that the negative indirect effects are weaker when co-worker reappraisal support is high.

Method

Procedure and Sample

The study was part of a larger research project on daily leadership in Germany. We recruited participants with the help of undergraduate students (1) via social media (e.g., www.facebook.com, www.linkedin.com), and (2) via personal contacts of the undergraduate students and the first author. The first and second author monitored the data collection process closely (e.g., by managing communication with participants; Demerouti & Rispens, 2014). Employees could participate in the study if they worked at least part-time (i.e., 19.5 hours per week) on at least four days a week and reported regular contact with their immediate supervisor (i.e., twice a week). We excluded shift workers because of varying work times and self-employed workers because they do not report to a supervisor. Participants who filled in 80% of the questionnaires were eligible to participate in a lottery with the option to win vouchers in total value of 300€ of a large online retailer.

We conducted a daily diary study over the course of two work weeks. We collected our data and sent out the surveys with the online tool Sosci Survey (Leiner, 2019a). During the registration, participants decided in which weeks they wanted to participate and at what times they wanted to receive their surveys. The morning survey was sent out at 5 a.m. and was open until 10 a.m. The after-work survey was sent out at 1 p.m., 3 p.m., 4 p.m., or 5 p.m. (depending on the participants' choice) and was open until 9 p.m. The bedtime survey was

sent out at 9 p.m. or 10 p.m. and was open until 2 a.m. the following day.[10] Ahead of the diary phase, participants filled in an entry survey which assessed background information (e.g., demographic data). Moreover, there was a follow-up 12 weeks after the diary phase which was not included in the current study.

Overall, 337 employees registered for the study. Of those, 272 participants participated in the diary and filled in 1,804 morning surveys, 1,709 after-work surveys, and 1,479 bedtime surveys. This resulted in a response rate of 80.71%. We excluded daily questionnaires which were filled in much quicker than the other daily surveys, using the relative speed index TIME_RSI provided by Sosci Survey (Leiner, 2019b). The TIME_RSI variable is computed as the questionnaire average of the relative speed per page and has a recommended cut-off value of 2 which refers to a questionnaire that was filled in twice as fast as the sample's median completion time. Using the TIME-RSI variable, we excluded 25 morning surveys, 46 after-work surveys, and 32 bedtime surveys. In addition, we only included days in our analysis when participants reported contact both with their supervisor and their co-workers. Thus, we excluded 1,158 days because participants reported either no contact with the supervisor, with co-workers, or both. Moreover, we only included participants who (1) reported contact with their supervisor on two or more days, and (2) reported contact with co-workers on two or more days. Accordingly, we excluded 53 participants because participants reported contact with supervisors and co-workers on one day only.

[10] Due to the timing of the surveys, it would be possible that participants filled in the bedtime survey immediately after filling in the after-work survey. In our final sample, the mean difference between the surveys was M = 4.47 hours (SD = 1.83, Range: 0 – 11.16). On 18 days of our final sample, the time lag between filling in the after-work survey and the bedtime survey was less than one hour. Please refer to the Results section for our supplementary analysis excluding these 18 days.

The final sample of participants who met our inclusion criteria consists of 171 employees (50.74% of the employees who registered) who provided 719 morning surveys, 786 after-work surveys and 621 bedtime surveys. In total, our sample consists of 786 workdays.

Regarding the age distribution of our sample, 19.3% were under the age of 30, 20.4% were between 31 and 40, 26.3% were between 41 and 50, 28.1% were between 51 and 60, and 5.9% were 61 years and older. A majority of our sample was female (66.7%), worked full-time (i.e., 36 hours per week or more; 76%), and held a university or similar degree (54.9%). Participants worked in various sectors, with 13.3% working in health and social services; 12.9% working in education; 11.7% working in public administration, defense, and social insurance; 9.4% working in the industrial sector; and 8.8% working in business-related and economic services. Participants stated that 67.3% of the respective supervisors were male and 23.4% of the participants worked with their supervisor for up to one year, 44.4% worked with their supervisor for 1 to 5 years, 21.1% worked with their supervisor for 6 to 10 years, 5.8% worked with their supervisor for 11 to 15 years, and 5.3% worked with their supervisor for more than 15 years.

To test selective attrition, we compared our final sample to those participants who dropped out of the study or did not fulfill our inclusion criteria (dropout sample). We found no significant differences with respect to gender, $\chi^2(1, N = 271) = 0.38$, $p = .54$; working hours per week, $\chi^2(8, N = 272) = 5.60$, $p = .69$; and education, $\chi^2(5, N = 272) = 2.54$, $p = .77$ However, there were significant differences between the final sample and the dropout sample regarding the age distribution, $\chi^2(10, N = 272) = 21.54$, $p = .02$; the duration of working with the respective supervisor, $\chi^2(9, N = 272) = 17.65$, $p = .04$. In the dropout sample, 39.6% were under the age of 30, 20.8% were between 31 and 40, 17.8% were between 41 and 50, 19.8% were between 51 and 60, and 2% were 61 years and older, indicating that the dropout sample

was slightly younger than the final sample. Moreover, descriptive statistics showed that employees in the dropout sample tended to have worked with their respective supervisor for a shorter period of time, with 34.7% working with their supervisor for up to one year, 48.5% working with their supervisor for 1 to 5 years, 8.9% working with their supervisor for 6 to 10 years, 5% working with their supervisor for 11 to 15 years, and 3% working with their supervisor for more than 15 years. In addition to demographic characteristics of the participants, we checked whether the final sample and the dropout sample differed in general levels of experiencing abusive supervision which we measured in the entry survey. We found a marginally significant difference, $t(174.26) = -1.83$, $p = .07$, with the dropout sample ($M = 1.47$, $SD = 0.79$) reporting slightly higher general abusive supervision than the final sample ($M = 1.30$, $SD = 0.62$).

Daily Measures

All measures were administered in German. If there was no German version available, we utilized a back-translation procedure (Brislin, 1970). Unless otherwise indicated, participants rated the items on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). We measured control variables (i.e., anger and negative affect) in the morning survey, abusive supervision, co-worker reappraisal support, rumination, and anger in the after-work survey and recovery experiences (i.e., psychological detachment and relaxation) in the bedtime survey. Table 3.1 displays descriptive statistics, intraclass correlation coefficients, level-specific reliabilities (Geldhof et al., 2014), and level-specific correlations.

Abusive Supervision

We measured daily abusive supervision with five items from Tariq and colleagues (2020) which are based on the scale of Tepper (2000). A sample item is “Today my supervisor put me down in front of others.” Cronbach’s α_w (reflecting the within-person level) was .80 and α_b (reflecting the between-person level) was .89.

Table 3.1

Descriptive Statistics, Intraclass Correlations, Reliabilities, and Correlations

Variable	*M*	SD_w	SD_b	ICC	α_w	α_b	1	2	3	4	5	6	7	8
1. Negative affect (M)	1.50	0.41	0.54	.63	.84	.95		.51***	-.08	.08	.01	.10	.00	-.09
2. Anger (M)	1.51	0.64	0.64	.50	.82	.93	.85***		-.20*	-.03	.00	.11*	-.01	-.01
3. Abusive supervision (AW)	1.06	0.22	0.12	.23	.80	.89	.86***	.74***		-.04	.28***	.14	.02	-.02
4. Co-worker reappraisal support (AW)	1.75	0.65	0.65	.50	.85	.97	.18	.24*	.23*		.01	-.04	-.04	-.04
5. Rumination (AW)	1.43	0.57	0.61	.54	.91	.99	.73***	.69***	.73***	.26*		.26***	-.20***	-.10*
6. Anger (AW)	1.73	0.87	0.87	.50	.90	.97	.78***	.93***	.61***	.17	.75***		-.21***	-.13***
7. Psychological detachment (BT)	3.81	0.69	0.65	.47	.83	.98	-.58***	-.50***	-.38*	-.13	-.53***	-.54***		.32***
8. Relaxation (BT)	3.47	0.76	0.66	.43	.81	.93	-.26*	-.24*	-.14	.03	-.14	-.29**	.46***	

Note. Correlations above the diagonal refer to the within-person level (n = 786), correlations below the diagonal refer to the between-person level (N = 171).

* $p < .05$.

** $p < .01$.

*** $p < .001$.

M = morning survey; AW = after-work survey; BT = bed-time survey; ICC = intraclass correlation coefficient; α_w = within-person reliability; α_b = between-person reliability.

Rumination

We assessed subordinates' rumination in the after-work survey with five items from McCullough et al. (2007) which were adapted to rumination about supervisors' behavior (Liao et al., 2021). Participants were instructed to think about their workday after they had interacted with their supervisor. A sample item is "I couldn't stop thinking about what my supervisor did to me today". Cronbach's α_w was .91 and α_b was .99.

Anger

We measured anger with four adjectives (e.g., "irritable"; Abele-Brehm & Brehm, 1986) in the after-work survey. Participants were asked to indicate how they felt at that moment on a scale ranging from 1 (*not at all*) to 7 (*very much*). Cronbach's α_w was .90 and α_b was .97.

Recovery Experiences

We assessed psychological detachment and relaxation with four items each of the Recovery Experience Questionnaire (Sonnentag & Fritz, 2007). A sample item for psychological detachment is "Tonight, I forgot about work" and a sample item for relaxation is "Tonight, I did relaxing things". Cronbach's α_w was .83 and α_b was .98 for psychological detachment; and α_w was .81 and α_b was .93 for relaxation.

Co-Worker Reappraisal Support

We measured co-worker reappraisal support with five items from Tremmel and Sonnentag (2018) which we adapted to reflect co-worker support. A sample item is "Today my co-workers encouraged me to see the behavior of certain people at work in a different light." Cronbach's α_w was .85 and α_b was .97.

Control Variables

When examining the path from abusive supervision to rumination, we controlled for negative affect in the morning to rule out alternative explanations that (1) subordinates'

negative affect drives abusive supervision and (2) employees ruminate more on days when experiencing negative affect (Gabriel et al., 2019). We measured negative affect with seven adjectives from Warr (1990; e.g., "tense"). Participants indicated on a scale ranging from 1 (*not at all*) to 5 (*a lot*) how they felt in that moment. Cronbach's α_w was .84 and α_b was .95.

On the affective path, we controlled for anger in the morning to predict change in anger and to rule out anger as a driver of negative supervisor behaviors towards them. We measured anger in the same manner as in the after-work survey. Cronbach's α_w was .82 and α_b was .93.

Construct Validity

To test construct validity, we ran multilevel confirmatory factor analysis (MCFA) in Mplus 8.7 (Muthén & Muthén, 2017). First, we ran MCFAs separately for each measurement point. We modelled two factors for the morning survey (i.e., negative affect and morning anger), four factors for the after-work survey (i.e., abusive supervision, co-worker reappraisal support, rumination, and end-of-work-anger), and two factors for the bedtime survey (i.e., psychological detachment and relaxation). The model fit of the hypothesized two-factor model in the morning was rather low, $\chi^2 = 459.25$, $df = 87$, $p < .001$, Root Mean Square Error of Approximation (RMSEA) = .08, Comparative Fit Index (CFI) = .85, Tucker-Lewis Index (TLI) = .81, Akaike's Information Criterion (AIC) = 14,277.20. The model fit of the mornings survey was most likely low because we only included two affective constructs which were rather similar. Nevertheless, modeling two factors for the morning measures fit the data better than modeling one overall affect factor, $\chi^2 = 959.36$, $df = 89$, $p < .001$, RMSEA = .12, CFI = .64, TLI = .56, AIC = 14,852.27. The hypothesized four-factor-model fit the data assessed in the end-of-work survey well, $\chi^2 = 627.39$, $df = 294$, $p < .001$, RMSEA = .04, CFI = .94, TLI = .93, AIC = 22,130.19. Modeling four factors for the end-of-work measures fit the data better than modeling one factor, $\chi^2 = 3{,}471.03$, $df = 306$, $p < .001$,

RMSEA = .12, CFI = .46, TLI = .40, AIC = 26,792.48. The two-factor-model fit the data measured in the bedtime survey well, $\chi^2 = 91.63$, $df = 40$, $p < .001$, RMSEA = .05, CFI = .97, TLI = .96, AIC = 12,171.90. Again, modeling two factors for the evening measures fit the data better than modeling one factor, $\chi^2 = 753.27$, $df = 42$, $p < .001$, RMSEA = .17, CFI = .62, TLI = .50, AIC = 12,790.47. Second, we combined factors of all measurement points in one model which resulted in low model fit, $\chi^2 = 3{,}269.65$, $df = 1{,}278$, $p < .001$, RMSEA = .05, CFI = .88, TLI = .87, AIC = 52,994.65. As this resulted most likely from the poor model fit of the morning survey factors, we ran a second analysis which only included constructs of the end-of-work and bedtime surveys. The model fit of the six-factor-model was acceptable, $\chi^2 = 1{,}277.26$, $df = 622$, $p < .001$, RMSEA = .04, CFI = .93, TLI = .92, AIC = 28,729.07.

Data Analysis

Because our data has a multilevel structure with days nested within persons, we analyzed multilevel path models with fixed slopes[11] in Mplus 8.7 (Preacher et al., 2010). As our hypotheses refer to daily relationships on the within-person level, we modeled the paths on the within-person level only. Accordingly, we person-mean centered all predictor, mediator, moderator, and control variables at the person mean. Outcomes (i.e., the recovery experiences) were uncentered and specified on both the within-person and between-person level for implicit variance decomposition. To make use of all available data, we used full information maximum likelihood estimation (Newman, 2014). Maximum likelihood estimation is robust when examining variables in field studies that are prone to non-normality (Muthén & Muthén, 2017).

[11] Analysis in which we specified random slopes revealed no significant between-person variance in the slopes. Because we had no hypotheses about between-person differences in the slopes and to keep the model parsimonious, we specified our model with fixed slopes.

We ran two sets of analyses. First, we specified a main-effects-only model. This model included all main effects of the predictor (i.e., abusive supervision) on the mediators (i.e., rumination and anger) and outcomes (i.e., psychological detachment and relaxation), as well as main effects of the mediators on the outcomes. Second, we specified an overall model which in addition to main effects included interaction effects with the moderator (i.e., co-worker reappraisal support). The Mplus input file of the interaction effects model and our data set is available on OSF (osf.io/7mwgf). We modeled indirect effects with the MODEL CONSTRAINT command in Mplus and estimated confidence intervals of the indirect effects with the Monte Carlo method (Selig & Preacher, 2008). To interpret significant interactions with co-worker reappraisal support, we calculated simple slopes tests with the MODEL CONSTRAINT command in Mplus. We estimated simple slopes for low co-worker reappraisal support (referring to one standard deviation below the mean) and high support (referring to one standard deviation above the mean). In addition, we tested whether the simple slopes differed from each other by calculating the difference between the simple slopes. We used slope estimates of the simple slopes tests to calculate confidence intervals of conditional indirect effects with the Monte Carlo method (Selig & Preacher, 2008). Again, we calculated the difference of the conditional indirect effects at high versus low levels of co-worker reappraisal support.

Results

Results of the main-effects-only model are displayed in Table 3.2. The main-effects-only model fits the data well, $\chi^2 = 26.78$, $df = 11$, $p = .005$, Scaling Correction Factor (SCF) = 0.84, RMSEA = .04, CFI = .93, TLI = .85. Results of the full model including interactions are displayed in Table 3.3. The model fit of the full model was acceptable, $\chi^2 = 45.00$, $df = 22$, $p = .003$, SCF = 1.41, RMSEA = .04, CFI = .90, TLI = .84. We used the full model to test our hypotheses.

Table 3.2

Model With Main Effects Only

	Rumination (AW)		Anger (AW)		Psychological Detachment		Relaxation	
Predictor Variable	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*
Negative Affect (M)	0.07 (0.06)	.262						
Anger (M)			0.20 (0.06)	.001				
Abusive supervision (AW)	0.71 (0.11)	< .001	0.62 (0.28)	.028	0.25 (0.23)	.280	0.06 (0.22)	.791
Rumination (AW)					-0.22 (0.07)	.001	-0.11 (0.07)	.100
Anger (AW)					-0.14 (0.04)	.002	-0.10 (0.04)	.007

Note. $N = 171$, $n = 786$. The unstandardized estimates resulted from one model including within-person main effects. Predictor and mediator variables were centered at the person mean. Standard errors are displayed in parentheses.

est. = estimates; M = morning survey; AW = after-work survey.

Table 3.3

Full Model Including Within-Person Interactions

	Rumination (AW)		Anger (AW)		Psychological Detachment		Relaxation	
Predictor Variable	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*
Negative Affect (M)	0.06 (0.06)	.355						
Anger (M)			0.20 (0.06)	.001				
Abusive supervision (AW)	0.66 (0.10)	< .001	0.60 (0.28)	.029	0.25 (0.23)	.280	0.06 (0.22)	.791
Co-worker reappraisal support (AW)	0.01 (0.04)	.691	-0.05 (0.06)	.452				
AS x CWRS	-0.54 (0.19)	.004	-0.08 (.34)	.816				
Rumination (AW)					-0.22 (0.07)	.001	-0.11 (0.07)	.100
Anger (AW)					-0.14 (0.04)	.002	-0.10 (0.04)	.007

Note. $N = 171$, $n = 786$. The unstandardized estimates resulted from one overall model including within-person main effects and within-person moderation. Predictor, moderator and mediator variables were centered at the person mean. Standard errors are displayed in parentheses.
est. = estimates; M = morning survey; AW = after-work survey; AS = abusive supervision; CWRS = co-worker reappraisal support.

Hypothesis 1 suggested that abusive supervision is negatively related to psychological detachment and relaxation. We found no support for this hypothesis. Abusive supervision did not predict (a) psychological detachment, estimate = 0.25, *SE* = 0.23, *p* = .28, and (b) relaxation, estimate = 0.06, *SE* = 0.22, *p* = .79.

Hypothesis 2 stated that abusive supervision positively predicts rumination. Supporting this hypothesis, abusive supervision was positively associated with rumination, estimate = 0.66, *SE* = 0.10, *p* < .001. Hypothesis 3 suggested that rumination is negatively related to psychological detachment and relaxation. In partial support of Hypothesis 3, rumination negatively predicted (a) psychological detachment, estimate = -0.22, *SE* = 0.07, *p* < .01, but not (b) relaxation, estimate = -0.11, *SE* = 0.07, *p* = .10. Hypothesis 4 stated that there are negative indirect effects of abusive supervision on recovery experiences via rumination. The indirect effects are displayed in Table 3.4. In partial support of this hypothesis, we found a significant indirect effect via rumination on psychological detachment, estimate = -0.14, *SE* = 0.05, 95% CI [-0.254, -0.054], but not on relaxation, estimate = -0.07, *SE* = 0.05, 95% CI [-0.167, 0.012][12].

Hypothesis 5 suggested a positive relationship between abusive supervision and anger. Supporting this hypothesis, abusive supervision significantly predicted anger, estimate = 0.60, *SE* = 0.28, *p* = .03. Hypothesis 6 stated that anger is negatively associated with recovery experiences. In support of Hypothesis 6, anger significantly predicted (a) psychological detachment, estimate = -0.14, *SE* = 0.04, *p* < .01, and (b) relaxation, estimate = -0.10, *SE* = 0.04, *p* < .01. Hypothesis 7 suggested negative indirect effects of

[12] In an additional analysis, we excluded anger from our model and tested rumination as the only mediator. When including rumination as the only mediator, rumination significantly predicted relaxation, estimate = -0.14, *SE* = 0.07, *p* = .04, and the indirect effect of abusive supervision on relaxation via rumination was significant, estimate = -0.09, *SE* = 0.05, 95% CI [-0.181, -0.005]. Further information on this analysis is available upon request.

abusive supervision on psychological detachment and relaxation via anger. In full support of this hypothesis, we found significant indirect effects of abusive supervision via anger on (a) psychological detachment, estimate = -0.08, *SE* = 0.04, 95% CI [-0.177, -0.007], and (b) relaxation, estimate = -0.06, *SE* = 0.03, 95% CI [-0.130, -0.003].

Table 3.4

Indirect Effects at the Within-Person Level

Indirect Effect	est.	*SE*	95% CI
Abusive supervision → Rumination → Detachment	-0.14	0.05	[-0.254, -0.054]
Abusive supervision → Rumination → Relaxation	-0.07	0.05	[-0.167, 0.012]
Abusive supervision → Anger (AW) → Detachment	-0.08	0.04	[-0.177, -0.007]
Abusive supervision → Anger (AW) → Relaxation	-0.06	0.03	[-0.130, -0.003]

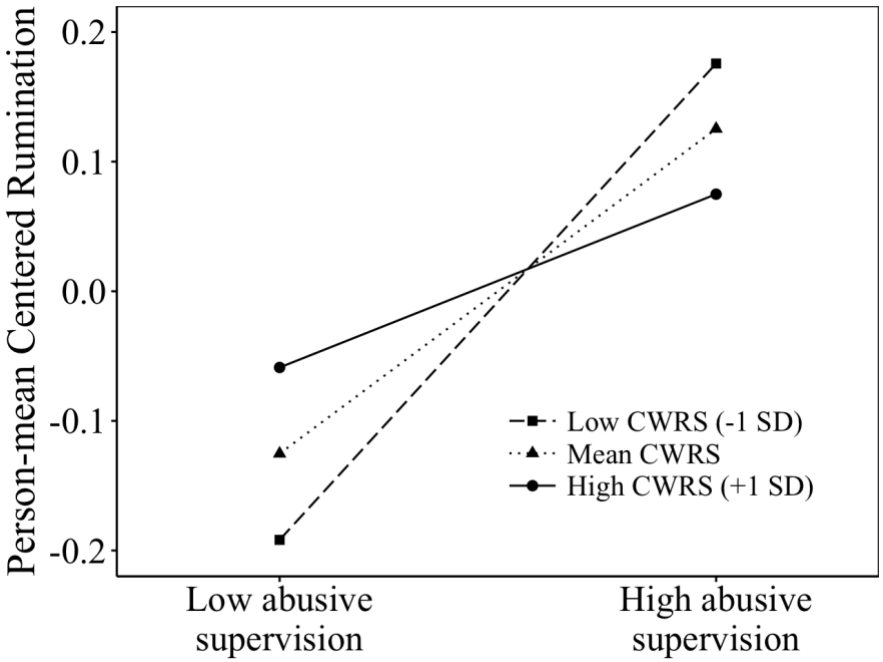
Note. $N = 171$, $n = 786$.

est. = estimates; AW = after-work survey.

Hypothesis 8 stated that co-worker reappraisal support moderates the association of abusive supervision with rumination. Supporting this hypothesis, the interaction term between abusive supervision and co-worker reappraisal support significantly predicted rumination, estimate = -0.54, *SE* = 0.19, $p < .01$. Simple slopes test revealed that co-worker reappraisal support buffered the relationship between abusive supervision and rumination. A plot of the moderation is displayed in Figure 3.2. When co-worker reappraisal support was high (+1 SD), the relationship between abusive supervision and rumination was weaker (slope estimate = 0.35, *SE* = 0.15, $p = .018$), than when co-worker reappraisal support was low (slope estimate = 0.97, *SE* = 0.14, $p < .01$). The difference between these slopes was significant, Δslope = -0.62, *SE* = 0.22, $p = .004$, providing further support for the moderation effect.

Figure 3.2

Plot of the Interaction Effect of Abusive Supervision With Co-Worker Reappraisal Support on Rumination



Note. CWRS = co-worker reappraisal support.

Hypothesis 9 suggested that co-worker reappraisal support moderates the relationship of abusive supervision and anger. We found no empirical support for this hypothesis, estimate = -0.08, *SE* = 0.34, *p* = .82.

Hypothesis 10 stated that co-worker reappraisal support moderates the negative indirect effects of abusive supervision on (a) psychological detachment and (b) relaxation via subordinates' rumination. In support of Hypothesis 10a, the indirect effect of abusive supervision on psychological detachment via rumination was weaker – albeit still significant – when co-worker support was high, estimate = -0.08, *SE* = 0.04, 95% CI [-0.182, -0.009], than when co-worker support was low, estimate = -0.21, *SE* = 0.07, 95% CI [-0.358, -0.080]. The difference between the conditional indirect effects at high versus low levels of co-worker reappraisal support was significant (see Table 3.5), Δestimate = 0.13, *SE* = 0.06, 95% CI [0.033, 0.262], providing further support for Hypothesis 10a.

Table 3.5

Difference Test of Conditional Indirect Effects at High and low Levels of Co-Worker Reappraisal Support

	Δ est.	*SE*	95% CI
Abusive supervision → Rumination → Detachment	0.13	0.06	[0.033, 0.262]
Abusive supervision → Rumination → Relaxation	0.07	0.04	[-0.013, 0.166]
Abusive supervision → Anger (AW) → Detachment	0.01	0.06	[-0.085, 0.151]
Abusive supervision → Anger (AW) → Relaxation	0.01	0.04	[-0.068, 0.010]

Note. N = 171, n = 786. Δ est. refers to the difference of the indirect effects at high (+1 SD) versus low (-1 SD) levels of co-worker reappraisal support.
est. = estimates; AW = after-work survey.

Failing to support Hypothesis 10b, we found neither a significant indirect effect of abusive supervision on relaxation via rumination on days with high co-worker support, estimate = -0.04, *SE* = 0.03, 95% CI [-0.114, 0.006], nor on days with low co-worker support, estimate = -0.10, *SE* = 0.06, 95% CI [-0.234, 0.020]. The difference between the conditional indirect effects was not significant, Δestimate = 0.07, *SE* = 0.04, 95% CI [-0.013, 0.166].

Hypothesis 11 proposed that co-worker reappraisal support moderates the indirect effects of abusive supervision on (a) psychological detachment and (b) relaxation via anger. We found a non-significant indirect effect of abusive supervision via anger on psychological detachment when co-worker support was high, estimate = -0.08, *SE* = 0.05, 95% CI [-0.178, 0.021], and a significant and negative indirect effect when co-worker support was low, estimate = -0.09, *SE* = 0.05, 95% CI [-0.216, -0.001]. However, because we found no support for the moderation effect of co-worker reappraisal support on the association of abusive supervision and anger and the difference between the conditional indirect effects was not significant, Δestimate = 0.01, *SE* = 0.06, 95% CI [-0.085, 0.151], Hypothesis 11a was not supported.

Failing to support Hypothesis 11b, we found neither a significant indirect effect of abusive supervision on relaxation via anger when co-worker support was high, estimate = -0.05, *SE* = 0.04, 95% CI [-0.135, 0.014], nor when co-worker support was low, estimate = -0.06, *SE* = 0.04, 95% CI [-0.151, 0.001] and the difference between the conditional indirect effects was not significant, Δestimate = 0.01, *SE* = 0.04, 95% CI [-0.068, 0.010].

Additional Analyses and Robustness Checks

We report all tables of the additional analyses and robustness checks on OSF (osf.io/7mwgf). First, we tested whether co-worker reappraisal support has beneficial effects later in the day (see Table S1 in the online supplement). Thus, we included main effects of co-worker reappraisal support on psychological detachment and relaxation in our model. However, co-worker reappraisal support neither predicted psychological detachment, estimate = -0.04, *SE* = 0.05, *p* = .393, nor relaxation, estimate = -0.05, *SE* = 0.05, *p* = .326.

Second, although we had theoretical reasons (Rimé, 2009) and we referred to previous empirical evidence (e.g., Tremmel & Sonnentag, 2018) that co-worker reappraisal support should moderate the affective path (abusive supervision predicting anger), we found no empirical support for this hypothesis. One might argue that co-worker reappraisal support – as a type of support that aims at helping with the cognitive processing of the negative interpersonal experience – moderates the cognitive path (abusive supervision predicting rumination), whereas co-worker emotional support – as a type of support that aims at helping with the emotional aspects of a negative interpersonal experience – moderates the affective path (abusive supervision predicting anger). We measured emotional support in the after-work survey with three items from Colbert et al. (2016) which we adapted to the day-level and support from co-workers. A sample item is "Today, my co-workers helped me vent my frustrations at work." To test our idea, we included the interaction effect of abusive

supervision and co-worker emotional support as a predictor of anger in the model (see Table S2 in the online supplement). We found no empirical support for the interaction effect between abusive supervision and co-worker emotional support, co-worker emotional support does not moderate the relationship of abusive supervision and anger, estimate = -0.07, *SE* = 0.29, *p* = .81.[13]

Third, to provide empirical support that abusive supervision is a relevant work stressor over and above negative interpersonal experiences with co-workers (Nicholson & Griffin, 2015), we controlled for co-worker incivility (see Table S3). We measured co-worker incivility with five items of the workplace incivility scale (e.g., "Today, my co-workers made demeaning or derogatory remarks about me"; Cortina et al., 2001; Tremmel & Sonnentag, 2018). Importantly, our results regarding abusive supervision remained unchanged as abusive supervision significantly predicted rumination, estimate = 0.63, *SE* = 0.09, *p* < .001, and anger, estimate = 0.57, *SE* = 0.29, *p* = .045. Co-worker incivility significantly predicted rumination, estimate = 0.45, *SE* = 0.18, *p* = .014, suggesting that additional negative interpersonal experiences with co-workers contribute also to rumination about the supervisor's behavior. Co-worker incivility did not significantly predict anger, estimate = 0.36, *SE* = 0.32, *p* = .260, psychological detachment, estimate = 0.12, *SE* = 0.22, *p* = .575, and relaxation, estimate = 0.19, *SE* = 0.23, *p* = .447.

In the online supplement, we report further additional analyses and robustness checks.[14] First, we tested contact intensity with the supervisor as a day-level moderator (see Table S4) and found limited support for this moderation. Second, we tested whether evening

[13] As expected, co-worker emotional support did also not moderate the cognitive path (abusive supervision predicting rumination), estimate = -0.21, *SE* = 0.14, *p* = .13.
[14] Please refer to the appendix of Chapter III for the more detailed description of these additional analyses (also reported on OSF, osf.io/7mwgf).

recovery experiences predict next-day abusive supervision (see Table S5). We found no empirical support for this idea. Third, we controlled for day of the week and week of data collection (see Table S6) and our results remain unchanged. Fourth, when excluding days where the time lag between completing the after-work survey and beginning the bedtime survey was less than one hour (N = 171, n = 768), our significant findings hold (see Table S7).

Discussion

Our study showed that abusive supervision is indirectly related to psychological detachment via subordinates' rumination about the supervisor's behavior, but there was no indirect effect on relaxation via rumination. Moreover, we found indirect effects of abusive supervision on both recovery experiences via subordinates' anger. Surprisingly, we found no direct effects of abusive supervision on psychological detachment and relaxation during nonwork time. We also found empirical support for the moderating effect of co-worker reappraisal support on the cognitive mechanism: When co-worker reappraisal support was high, the relationship between abusive supervision and subordinates' rumination was weaker. However, co-worker reappraisal support did not buffer the affective mechanism (via anger).

Theoretical Implications

Our study offers important insights for the recovery literature and for research on abusive supervision. With respect to the recovery literature, we show that it is crucial to take an interpersonal angle (Sonnentag et al., 2022) because both supervisor and co-worker behaviors contributed to employees' recovery experiences. By showing that abusive supervision negatively relates to recovery experiences in the evening, we introduce a severe interpersonal stressor to the recovery field (Tepper et al., 2017). We go beyond previous studies that examined aggregated social stressors as antecedent of impaired recovery experiences (e.g., Demsky et al., 2014; Nicholson & Griffin, 2015) and show that abusive

supervision can have detrimental consequences over and above other social stressors such as incivility. This finding underlines the importance of examining negative supervisor behaviors separately from other social stressors and demonstrates unique effects of negative supervisor behaviors.

Moreover, in extension to very recent research that investigated the relation between abusive supervision and non-work activities (Tu & Chi, 2024), we examined evening recovery experiences as outcome of abusive supervision. Investigating recovery experiences is highly relevant as these are "core elements of the recovery process" (Steed et al., 2021, p. 870). Because abusive supervision indeed undermined psychological detachment and relaxation, abusive supervision is not only related to the choice of nonwork activities (Tu & Chi, 2024) but actually impairs the underlying psychological experience.

With respect to research on abusive supervision, we utilize a dynamic perspective (Kelemen et al., 2020; McClean et al., 2019) and, thus, we show that daily abusive supervision matters for subordinates' psychological detachment and relaxation. Thereby, we add recovery experiences to the long list of well-being consequences of abusive supervision (Montano et al., 2017). Our findings show that abusive supervision is a strong negative interpersonal event that sticks with employees throughout the day by triggering cognitive and affective processes that harm subsequent recovery experiences during nonwork time.

Our study adds to research on the recovery paradox (Sonnentag, 2018) by identifying two psychological processes that link abusive supervision with psychological detachment and relaxation. Even more, studying the two processes separately refine previous findings on affective rumination (e.g., Demsky et al., 2019; Querstret & Cropley, 2012; Syrek et al., 2017). The concept of affective rumination blends affective and ruminative states in one measure ("Are you annoyed by thinking about work-related issues when not at work?", Cropley et al., 2012), thereby confounding affective and cognitive processes. We move this

line of research forward and disentangle the affective and cognitive mechanisms at play. Our differential results regarding the cognitive and affective mechanism demonstrate that it is highly relevant to examine these processes separately. In addition, we integrate previous findings that either investigated cognitive (Liao et al., 2021) or affective outcomes (A. Li, Liao, et al., 2021; Yu & Duffy, 2021) of daily abusive supervision and, thus, we show that both processes can be at play simultaneously. We examine two parallel processes rather than proposing a sequence where one state precedes the other (e.g., McCullough et al., 2007; Wang et al., 2013). In daily life, both processes are closely intertwined, and our results support the idea that both mechanisms matter for recovery experiences.

First, with respect to the cognitive mechanism, subordinates' rumination linked abusive supervision with subordinates' psychological detachment. This finding yields strong support for the assumption of rumination theories that ruminative thoughts are difficult to dissolve (Brosschot et al., 2006; Martin & Tesser, 1996), resulting in impaired psychological detachment in the evening. Thus, our results suggest that interpersonal stressors not only affect thinking about work during nonwork time (Nicholson & Griffin, 2015; Volmer et al., 2012) but this cognitive process starts earlier in the day while still at work. Therefore, impaired psychological detachment in the evening is an outcome of a cognitive process that is triggered much earlier. Our study advances research on psychological detachment by showing that harmful cognitive effects of workplace stressors already start during the workday.

Because we found no consistent indirect effect via rumination on subordinates' relaxation, the affective mechanism via anger seems to be a stronger predictor for subordinates' impaired relaxation. When we included only rumination as mediator in an additional analysis, the indirect effect of abusive supervision on relaxation via rumination was significant. Therefore, while rumination can hinder relaxation when examined in

isolation, anger seems to be the more relevant mechanism when analyzed jointly with rumination. Because anger is an affective state characterized by high arousal (Gendolla & Krüsken, 2002; Kreibig, 2010), anger might be more relevant for relaxation than are ruminative processes.

Second, with respect to the affective mechanism, we found indirect effects of abusive supervision on both recovery experiences via subordinates' anger. By identifying anger as a mechanism, we add to the finding that recovery depends on momentary affective states (Sonnentag et al., 2022), with negative affective states being related to impaired recovery. While previous studies typically investigated general negative affect (Y. Park & Kim, 2019; Volmer et al., 2012), we introduce a discrete emotional outcome of social stressors to the recovery literature. We refine previous findings by demonstrating that anger as a discrete emotion undermines recovery experiences. Our study also strengthens leadership research that emphasizes the affective consequences of abusive supervision (Oh & Farh, 2017).

We also demonstrate that it is important to include both supervisors' and co-workers' behaviors in recovery research to reflect complex social processes at work (Colbert et al., 2016; Sluss & Ashforth, 2007). Co-worker reappraisal support can – at least partly – mitigate adverse effects of abusive supervision. Talking to co-workers about abusive supervision can help to cognitively process the experience which, in turn, is positively related to subordinates' psychological detachment. A former study by Haggard et al. (2011) found that engaging in co-rumination (i.e., long and excessive conversations about negative situations) enhances adverse effects of abusive supervision because negative cognitions get reactivated. In contrast, our study showed that co-workers can have a positive impact by providing reappraisal support, suggesting that the content of co-worker support matters: Constructive conversations with co-workers – as characterized by reappraisal support – are beneficial for subordinates' rumination, whereas excessive conversations that dwell on negative

experiences can have downsides (Haggard et al., 2011). Our study, therefore, adds a new perspective to research on how talking to co-workers can help employees deal with abusive supervision.

Relatedly, we find evidence for the buffering effect of social support (Cohen & Wills, 1985; McKay, 1984). Our study reconciles inconsistent results from previous studies on abusive supervision that investigated the moderating effect of social support (Hobman et al., 2009; Wu & Hu, 2009). When the type of co-worker support (i.e., reappraisal support) matched the consequence of abusive supervision (i.e., rumination), the moderation was significant. When the type of support did not match the consequence of abusive supervision (as is the case with anger), we found no support for the buffering effect of social support (Cohen & Wills, 1985; McKay, 1984).

As we could not find a moderation effect of co-worker reappraisal support on anger, we could not replicate the finding that reappraisal support in response to negative experiences fosters emotional relief (Lepore et al., 2004; Nils & Rimé, 2012; Tremmel & Sonnentag, 2018). Tremmel and Sonnentag (2018)'s study – the only study conducted in the workplace – examined reappraisal support as a moderator of the association of incivility and negative affect. It might be that abusive supervision as an aversive interpersonal experience is less ambiguous in nature and therefore, reappraisal support cannot reduce the emotional response, whereas incivility due to its mild and ambiguous nature (Schilpzand et al., 2016) might be easier to reappraise and consequently, emotional relief is more likely. We encourage future research to investigate co-worker behaviors that might be able to mitigate subordinates' affective reactions to abusive supervision.

Limitations and Directions for Future Research

Our study has some limitations. First, we only used self-report measures which increases the risk of overestimating effects due to common method variance (Podsakoff et al.,

2012). However, because our hypotheses are on the within-person level and we modeled associations only on this level, between-person explanations of common method variance such as social desirability cannot account for our findings. Moreover, we used separate measurement points for our focal constructs as we assessed abusive supervision in the after-work survey and recovery in the bedtime-survey. Nevertheless, future studies could include co-worker ratings of observed abusive supervision to account for this limitation. However, because co-workers might not always be present when abusive supervision occurs (e.g., in one-on-one meetings with the supervisor), this approach could result in underestimating the frequency of abusive supervision experiences.

Second, we measured the predictor and mediator variables at the same measurement point. Hence, we cannot exclude the possibility that on days when subordinates report high rumination and anger, they indicate higher abusive supervision because of these states. Nevertheless, it is less likely that employees report such an extreme behavior only because of these negative states and theoretical (Oh & Farh, 2017) and former empirical work (e.g., Liang et al., 2018; Yu & Duffy, 2021) underline our idea that abusive behavior comes first and elicits these states. We dealt with this limitation by controlling for morning anger on the affective mechanism (via end-of-work anger), and thereby, we predict a change in anger. Moreover, we controlled for morning negative affect on the cognitive mechanism (via rumination), to ensure that subordinates' negative affective state on that day did not drive negative perceptions of the workday. Relatedly, although we assumed that both affective and cognitive processes occur simultaneously, the design of the study does not allow us to test whether anger precedes rumination or whether rumination triggers anger because we measured anger and rumination at the same measurement point. To further disentangle affective and cognitive processes, future studies could model trajectories of anger and

rumination over the workday and examine whether the trajectories develop in parallel in response to abusive-supervision events.

Third, we focused on subordinates' anger as an emotional response to abusive-supervision experiences because anger is conceptually close to abusive supervision and abusive supervision is an expression of the supervisor's anger (Hammer et al., 2021). Nonetheless, other emotional reactions to abusive supervision might be relevant as well (Oh & Farh, 2017). For example, fear could be an additional short-term consequence of abusive supervision (Peng et al., 2019). Thus, we encourage future research to investigate other affective responses such as fear and whether these emotional states hinder subsequent recovery experiences.

Fourth, our final sample significantly differed from the dropout sample regarding age, duration of working with the supervisor, and marginally significantly differed regarding general abusive supervision. While it is a common finding in the literature that younger participants tend to drop out of diary studies (e.g., Bosch et al., 2018; Venz et al., 2019; Völker et al., 2023), it is noteworthy that participants who worked with their current supervisor for a shorter time and tended to report higher general abusive supervision were more likely to drop out of our study. This suggests that participants in the final sample had a better fit with their supervisor. Thus, we might have measured lower base rates of abusive supervision in the daily diary in our final sample and, consequently, have underestimated the maladaptive consequences of daily abusive supervision. Even though we excluded participants who tended to report higher general abusive supervision, mild levels of daily abusive supervision seem to matter for subordinates' recovery. Nevertheless, it would be advisable to replicate our study in samples with lower fit to the supervisor (e.g., with higher general abusive supervision).

All in all, we found a low mean and variance of abusive supervision on the day level, indicating that these behaviors do not occur with great frequency on the day-level. However, this reflects the reality of subordinates' everyday lives and – on a more practical note – can be considered a desirable finding because subordinates do not have to deal with abusive supervision very frequently. While the low base rate of abusive supervision is comparable to former diary studies investigating daily abusive supervision (Liao et al., 2021; Qin et al., 2018; Shen et al., 2021), the low within-person variance of abusive supervision poses the threat of range restriction. Consequently, we may have underestimated the associations of abusive supervision with our mediator and outcome variables (Greco et al., 2015; Venz & Mohr, 2023). As we were still able to find significant relationships with abusive supervision on the day-level, this shows that even low levels of abusive supervision can have detrimental consequences. Thus, even though abusive supervision did not occur frequently in our sample, abusive supervision still affects subordinates' recovery.

Future research on abusive supervision could consider different designs. Event-based sampling could increase the likelihood of detecting daily abusive supervision events (for an example, see Meier & Gross, 2015). Moreover, longitudinal designs over a longer time period (e.g., four weeks) or other designs (e.g., weekly diaries) could increase the likelihood to detect abusive supervision as well as give researchers the opportunity to investigate longer-term recovery outcomes of abusive supervision. For example, Qin et al. (2018) found that abusive supervision has positive short-term consequences on supervisors' own recovery level, but negative consequences in the long run (i.e., after one week). Future research could investigate the association of abusive supervision with subordinates' psychological detachment and relaxation over time periods that extend one day. It might be that negative consequences of abusive supervision accumulate over time, leading to stronger relationships of abusive supervision and recovery experiences when examining a longer time frame. In

addition, Antonakis (2017) recommends the use of experiments in leadership research instead of conducting studies based solely on questionnaire ratings. As experiments can establish causality, future studies could investigate abusive supervision in scenario-based experimental settings (C. I. C. Farh & Chen, 2014; Yu & Duffy, 2021). Moreover, to assess well-being consequences in response to abusive supervision, future studies could also utilize different measures beyond questionnaires (Antonakis, 2017) that objectively measure the stress response. For example, one could use objective stress markers such as heart rate variability (Parker et al., 2020).

Researchers could also look at reciprocal effects of abusive supervision and co-worker reappraisal support. Supervisors might hear subordinates talk to their co-workers about the abuse which could have consequences for subsequent abusive supervision. On the one hand, it might be that subsequent abusive supervision is triggered. For example, Naeem et al. (2019) found in their cross-sectional study that negative workplace gossip is indirectly related to increased abusive supervision via supervisors' negative affect. On the other hand, constructive types of talking to co-workers such as by receiving reappraisal support could be unrelated to or even hinder future abusive supervision (e.g., because supervisors reflect on their own behavior and change it as a consequence). It would be interesting to see how different types of co-worker support relate to abusive supervision and how this in turn influences subordinates' recovery.

In addition, future research could look at other positive social interactions beyond co-worker reappraisal support as a buffer of the consequences of abusive supervision. First, interacting with other people at work could distract subordinates from the abusive-supervision experience. Hence, without talking about this negative experience per se, distraction elicited by social interactions could be beneficial and buffer rumination. Second, positive social interactions like informal conversations could fulfill subordinates' need to

belong (Baumeister & Leary, 1995), thus alleviating negative consequences of the interpersonal rejection that is accompanied by abusive supervision. This could reduce negative affective reactions to abusive supervision such as anger (Leary et al., 2006).

Practical Implications

Our study offers practical implications for employees, supervisors, and organizations. First, supervisors should avoid showing abusive supervision to protect subordinates' recovery in the evening. Supervisors should be aware that their abusive behavior can affect subordinates' psychological detachment and relaxation at home. Not only do supervisors harm subordinates daily well-being, but their abusive behavior might also have unintended negative consequences for subordinates' work performance because recovery has been linked to several work-related outcomes the following day (e.g., work engagement; Bennett et al., 2016; Sonnentag, 2003). In practice, people tend to think that negative supervisor behaviors enhance subordinates' work performance (Tepper et al., 2017). We suggest that supervisors should use more adaptive strategies to enhance subordinates' performance, for example by explaining expected performance levels and giving suggestions on how subordinates can reach the expected standards.

Second, employees should try to engage in constructive conversations about their supervisor's abusive behavior when they talk to co-workers about the incident. Our results showed that co-workers' encouragement to see the supervisor's behavior in a different light can mitigate the relationship of abusive supervision on subordinates' rumination. In line with this finding, employees should offer reappraisal support to their co-workers if employees observe abusive supervision during the day. Although we do not wish to minimize the aversiveness of abusive supervision and acknowledge that rumination and anger are valid responses to such a negative interpersonal experience, we would encourage employees not to engage in co-rumination because excessive talking about the abuse can enhance negative

effects (Haggard et al., 2011). However, reappraisal support seems to help to cognitively process abusive supervision which subsequently leads to better recovery in the evening. In addition, if the support of co-workers is not available during the workday, subordinates could foster their own cognitive reappraisal to stop rumination (e.g., by practicing mindfulness meditations; Garland et al., 2015). Moreover, to protect their own recovery in the evening after experiencing abusive supervision, employees could engage in activities that focus their attention on other topics (e.g., meeting friends, physical activities). Engaging in these activities could breach the ruminative cycle and additionally foster positive affect (Calderwood et al., 2021; Tugade & Fredrickson, 2004).

Third, organizations should both prevent abusive supervision in the first place and support employees in developing skills to deal with abusive supervision and other work stressors. With respect to preventing abusive supervision, we would like to emphasize the suggestion made by former studies that organizations should implement a zero-tolerance policy regarding abusive behavior (Liang et al., 2018; Tepper et al., 2009). Moreover, because subordinates might fear negative consequences when reporting abusive supervision, organizations could give employees low-threshold possibilities to communicate abusive supervision to HR (e.g., via an anonymous feedback system or regular employee surveys). With respect to developing skills, interventions that enhance skills such as cognitive reappraisal (e.g., mindfulness trainings; Garland et al., 2015; Kudesia et al., 2022) can support employees overall and can also help dealing with abusive supervision, without reducing the organization's responsibility in preventing abusive supervision in the first placce.

Conclusion

Our study showed that abusive supervision has detrimental consequences for subordinates' psychological detachment and relaxation. Although daily abusive supervision

does not directly predict psychological detachment and relaxation, we identified two mechanisms (subordinates' rumination and anger) that link abusive supervision with recovery at home. Moreover, co-worker reappraisal support buffers the relationship of abusive supervision and subordinates' rumination about the supervisor's behavior which in turn has positive consequences for subordinates' psychological detachment at home. Our study showed the importance of including perceived supervisors' as well as co-workers' behaviors in recovery research.

Appendix: Supplemental Material

Additional Analyses and Robustness Checks Reported on OSF

As described in the manuscript, we tested main effects of co-worker reappraisal support on the recovery experiences, we included the moderating effect of co-worker emotional support on the associations of abusive supervision with rumination and anger, and we tested co-worker incivility as control variable. We ran further additional analyses and robustness checks that we describe in the following.

First, we tested contact intensity with the supervisor as a day-level moderator on all main effects of our model variables. One may argue that on days with higher contact intensity, participants might be affected more strongly by abusive supervision. Before filling in items on abusive supervision, we asked participants how much face-to-face or virtual contact they have had with their supervisor during the day (Barnes et al., 2015). The response scale was 1 = *none*, 2 = *little*, 3 = *a moderate amount*, 4 = *quite a bit*, 5 = *a high amount of contact.* If participants reported that they had no contact with the supervisor during the workday, they skipped the items on abusive supervision, and we excluded these days from our analysis. Therefore, we used the contact intensity variable ranging from 2 to 5 as a daily moderator. Of the eight investigated moderations, we found one significant interaction effect. Contact intensity moderated the relationship between anger and psychological detachment, estimate = 0.19, *SE* = 0.08, p = .017. Simple slopes test showed that when contact intensity was low, the association of anger and detachment was not significant, slope estimate = -0.08, *SE* = 0.08, p = .307. When contact intensity was high, the association of anger and detachment was negative and significant, slope estimate = -0.22, *SE* = 0.10, p = .025.

Second, one may suggest that insufficient recovery in the evening changes subsequent interactions with the supervisor, leading to higher experienced abusive supervision the following day. We tested for this reverse causation by utilizing a reduced data set in which

we excluded Mondays as we did not assess the recovery experiences on the weekend (*N* = 170, *n* = 607). Neither evening psychological detachment, estimate = 0.01, *SE* = 0.03, *p* = .619, nor evening relaxation, estimate = -0.01, *SE* = 0.02, *p* = .648, significantly predicted perceived next-day abusive supervision.

Third, we controlled for the day of the week (1 = Monday, 5 = Friday) and the week of data collection (1 = first week, 2 = second week) to ensure that our results did not differ depending on the day or the week. Importantly, our results remained unchanged.

Fourth, due to timing of the surveys, it would be possible for participants to fill in the bedtime survey immediately after filling in the after-work survey. Therefore, we excluded days where the time lag between completing the after-work survey and beginning the bedtime survey was less than one hour and analyzed our full model using this data set (*N* = 171, *n* = 768). Importantly, our significant findings remain unchanged. However, rumination significantly predicted relaxation, estimate = -0.13, *SE* = 0.06, *p* = .048, and the indirect effect of abusive supervision on relaxation via rumination was significant, estimate = -0.08, *SE* = 0.05, 95% CI [-0.177, -0.001]. This result provides some support for our Hypothesis 3b on rumination predicting relaxation which was not significant in the original data set.

CHAPTER IV: STUDY 3

What Do You Expect Me to Do? The Impact of Supervisors' Explicit and Implicit Expectations to Work During Nonwork Time on Employees' Recovery[15]

Summary

Recovery from work is highly relevant for employees, but supervisors' expectations to work during nonwork time may harm subordinates' after-work recovery experiences (i.e., psychological detachment and relaxation). Taking into account subtle forms of expectations, we differentiate between supervisors' explicit expectations (i.e., supervisors' direct requests to work) and implicit expectations (i.e., indirect expectations to work not directly requested). Drawing on the role episode model and boundary management theory, we examine three mediators (role conflict, boundary control, and working during nonwork time) that explain the associations of supervisors' explicit and implicit expectations with subordinates' recovery experiences. In addition, we include the moderating role of nonwork expectations in our model. Across a within-person experimental vignette study (N = 201 participants, n = 1,809 scenarios) and a between-person three-wave field study (N = 222), we found indirect effects of supervisors explicit and implicit expectations to work during nonwork time on the recovery experiences via role conflict, boundary control, and working during nonwork time. Interestingly, we found stronger effects of explicit expectations compared to implicit expectations in the vignette study, while we found the reverse pattern in the field study. Whereas nonwork expectations moderated some associations of supervisors' expectations with the mediators in the vignette study, we found no empirical support for the moderation

[15] Study 3 is an earlier version of a manuscript currently under review at *Journal of Applied Psychology* (American Psychological Association). Chapter IV is identical to the originally submitted version in April 2024, except for minor formatting edits. The manuscript was co-authored by Jette Völker, Anna Neumer, and Sabine Sonnentag.

effect in the field study. We contribute to recovery research by demonstrating that supervisors' expectations to work during nonwork time harm subordinates' recovery. Moreover, we advance role theory by demonstrating that it is important to disentangle explicit and implicit expectations.

Introduction

„My supervisor expected me to help out during the weekend because we were short-staffed." – Study participant talking about their supervisor's explicit expectations

"My supervisor quite naturally expected me to be flexible and make time for customer appointments during the weekend, even if he never explicitly demanded it." – Study participant talking about their supervisor's implicit expectations

Recovery from work is central for employees to restore their personal resources after demanding work days (Sonnentag et al., 2017, 2022). Because successful recovery during nonwork time predicts various next-day performance-related outcomes (Binnewies et al., 2009; Sonnentag et al., 2012), employee recovery is vital for organizational success. However, boundaries between the work and nonwork domain get increasingly blurred, threatening employees' recovery (Barber & Santuzzi, 2015; Kühner et al., 2023). For instance, supplemental work during nonwork time can severely impair employees' psychological detachment (i.e., a core recovery experience that entails cognitively leaving work behind; Barber & Jenkins, 2014; Braukmann et al., 2018; Derks et al., 2014). Importantly, employees may not always voluntarily engage in supplemental work but because they are expected to do so (Kühner et al., 2023; Mellner, 2016). For example, supervisors may expect their subordinates to monitor their work e-mails during nonwork time (Becker et al., 2021). Supervisors' expectations to work during nonwork time are particularly relevant because supervisors are central agents in subordinates' work lives as supervisors can, for example, assign work tasks (Delfgaauw et al., 2020) or decide about desired outcomes such as promotions (Vermunt, 2015).

Despite their potential relevance for employees' nonwork time, we still lack important insights into the role of supervisors' expectations to work during nonwork time in employees' recovery processes. This is an important oversight, given that supervisors' expectations have

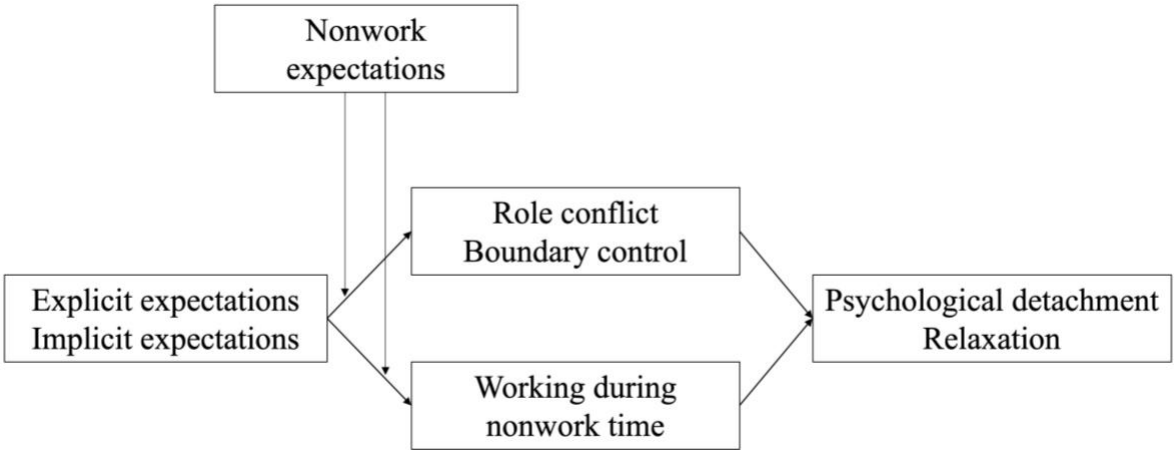
a tremendous impact on their subordinates' in-role behaviors (Eden, 1990; Whiteley et al., 2012). When supervisors expect subordinates to work during nonwork time, these expectations should particularly impair subordinates' recovery because subordinates may fear sanctions if they do not comply with these expectations. In addition to availability expectations (Dettmers, 2017; Dettmers, Bamberg, et al., 2016), supervisors may expect subordinates to finish work tasks in the nonwork domain, come into the workplace during nonwork time, or meet with clients outside of office hours. Surprisingly, little is known about the nature of these expectations. Do supervisors always communicate expectations explicitly? Or are expectations to work during nonwork time more subjective in nature because supervisors only implicitly convey their expectations? To take into account subtle forms of expectations, we differentiate between explicit expectations (i.e., supervisors' direct requests to work during nonwork time) and implicit expectations (i.e., subjectively perceived indirect expectations to work that the supervisor did not directly request; Biddle, 1979). Implicit expectations to work during nonwork time may have just as detrimental consequences on subordinates' recovery as explicit expectations, but – due to their subtle character – may be more difficult to detect.

Drawing on role theory (Biddle, 1979; Katz & Kahn, 1978) and boundary management theory (Ashforth et al., 2000), we propose that supervisors' explicit and implicit expectations to work during nonwork time activate subordinates' work role after-hours which, ultimately, impairs subordinates' recovery experiences (i.e., psychological detachment and relaxation). We suggest three mediators that explain this process. Specifically, supervisors' expectations can impair recovery by triggering role conflicts between work and private roles, reducing the perceived control over boundaries between the work and nonwork domain, and motivating employees to work during nonwork time. In addition, because the

differentiation of explicit and implicit expectations is new to the literature, we compare the effects of these expectations. Figure 4.1 displays our conceptual model.

Figure 4.1

Conceptual Model Tested in Both Studies



We contribute to the literature in several ways. First, we advance role theory by differentiating between supervisors' explicit and implicit expectations to work during nonwork time. Although Biddle (1979) suggested the concept of covert expectations (i.e., expectations that are not directly expressed), the idea that expectations are not always directly communicated received little research attention. This is an important oversight, given that supervisors may communicate their expectations to work during nonwork time between the lines, for example, by sending work-related e-mails outside of office hours, without explicitly requesting a response. Expectations are, therefore, to a certain degree a subjective perception of the recipient of the expectation (i.e., the subordinate). Consequently, we include the differentiation between explicit and implicit expectations to refine the propositions of the role episode model (Katz & Kahn, 1978).

Second, we contribute to leadership research by investigating explicit and implicit expectations as more enduring, stable supervisor behaviors and as episodic, situation-specific behaviors of supervisors. Explicit and implicit expectations to work during nonwork time can be more enduring expectations that supervisors generally convey but can also occur in specific situations. Recent trends in the leadership literature focused primarily on dynamic consequences of supervisor behaviors (Kelemen et al., 2020; McClean et al., 2019), whereas, traditionally, leadership scholars investigated enduring differences between supervisors and examined stable consequences on subordinates (Lord et al., 2017). We incorporate both approaches by investigating episodic within-person consequences of situation-specific expectations in Study 1 and enduring between-person consequences of stable expectations in Study 2. In addition, we answer the call to investigate supervisor behaviors using experimental approaches (Antonakis, 2017) by conducting an experimental vignette study in Study 1. Moreover, to test our assumptions in a real-life setting, we conducted a three-wave field study in Study 2. Accordingly, the combination of both studies provides comprehensive insights into supervisor expectations, both from a substantive and a methodological point of view.

Third, we contribute to research on recovery from work by introducing supervisors' expectations to work during nonwork time to the literature. Building on previous studies that investigated availability for one's job during nonwork time (Dettmers, 2017; Dettmers, Bamberg, et al., 2016; Mellner, 2016), we suggest that supervisors' expectations may extend beyond the expectation to be available and can contain various expectations to engage in work-related in-role behavior during nonwork time (e.g., the expectation to finish a work task in the nonwork domain). By focusing on supervisors' expectations in particular, we add a much-needed perspective to the recovery literature that neglected supervisors' behaviors as antecedents of recovery (Sonnentag et al., 2017, 2022). In addition, we take into account the

broader social environment in the nonwork domain and, thereby, extend previous recovery research that predominantly focused on experiences with the partner (e.g., Hahn et al., 2012; Y. Park & Haun, 2017; Völker et al., 2023). Specifically, we examine nonwork expectations (e.g., expectations of partners, children, parents, and friends) as a moderator because expectations with respect to private roles should be particularly salient in the nonwork domain and can affect the impact of supervisors' expectations.

Theoretical Background and Hypotheses Development

Role theory suggests that people occupy various roles (e.g., employee, subordinate; Biddle, 1979; Katz & Kahn, 1978). A role is tied to certain expectations of how one should behave when occupying the role. For example, as a parent, one should act in a caring and compassionate way, while the role of supervisor entails generally more assertive and decisive behavior (Dierdorff & Ellington, 2008). The role episode model assumes that a role sender (e.g., the supervisor) holds certain role expectations that they *send* to a focal person (e.g., the subordinate; Katz & Kahn, 1978). The focal person *receives* the role and acts in accordance with the role expectation (e.g., a subordinate taking care of a work task assigned by one's supervisor).

Boundary management theory builds on role theory and assumes that roles are tied to different life domains (Ashforth et al., 2000). For example, people occupy the role of an employee when at work and the role of a parent or spouse when in the nonwork domain. There are boundaries between the life domains and people transition between the domains. Traditionally, employees would transition between the work and nonwork domain by commuting from their workplace to their apartment. However, due to the availability of information and communication technologies (ICT) and increasing numbers of employees working from home (OECD, 2021), the boundaries between work and nonwork are less clear and, thus, roles get blurred (Barber & Jenkins, 2014; Olson-Buchanan & Boswell, 2006; Y.

Park & Jex, 2011). Employees can quickly transition between their work and nonwork roles by checking work-related e-mails on their smartphones or finishing a work task on their laptop when in the nonwork domain (Gadeyne et al., 2018; Reinke & Gerlach, 2022). Consequently, employees can interrupt their current nonwork role (e.g., as a spouse) in favor of their work role (e.g., as a subordinate).

Drawing on role theory (Katz & Kahn, 1978) and boundary management theory (Ashforth et al., 2000), we investigate supervisors' explicit and implicit expectations to work during nonwork time. Supervisors typically expect subordinates to fulfill their work role, including, for instance, the completion of work tasks defined in their job description. However, this expectation is not limited to the work domain but can also extend beyond work hours to subordinates' nonwork domain (Derks et al., 2015; McCartney et al., 2023; Unger et al., 2022). Thus, we examine supervisors' expectations that subordinates engage in their work roles during nonwork time. We define explicit expectations as supervisors' direct requests to engage in work-related in-role behavior during nonwork time. For example, supervisors could either send subordinates an e-mail outside of office hours and directly ask them to finish a work task or directly ask subordinates to come to the office during the weekend. However, supervisors might not always communicate their expectation so directly. Thus, we define implicit expectations as indirect expectations to engage in work-related in-role behavior, without the supervisor directly requesting the subordinate to work. Because implicit expectations are communicated between the lines, implicit expectations are subjective in nature. While one subordinate may perceive an implicit expectation, another subordinate in the same situation may not. Relatedly, subordinates may perceive an implicit expectation in one specific situation but not in another situation. For example, a supervisor could send an e-mail with new information about a current project outside of office hours. In that situation, a subordinate might infer that – by sending that e-mail after-hours – the supervisor expects

them to work on the project or at least reply to their e-mail even though no formal expectations were communicated. Interestingly, although not all role expectations are communicated directly, implicit expectations received next to no research attention. Solely Biddle (1979) differentiates in his role theory between overt expectations (i.e., openly communicated role expectations) and covert expectations (i.e., not directly expressed expectation) which loosely relates to our conceptualization of explicit and implicit expectations.

In addition, we suggest that supervisors' explicit and implicit expectations can occur in specific situations but could also be more enduring aspects of supervisors' behaviors. On the one hand, supervisors' explicit and implicit expectations can be episodic such that in specific situations supervisors expect subordinates to work during nonwork time, while in other situations, supervisors do not hold such expectations. On the other hand, explicit and implicit expectations to work during nonwork time could be more enduring and, thus, could result in rather stable between-person differences in subordinates' well-being (Lord et al., 2017).

Explicit and Implicit Expectations Predicting Subordinates' Recovery Experiences

Recovery from work is defined as the process of restoring personal resources that were reduced by work demands (Sonnentag et al., 2017, 2022). Recovery experiences refer to the psychological experiences that foster recovery from work (Sonnentag & Fritz, 2007). We examine the two recovery experiences psychological detachment and relaxation which are core experiences in the recovery process. *Psychological detachment* is defined as the process of forgetting about work during nonwork time. *Relaxation* refers to experiencing low sympathetic activation. Both recovery experiences are highly relevant to restore cognitive and energetic resources after work (Steed et al., 2021).

We propose that supervisors' explicit and implicit expectations to work during nonwork time impair subordinates' psychological detachment and relaxation in the nonwork domain. Explicit and implicit expectations represent a role-sending process that ultimately harms subordinates' recovery experiences (Katz & Kahn, 1978). Subordinates receive the work role sent by the supervisor and, thus, subordinates transition to the work role while being in the nonwork domain (Ashforth et al., 2000). Consequently, subordinates are cognitively occupied with the work role during their nonwork time. As it is difficult to dissolve thoughts about work (Brosschot et al., 2006; Martin & Tesser, 1996), psychological detachment will be impaired. Moreover, relaxation will be harmed because it is difficult to engage in relaxing activities in the nonwork domain (e.g., reading a book) when subordinates perceive that they are expected to work. First empirical evidence supports our suggestion that expectations to work during nonwork time impair recovery experiences. Barber and Santuzzi (2015) found that workplace telepressure (i.e., "the urge to respond to work related ICT messages", Barber & Santuzzi, 2015, p. 172) is related to impaired psychological detachment and sleep quality. Moreover, availability expectations are related to impaired psychological detachment (Kondrysova et al., 2022; Mellner, 2016).

Hypothesis 1: Supervisors' (a) explicit expectations and (b) implicit expectations to work during nonwork time are negatively related to subordinates' psychological detachment and relaxation.

We propose three mediators (i.e., role conflict, boundary, control, and working during nonwork time) that explain the associations of explicit and implicit expectations to work during nonwork time with psychological detachment and relaxation.

Increased Role Conflict as a Mediator

We suggest that increased role conflict explains the relationship between explicit and implicit expectations and subordinates' recovery. Role conflict refers to "the simultaneous

occurrence of two or more role expectations such that compliance with one would make compliance with the other more difficult“ (Katz & Kahn, 1978, p. 204). During their nonwork time, employees occupy various private roles (e.g., as a parent). When employees face explicit and implicit expectations to work during nonwork time, this expectation to engage in their work role is in direct conflict with their current (private) role. Due to the difficulty of fulfilling multiple roles at the same time, employees will experience higher role conflict. Similarly, ICT use during nonwork time is related to higher work-life conflict (Boswell & Olson-Buchanan, 2007; Gadeyne et al., 2018; Yang et al., 2019), suggesting that juggling work and private roles when working during nonwork time is a conflicting experience for employees. Moreover, expectations to respond to e-mails are indirectly related to work-life conflict via increased negative affect (Cho et al., 2020). Role conflict, in turn, should be related to impaired psychological detachment and relaxation. First, role conflict triggers work-related thoughts during nonwork time (Junker et al., 2021) which will impair psychological detachment. Because employees try to find solutions how to combine conflicting work and private roles, they will continuously think about work during nonwork time. Second, role conflict impairs subordinates' relaxation because role conflict is associated with a physiological stress response (e.g., increased cortisol levels; Rydstedt et al., 2011) and negative affective states accompanied by high arousal (Fisher & Gitelson, 1983; Jackson & Schuler, 1985; Kreibig, 2010), reducing the likelihood to experience relaxation (Coss & Keller, 2022). Taken together, we expect that there will be indirect effects of explicit and implicit expectations via role conflict on the recovery experiences.

Hypothesis 2: Subordinates' role conflict mediates the negative associations of supervisors' (a) explicit expectations and (b) implicit expectations to work during nonwork time with subordinates' psychological detachment and relaxation.

Impaired Boundary Control as a Mediator

Drawing on boundary management theory (Ashforth et al., 2000), we propose that impaired boundary control explains the associations of explicit and implicit expectations with the recovery experiences. Boundary control is defined as "the individual's perceived ability to control how he or she manages the boundaries between work and family." (Kossek et al., 2012, p. 115). When facing supervisors' expectations to work during nonwork time, employees will experience less control over their boundaries between the work and nonwork domain because explicit and implicit expectations are external expectations and not driven by subordinates' own wish to work outside office hours. These explicit and implicit expectations also can be considered role boundary violations (Kreiner et al., 2009) because supervisors breach the boundary between the work and nonwork domain, harming subordinates' boundary control. Similarly, availability expectations are related to impaired perceptions of control over nonwork time (Zhang et al., 2022) and after-hours communication expectations are negatively related to boundary control (Piszczek, 2017). Impaired boundary control, in turn, should positively predict employees' low psychological detachment and low relaxation. Employees with low boundary control cannot decide whether they let work issues enter their private lives. Accordingly, first, impaired boundary control should hinder psychological detachment (Mellner, 2016) because employees may not be able to postpone dealing with work-related tasks or e-mails during nonwork time. Second, low boundary control should relate to low relaxation because employees cannot prioritize their private lives and, for instance, do not pursue relaxing leisure activities. In addition, low perceptions of control predicts energetic arousal (Dettmers, Vahle-Hinz, et al., 2016) which could harm relaxation (Coss & Keller, 2022). Taken together, we expect that there will be indirect effects of explicit and implicit expectations on psychological detachment and relaxation via impaired boundary control.

Hypothesis 3: Subordinates' boundary control mediates the negative associations of supervisors' (a) explicit expectations and (b) implicit expectations to work during nonwork time with subordinates' psychological detachment and relaxation.

Working During Nonwork Time as a Mediator

We propose that when supervisors' explicit and implicit expectations to work during nonwork time are high, subordinates' will be more likely to work during nonwork time which, in turn, harms subordinates' recovery. The role episode model suggests that role expectations drive in-role behavior of the focal person who receives the role (Katz & Kahn, 1978). Hence, expectations to work during nonwork time should enhance the likelihood that subordinates work during nonwork time. Supporting this notion, a meta-analysis found that availability expectations are positively related to technology-assisted supplemental work (Kühner et al., 2023). Working during nonwork time, in turn, should be negatively related to subordinates' psychological detachment and relaxation. First, employees will have difficulties to detach once they have crossed the boundary of the work and nonwork domain by working during nonwork time. Supporting our idea, there is ample evidence that work-related ICT use during nonwork time (Barber & Jenkins, 2014; Braukmann et al., 2018; Derks et al., 2014) and extended work availability (Dettmers, 2017; Dettmers, Bamberg, et al., 2016) predict impaired psychological detachment. Second, we propose that by working during nonwork time, employees will have problems to relax in the nonwork domain. Pursuing work-related tasks is generally effortful (Van Iddekinge et al., 2023) and, thus, employees might experience higher arousal during nonwork time (Tafalla & Evans, 1997). In line with this reasoning, extended work availability is positively related to a physiological stress response (i.e., higher cortisol; Dettmers, Vahle-Hinz, et al., 2016) which could hinder relaxation (Coss & Keller, 2022). Taken together, we expect that there will be indirect effects

of explicit and implicit expectations on psychological detachment and relaxation via working during nonwork time.

Hypothesis 4: Working during nonwork time mediates the negative associations of supervisors' (a) explicit expectations and (b) implicit expectations to work during nonwork time with subordinates' psychological detachment and relaxation.

Comparing Explicit Expectations and Implicit Expectations

So far, we have argued for parallel outcomes of supervisors' explicit and implicit expectations to work during nonwork time. However, the adverse impact of the two types of expectations on the mediators (i.e., role conflict, boundary control, and working during nonwork time) and the recovery experiences might differ. We examine the difference between the two types of expectations as an open research question because there is no theory to guide us as role theory does not differentiate between the types of expectations (Katz & Kahn, 1978).

On the one hand, explicit expectations could have stronger effects on the examined constructs. When supervisors communicate explicit expectations, they particularly limit subordinates' autonomy by directly requesting subordinates to work. In contrast, implicit expectations grant autonomy because subordinates can decide themselves whether they want to work during nonwork time or not. The limited autonomy that goes along with explicit expectations may especially harm the examined constructs. On the other hand, implicit expectations may have stronger effects on the mediators and recovery experiences. When supervisors convey implicit expectations, supervisors' expectations remain unclear which results in uncertainty about the required behavior. In contrast, when supervisors explicitly expect subordinates to work during nonwork time, the behavioral expectation is clearly stated, and subordinates can behave accordingly. Because both lines of reasoning are plausible (autonomy versus uncertainty), we examined the following research question:

Research question: Do the effects of supervisors' explicit expectations versus implicit expectations on subordinates' role conflict, boundary control, working during nonwork time, psychological detachment, and relaxation differ?

The Moderation of Nonwork Expectations

Employees face behavioral expectations not only at work but also in the nonwork domain (Ashforth et al., 2000). Employees occupy various private roles and, accordingly, other people in the nonwork domain hold expectations that employees comply with their private roles. People in the nonwork domain may include (but are not limited to) employees' partners, children, parents, or friends. For instance, nonwork expectations can refer to a desire for attention, support, affection or simply spending their leisure time together. Accordingly, employees' nonwork demands may differ (Peeters et al., 2005) such that some employees face higher nonwork expectations (e.g., employees with childcare responsibilities) than others (e.g., employees who live on their own). Because working during nonwork time due to supervisors' explicit and implicit expectations can also affect other people in the nonwork domain (Becker et al., 2021; Carlson et al., 2018), we examine nonwork expectations as a boundary condition.

Specifically, we suggest that nonwork expectations are particularly salient during nonwork time when employees are in the nonwork domain and, thus, should affect the impact of supervisors' explicit and implicit expectations to work during nonwork time on the mediators (i.e., role conflict, boundary control, working during nonwork time). First, we propose that the associations of explicit and implicit expectations with employees' role conflict will be *stronger* when nonwork expectations are high. Role theory suggests that employees experience role conflict when they perceive differing role expectations (Katz & Kahn, 1978). Thus, when employees face high nonwork expectations towards their private role and simultaneously experience explicit or implicit expectations of supervisors towards

their work role, their role conflict will be particularly high (compared to when nonwork expectations are lower). Second, we suggest that the negative relationships of supervisors' explicit and implicit expectations and boundary control will be *stronger* when nonwork expectations are high. Because various actors hold opposing behavioral expectations toward the employee, they particularly undermine employees' autonomy which should result in a higher loss of control (Lapierre & Allen, 2012; A. Li, Shaffer, et al., 2021). Third, we propose that the associations of explicit and implicit expectations with working during nonwork time will be *weaker* when nonwork expectations are high. According to role theory (Katz & Kahn, 1978), employees will show in-role behavior in response to role expectations. Thus, when nonwork expectations are high, employees will – at least partly – show role behavior that is consistent with their private roles because private role expectations are particularly salient in the nonwork domain. Consequently, work-related role behavior is less likely. In addition, employees who face high nonwork expectations (e.g., because they have to take care of young children) will have fewer opportunities to work during nonwork time due to limited time (Greenhaus & Beutell, 1985).

Hypothesis 5: Nonwork expectations moderate the positive associations of supervisors' (a) explicit expectations and (b) implicit expectations with subordinates' role conflict. The positive relationship of supervisors' expectations and subordinates' role conflict is stronger when nonwork expectations are high (versus low).

Hypothesis 6: Nonwork expectations moderate the negative associations of supervisors' (a) explicit expectations and (b) implicit expectations with subordinates' boundary control. The negative relationship of supervisors' expectations and subordinates' boundary control is stronger when nonwork expectations are high (versus low).

Hypothesis 7: Nonwork expectations moderate the positive associations of supervisors' (a) explicit expectations and (b) implicit expectations with subordinates'

working during nonwork time. The positive relationship of supervisors' expectations and subordinates' working during nonwork time is weaker when nonwork expectations are high (versus low).

Research Overview and Transparency/ Openness Statement

We conducted two studies. In Study 1, we tested our hypotheses in an experimental within-person vignette study to establish causality and examine episodic consequences of explicit and implicit expectations. In Study 2, we tested our model in a between-person three-wave field study to examine the generalizability of explicit and implicit expectations and test our hypotheses in a real-life setting. When describing the method of the studies, we include information on the sampling plan, data exclusions, manipulations, and all utilized measures. We analyzed our data in Mplus version 8.7 (Muthén & Muthén, 2017). The data sets, Mplus input files, and all study materials are available on the open science framework (OSF, https://osf.io/9wgsm/?view_only=c61da39a39c74fddb2d7acd0e6a1f669). For Study 1, we pre-registered our hypotheses and analysis plan on OSF[16] at https://osf.io/pm8z4/?view_only=58f508fcd7b1445892c6103e41b8b6e2 and received ethics approval from the ethics committee of the University of Mannheim. Study 2 was part of a larger research project, and this is the first publication based on this data set. Again, we pre-registered our hypotheses and analysis plan on OSF (https://osf.io/fskgu/?view_only=248bf0cee45048fc918ff12cc127d76c). We received no ethics approval for the three-wave survey of Study 2 because it is not required in Germany for correlational data.

[16] In our pre-registration, we also proposed moderation effects of traits of the study participants on the associations of explicit and implicit expectations with the mediators (i.e., role conflict, boundary control, and working during nonwork time). Due to space constraints of the manuscript, we report the results of these additional analyses and discuss our findings on OSF (https://osf.io/9wgsm/?view_only=c61da39a39c74fddb2d7acd0e6a1f669).

Study 1

Method

Development of the Experimental Manipulation

Because the concept of explicit and implicit expectations is new to the literature, we self-developed vignettes with manipulations of supervisors' explicit and implicit expectations to work during nonwork time as well as nonwork expectations. To manipulate supervisor expectations, we developed three vignettes describing situations when subordinates received e-mails from their supervisor during nonwork time. In each of these situation descriptions, we manipulated explicit expectations versus implicit expectations versus neutral contact with the supervisor, resulting in 9 vignettes in total (3 situations x 3 conditions). Because supervisors in the vignettes communicate different types of expectations during nonwork time and participants may perceive this as inconsistency in supervisor behavior (Yoon et al., 2023), we changed the supervisor's name in each vignette. Moreover, the supervisors' gender was randomly selected for each vignette. To manipulate nonwork expectations (high versus low), we developed two vignettes describing the hypothetical environment in the nonwork domain.

Pilot Study

To ensure the quality of our self-developed experimental manipulations, we conducted a pilot study. Study participants were students with previous work experience that received course credit. First, participants read all nine vignettes reflecting supervisors' expectations in a randomized order and responded to manipulation check items. Participants were asked to put themselves in the situation as if they had experienced the situation with the supervisor. Participants rated items on explicit and implicit expectations and could provide open comments on the described situations. Second, participants read the two vignettes reflecting nonwork expectations (high versus low) in a randomized order and rated manipulation check items on nonwork expectations. Again, they could give open comments

on the hypothetical nonwork scenario. Our sample consisted of 68 students with work experience. The mean age was 21.46 years (*SD* = 4.35) and 80.9% of the participants were female. Most participants studied psychology (73.5%), followed by sociology (8.8%), and a few other majors. Participants' mean work experience was 34.28 months (*SD* = 37.09, Range: 2 to 240). Vignettes and items were administered in German. We provide English translations of all newly developed vignettes (Tables S1 and S2) and items (Tables S3 and S4) on OSF (https://osf.io/9wgsm/?view_only=c61da39a39c74fddb2d7acd0e6a1f669). Sample vignettes are displayed in Tables A1 and A2 in the appendix of Chapter IV. Sample items of explicit expectations, implicit expectations, and nonwork expectations are displayed in Table 4.1. For explicit expectations, Cronbach's α_w on the within-person level was .98 and α_b on the between-person level was .92. For implicit expectations, Cronbach's α_w was .95 and α_b was .96. Cronbach's α was .79 for the vignette with high nonwork expectations and .63 for the vignette with low nonwork expectations.

As expected, participants rated vignettes which manipulated supervisors' explicit expectations as implying higher explicit expectations (*M* = 4.36, *SD* = 0.92) than vignettes which manipulated neutral contact with the supervisor (*M* = 1.55, *SD* = 0.64), $t(67) = 20.52$, $p < .001$, Cohen's $d = 2.49$. In addition, vignettes which manipulated supervisors' implicit expectations were rated as expressing higher implicit expectations (*M* = 3.58, *SD* = 0.79) than vignettes which manipulated neutral contact with the supervisor (*M* = 1.89, *SD* = 0.73), $t(67) = 15.15$, $p < .001$, Cohen's $d = 1.84$. Moreover, vignettes which manipulated high nonwork expectations (*M* = 4.01, *SD* = 0.75) were rated as conveying higher expectations than vignettes which manipulated low nonwork expectations (*M* = 2.49, *SD* = 0.65), $t(67) = 13.37$, $p < .001$, Cohen's $d = 1.62$. Thus, our newly developed vignettes are suitable to manipulate supervisors' expectations and nonwork expectations and we used them in the main study to test our hypotheses.

Table 4.1

Measures of Study 1 and Study 2

Variable	Reference	Number of items	Study 1		Study 2		
			Sample item	Response scale	Sample item	Response scale	Survey
Explicit expectations	Two items adapted from Cooke & Rousseau (1984)	4	"In this situation, [name of the supervisor] explicitly expected me to work during leisure time."	1 = *strongly disagree* 5 = *strongly agree*	"My supervisor explicitly expects me to work during leisure time."	1 = *strongly disagree* 5 = *strongly agree*	T1
Implicit expectations	Self-developed	4	"Although [name of the supervisor] did not explicitly say it in this situation, I had a feeling he/ she expected me to work during leisure time."	1 = *strongly disagree* 5 = *strongly agree*	"Although my supervisor does not directly say it, I have the feeling that they expect me to work during leisure time."	1 = *strongly disagree* 5 = *strongly agree*	T1
Nonwork expectations	Self-developed	4	"In this scenario, my partner and my family expect me to prioritize my private life."	1 = *strongly disagree* 5 = *strongly agree*	"My partner, family, or friends expect me to prioritize my private life."	1 = *strongly disagree* 5 = *strongly agree*	T1
Role conflict	Items adapted from Bowling et al. (2017) and Rizzo et al. (1970)	4	"I would feel like different people are 'pulling me in different directions'."	1 = *strongly disagree* 5 = *strongly agree*	"I feel like different people are 'pulling me in different directions'."	1 = *strongly disagree* 5 = *strongly agree*	T2
Boundary control	Kossek et al. (2012)	3	"In this situation, I could decide myself whether I keep my work and personal life separate."	1 = *strongly disagree* 5 = *strongly agree*	"I decide myself whether I keep my work and personal life separate."	1 = *strongly disagree* 5 = *strongly agree*	T2
Working during nonwork time	Self-developed	1	Likelihood of working on the described task [a]	*very unlikely* = 0 *very likely* = 100	"How often do you work outside of formal work hours?"	1 = *never* 6 = *daily*	T2
Psychological detachment	Sonnentag & Fritz (2007)	4	"It would be difficult for me to forget about work." [b]	1 = *not at all difficult* 5 = *very difficult*	"In my leisure time I forget about work"	1 = *strongly disagree* 5 = *strongly agree*	T3
Relaxation	Sonnentag & Fritz (2007)	4	"It would be difficult for me to use the time to relax." [b]	1 = *not at all difficult* 5 = *very difficult*	"In my leisure time I use the time to relax"	1 = *strongly disagree* 5 = *strongly agree*	T3

Note. T1 = First survey, T2 = second survey, T3 = third survey.

[a] We presented three distractor activities that employees could pursue in the described situation (e.g., taking care of household chores) and asked how likely participants would pursue each of these activities.

[b] To facilitate interpretation and enable comparability to Study 2, we recoded the recovery experiences, so a higher value reflects higher psychological detachment and relaxation.

Procedure and Sample

We recruited participants via personal contacts and social media websites (e.g., www.facebook.com, www.surveycircle.com). Employees were eligible to participate if they worked 20 hours or more per week. Participants could take part in a lottery of vouchers with a total value of 300€ if they completed the experiment.

We tested our hypotheses in a 2-between-person x 3-within-person experimental vignette study. First, because we assume that nonwork expectations are relatively stable (Junker & van Dick, 2020), participants were randomly assigned to the between-person manipulation (high versus low nonwork expectations) and were asked to keep in mind the hypothetical social environment in the nonwork domain during the experiment. Second, participants received all nine within-person vignettes about supervisor expectations (explicit expectations versus implicit expectations versus neutral contact) and answered manipulation check items as well as all measures for all substantive constructs (role conflict, boundary control, working during nonwork time, psychological detachment, and relaxation) for each of the vignettes.

In total, 261 participants completed the experiment. We excluded participants who did not correctly fill in two out of three attention check items (e.g., "Please select *strongly disagree*") and participants who filled in the experiment too quickly compared to the rest of the sample (Leiner, 2019b). Thus, our final sample consisted of 201 employees. Mean age was 32.93 years (*SD* = 11.84, Range: 19 – 66) and 147 participants (73.1%) were female. Moreover, 134 participants (66.67%) worked in a full-time position (i.e., 35 hours or more per week), 27 participants (13.4%) held a leadership position, and 132 participants (65.67%) held a university degree. Participants worked in different sectors, with 15.4% working in commercial services, 11.9% in culture, education, and science, and 11.4% in health and social services. Regarding their nonwork time, 92% of the sample reported that they worked

during nonwork time, with a mean time of engaging in work-related activities of 51.98 minutes per day (*SD* = 50.31, Range: 0 – 300). Most participants were familiar with the described situations of being contacted during nonwork time by their supervisor as 90.5% of the participants indicated being contacted by their supervisor at least occasionally.

Measures

Table 4.1 summarizes all measures of Study 1. All items were displayed in German and we used a back-translation procedure if German items were unavailable (Brislin, 1970). Table 4.2 shows descriptive statistics, intraclass correlation coefficients, Cronbach's α on the within-person (referred to as α_w) and on the between-person level (referred to as α_b, Geldhof et al., 2014), and correlations among study variables.

Construct Validity

To test construct validity of our mediator and outcome variables, we performed multilevel confirmatory factor analyses. A four-factor model with factors reflecting role conflict, boundary control, psychological detachment, and relaxation fit the data well, $\chi^2 = 426.48$, $df = 169$, $p < .001$, Scaling Correction Factor (SCF) = 1.19, Root Mean Square Error of Approximation (RMSEA) = .03, Comparative Fit Index (CFI) = .99, Tucker-Lewis Index (TLI) = .99. A three-factor model that combined psychological detachment and relaxation on one factor did not converge. Moreover, the one-factor model with all items loading on one overall factor did not converge.[17] Hence, the four-factor model fit our data best, indicating that we can utilize the four distinct constructs for hypothesis testing.

[17] Because the alternative models did not converge, in an additional analysis, we centered all items on the person mean and modeled the factors on the within-person level only. The four-factor model, again, fit the data well, $\chi^2 = 169.86$, $df = 84$, $p < .001$, SCF = 17.55, RMSEA = .02, CFI = .99, TLI = .99. With this approach, the three-factor model converged, and the four-factor model fit the data better than the three-factor model, $\chi^2 = 641.26.19$, $df = 87$, $p < .001$, SCF = 17.97, RMSEA = .06, CFI = .97, TLI = .96, Satorra-Bentler $\Delta\chi^2(3) = 286.55$, $p < .001$. When modeling the factors on the within-person level only, the one-factor model also did not converge.

Table 4.2

Study 1: Descriptive Statistics, Intraclass Correlation Coefficients, Level-Specific Reliabilities, and Correlations Among Study Variables

	M	SD_w	SD_b	ICC	α_w	α_b	1	2	3	4	5	6	7
1. Explicit expectations (MC)	2.73	1.64	0.31	.03	.99	.98	-	.34***	.59***	-.69***	.59***	-.59***	-.59***
2. Implicit expectations (MC)	2.80	1.48	0.45	.08	.98	.98	.82**	-	.51***	-.39***	.43***	-.43***	-.42***
3. Role conflict	2.99	1.16	0.69	.26	.97	.99	.51***	.30*	-	-.62***	.62***	-.66***	-.66***
4. Boundary control	3.26	1.24	0.49	.13	.97	.99	.03	-.22	-.20	-	-.65***	.66***	.67***
5. Working during nonwork time[a]	59.08[a]	29.87	17.01	.25	-	-	-.09	.23	-.07	-.26*	-	-.70***	-.70***
6. Detachment	2.53	1.08	0.73	.31	.96	.99	-.13	-.32**	-.28**	.21	-.44***	-	.90***
7. Relaxation	2.90	1.05	0.69	.31	.96	.99	-.16	-.24*	-.29**	.22*	-.38***	.87***	-
8. Nonwork expectations (MC)[b]	3.17	-	1.13	-	-	.90	.29	.01	.55***	-.11	-.13	-.01	-.02

Note. [a] Working during nonwork time was rated as probability on a slider scale which was coded 0 to 100.

[b] In alignment with the between-person manipulation, nonwork expectations were measured on the between-person level only.

SD_w indicates the standard deviation at the within-person level, SD_b indicates the standard deviation at the between-person level.

α_w refers to Cronbach's alpha at the within-person level and α_b refers to Cronbach's alpha at the between-person level (Geldhof et al., 2014).

Correlations above the diagonal refer to the within-person level (n = 1,809), correlations below the diagonal refer to the between-person level (N = 201).

Abbreviations: MC = manipulation check.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

To test construct validity of the manipulation check items, we modeled explicit and implicit expectations on separate factors. This two-factor model fit the data well, $\chi^2 = 307.68$, $df = 40$, $p < .001$, SCF = 1.26, RMSEA = .06, CFI = .97, TLI = .96. Importantly, the two-factor model fit the data better than a one-factor model with expectation items loading on one factor, $\chi^2 = 4{,}169.11$, $df = 42$, $p < .001$, SCF = 2.42, RMSEA = .23, CFI = .56, TLI = .41, Satorra-Bentler $\Delta\chi^2(2) = 380.49$, $p < .001$.

Data Analysis

With vignettes nested within persons ($N = 201$, $n = 1{,}809$), we analyzed our data with two-level path models. We used full information maximum likelihood estimation to make use of all available data (Newman, 2014). We ran three models. First, to test the sole effect of explicit expectations, we used a data set with vignettes manipulating explicit expectations versus neutral contact ($n = 1{,}206$). We included a dummy variable (0 = *neutral contact*; 1 = *explicit expectations*) as predictor of our mediators (i.e., role conflict, boundary control, and working during nonwork time) and outcome variables (i.e., psychological detachment and relaxation). Second, to test the sole effect of implicit expectations, we used a data set with vignettes manipulating implicit expectations versus neutral contact ($n = 1{,}206$). We again included a dummy variable (0 = *neutral contact*; 1 = *implicit expectations*) as predictor. Third, to compare explicit and implicit expectations, we used the full data set ($n = 1{,}809$) and modeled orthogonal contrasts as predictors (contrast variable 1: -2 = *neutral contact*, 1 = *explicit expectations*, 1 = *implicit expectations*; contrast variable 2: 0 = *neutral contact*, -1 = *explicit expectations*, 1 = *implicit expectations*).

In all three models, the predictor variable held no variance on the between-person level because participants rated all vignettes. Therefore, the dummy and contrast variables were specified as within-person variables. Consequently, we modeled paths of the dummy and contrast variables predicting the mediators and outcome variables on the within-person

level only. Paths of the mediators predicting the outcomes were modeled on the within-person and between-person level. For model parsimony, we analyzed all three main-effects models with fixed slopes. We calculated indirect effects with the MODEL CONSTRAINT command in Mplus and obtained confidence intervals of the indirect effects with the Monte Carlo method (Selig & Preacher, 2008).

To test the cross-level moderation of nonwork expectations, we ran two models. First, using the data set with vignettes manipulating explicit expectations and neutral contact (n = 1,206), we specified random slopes of explicit expectations on the mediators and regressed the random slopes on a dummy variable reflecting the between-person manipulation (-1 = *low expectations*, 1 = *high expectations*). Second, using the data set with vignettes manipulating implicit expectations and neutral contact (n = 1,206), we regressed the random slopes of implicit expectations on the mediators on the dummy variable reflecting nonwork expectations.[18]

Results

Manipulation Checks

Regarding supervisor expectations, participants rated vignettes manipulating explicit expectations as having higher explicit expectations (M = 4.50, SD = 0.79) than vignettes manipulating neutral contact with the supervisor (M = 1.37, SD = 0.63), $t(200) = 44.45$, $p < .001$, Cohen's d = 3.14. Moreover, participants rated vignettes manipulating supervisors' implicit expectations with higher implicit expectations (M = 3.64, SD = 0.90) than vignettes manipulating neutral contact with the supervisor (M = 1.60, SD = 0.73), $t(200) = 27.27$,

[18] For completeness, we report the full model with the contrast variables as predictors that compare explicit and implicit expectations and nonwork expectations as a cross-level moderator (N = 201, n = 1,809) in the online supplement on OSF (Table S9). Because we did not have any assumptions on how nonwork expectations moderate the associations of the contrast variables with the mediators, we do not report this analysis in the manuscript.

$p < .001$, Cohen's $d = 1.92$. Participants in the group that read the vignette manipulating high nonwork expectations scored higher values on the items measuring nonwork expectations ($M = 4.01$, $SD = 0.66$) than participants in the group that read the vignette manipulating low nonwork expectations ($M = 2.33$, $SD = 0.84$), $t(187.73) = 15.69$, $p < .001$, Cohen's $d = 0.75$. Again, our manipulations were successful.

Hypotheses Testing

First, we tested the sole effect of explicit expectations (Hypotheses 1a to 4a) in the data set with vignettes manipulating explicit expectations versus neutral contact (see Tables S5 and S6 on OSF). Partly supporting Hypothesis 1a, explicit expectations had a significant negative direct effect on psychological detachment, estimate = -0.22, $SE = 0.08$, $p = .004$, but not on relaxation, estimate = -0.15, $SE = 0.09$, $p = .082$. Supporting Hypothesis 2a, we found significant negative indirect effects of explicit expectations via role conflict on psychological detachment, estimate = -0.38, $SE = 0.06$, 95% CI [-0.512, -0.267], and relaxation, estimate = -0.41, $SE = 0.07$, 95% CI [-0.552, -0.298]. The negative indirect effects of explicit expectations via boundary control on psychological detachment, estimate = -0.39, $SE = 0.08$, 95% CI [-0.538, -0.222], and relaxation, estimate = -0.47, $SE = 0.09$, 95% CI [-0.637, -0.282], were significant, offering support for Hypothesis 3a. The negative indirect effects of explicit expectations via working during nonwork time were significant for psychological detachment, estimate = -0.55, $SE = 0.06$, 95% CI [-0.643, -0.424], and relaxation, estimate = -0.56, $SE = 0.06$, 95% CI [-0.649, -0.420], supporting Hypothesis 4a.

Next, we tested the sole effects of implicit expectations (Hypotheses 1b to 4b) in the data set with vignettes manipulating implicit expectations and neutral contact (see Tables S7 and S8 on OSF). In full support of Hypothesis 1b, implicit expectations had significant negative direct effects on psychological detachment, estimate = -0.21, $SE = 0.05$, $p < .001$, and relaxation, estimate = -0.16, $SE = 0.05$, $p = .003$. Supporting Hypothesis 2b, we found

significant and negative indirect effects of implicit expectations via role conflict on psychological detachment, estimate = -0.33, *SE* = 0.05, 95% CI [-0.405, -0.233], and relaxation, estimate = -0.33, *SE* = 0.05, 95% CI [-0.424, -0.239]. In support of Hypothesis 3b, the indirect effects of implicit expectations via boundary control on psychological detachment, estimate = -0.19, *SE* = 0.04, 95% CI [-0.260, -0.112], and relaxation, estimate = -0.23, *SE* = 0.04, 95% CI [-0.305, -0.146], were significant. In addition, we found significant negative indirect effects of implicit expectations via working during nonwork time on psychological detachment, estimate = -0.28, *SE* = 0.04, 95% CI [-0.354, -0.205], and relaxation, estimate = -0.29, *SE* = 0.04, 95% CI [-0.378, -0.227], providing support for Hypothesis 4b.

To compare the effects of explicit and implicit expectations, we ran an analysis with contrast variables on the full data set (see Tables 4.3 and 4.4). Contrast variable 2 compares explicit expectations with implicit expectations. We found no differences in explicit versus implicit expectations on psychological detachment, estimate = 0.00, *SE* = 0.02, $p = .875$, and relaxation, estimate = -0.00, *SE* = 0.02, $p = .849$. However, implicit expectations had a weaker positive effect on role conflict than explicit expectations, estimate = -0.27, *SE* = 0.03, $p < .001$[19], implicit expectations had a weaker negative effect on boundary control, estimate = 0.51, *SE* = 0.03, $p < .001$, and implicit expectations had a weaker positive effect on working during nonwork time, estimate = -8.99, *SE* = 0.71, $p < .001$. All indirect effects (see Table 4.4) via the mediators were significant and explicit expectations had stronger negative indirect effects on psychological detachment and relaxation than implicit expectations.

[19] Note that the contrast variable coded explicit expectations as -1 and implicit expectations as 1. Consequently, implicit expectations had a weaker (i.e., negative) effect on role conflict.

Table 4.3

Study 1: Main-Effects Model Comparing Explicit and Implicit Expectations

	Role conflict		Boundary control		Working during nonwork time		Psychological detachment		Relaxation	
Predictor	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*
Within-person level										
Contrast variable 1[a]	0.47 (0.02)	< .001	-0.49 (0.02)	< .001	10.79 (0.61)	< .001	-0.09 (0.02)	< .001	-0.06 (0.02)	.001
Contrast variable 2[b]	-0.27 (0.03)	< .001	0.51 (0.03)	< .001	-9.04 (0.71)	< .001	0.00 (0.02)	.875	-0.00 (0.02)	.849
Role conflict							-0.23 (0.03)	< .001	-0.24 (0.03)	< .001
Boundary control							0.19 (0.03)	< .001	0.22 (0.03)	< .001
Working during nonwork time							-0.01 (0.00)	< .001	-0.01 (0.00)	< .001
Between-person level										
Role conflict							-0.32 (0.07)	< .001	-0.35 (0.08)	< .001
Boundary control							0.05 (0.11)	.623	0.10 (0.12)	.411
Working during nonwork time							-0.02 (0.00)	< .001	-0.02 (0.00)	< .001

Note. N = 201, n = 1,809.

[a] Contrast variable 1 compares vignettes with supervisor expectations to vignettes with neutral contact (-2 = neutral contact with supervisor, 1 = explicit or implicit expectations)

[b] Contrast variable 2 compares explicit with implicit expectations (-1 = *explicit expectations*, 1 = *implicit expectations*).

est. = estimate.

Table 4.4

Study 1: Within-Person Indirect Effects Comparing Explicit and Implicit Expectations

Indirect Effect	est.	*SE*	95% CI
Contrast variable 1[a] → role conflict → detachment	-0.11	0.01	[-0.137, -0.081]
Contrast variable 1[a] → role conflict → relaxation	-0.11	0.02	[-0.145, -0.083]
Contrast variable 1[a] → boundary control → detachment	-0.09	0.02	[-0.124, -0.064]
Contrast variable 1[a] → boundary control → relaxation	-0.11	0.02	[-0.143, -0.075]
Contrast variable 1[a] → working during nonwork time → detachment	-0.13	0.01	[-0.155, -0.102]
Contrast variable 1[a] → working during nonwork time → relaxation	-0.14	0.01	[-0.166, -0.112]
Contrast variable 2[b] → role conflict → detachment	0.06	0.01	[0.044, 0.083]
Contrast variable 2[b] → role conflict → relaxation	0.07	0.01	[0.045, 0.087]
Contrast variable 2[b] → boundary control → detachment	0.09	0.02	[0.065, 0.131]
Contrast variable 2[b] → boundary control → relaxation	0.11	0.02	[0.077, 0.151]
Contrast variable 2[b] → working during nonwork time → detachment	0.11	0.01	[0.083, 0.135]
Contrast variable 2[b] → working during nonwork time → relaxation	0.12	0.01	[0.091, 0.145]

Note. N = 201, n = 1,809. Estimates are unstandardized and resulted from the main-effects model with two contrast variables. Confidence intervals were calculated with the Monte Carlo method by Selig & Preacher (2008).

[a] Contrast variable 1 compares vignettes with supervisor expectations to vignettes with neutral contact (-2 = *neutral contact with supervisor*, 1 = *explicit or implicit expectations*). Positive estimates indicate stronger indirect effects when the vignettes manipulated explicit and implicit expectations compared to vignettes with neutral contact.

[b] Contrast variable 2 compares explicit with implicit expectations (-1 = *explicit expectations*, 1 = *implicit expectations*). Negative values indicate weaker indirect effects when vignettes manipulated implicit expectations compared to vignettes with explicit expectations.

To test Hypotheses 5 to 7, we modeled the cross-level moderation of nonwork expectations separately for explicit expectations (see Table 4.5) and implicit expectations (see Table 4.6) in the respective data sets.

First turning to explicit expectations, nonwork expectations moderated the effect of explicit expectations on role conflict, estimate = 0.43, *SE* = 0.08, $p < .001$. Significant moderator effects of explicit expectations are displayed in Figure 4.2. When vignettes manipulated explicit expectations, the group with high nonwork expectations (*M* = 4.24, *SD* = 0.79) reported higher role conflict compared to the group with low nonwork expectations (*M* = 3.21, *SD* = 1.06), *t*(183.74) = 7.84, $p < .001$, Cohen's *d* = 1.11. When reading vignettes with neutral supervisor contact, the mean difference in role conflict between the groups was not significant (group with high nonwork expectations: *M* = 2.14, *SD* = 0.90; group with low nonwork expectations: *M* = 1.94, *SD* = 0.77, *t*(195.13) = 1.67, *p* = .097, Cohen's *d* = 0.24). Thus, Hypothesis 5a was supported.

Moreover, we found support for Hypothesis 6a because nonwork expectations moderated the effect of explicit expectations on boundary control, estimate = -0.19, *SE* = 0.08, *p* = .014. When vignettes manipulated explicit expectations, we found that the group with high nonwork expectations (*M* = 2.08, *SD* = 0.91) reported lower boundary control compared to the group with low nonwork expectations (*M* = 2.43, *SD* = 0.98), *t*(199) = 2.59, *p* = .005, Cohen's *d* = 0.37. When reading vignettes with neutral supervisor contact, the mean difference in boundary control between the groups was not significant (group with high nonwork expectations: *M* = 4.26, *SD* = 0.67; group with low nonwork expectations: *M* = 4.23, *SD* = 0.75, *t*(199) = 0.34, *p* = .734, Cohen's *d* = 0.05). Thus, Hypothesis 6a was supported.

Table 4.5

Study 1: Interaction-Effects Model With Supervisors' Explicit Expectations as Predictor and Nonwork Expectations as Cross-Level Moderator

	Role conflict		Boundary control		Working during nonwork time		Psychological detachment		Relaxation	
Predictor	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*
Within-person level										
Explicit expectations[a]	1.68 (0.08)	< .001	-1.99 (0.08)	< .001	41.47 (2.04)	< .001	-0.24 (0.08)	.003	-0.17 (0.09)	.053
Role conflict							-0.21 (0.03)	< .001	-0.23 (0.04)	< .001
Boundary control							0.19 (0.04)	< .001	0.24 (0.04)	< .001
Working during nonwork time							-0.01 (0.00)	< .001	-0.01 (0.00)	< .001
Between-person level										
Role conflict							-0.50 (0.09)	< .001	-0.54 (0.10)	< .001
Boundary control							0.01 (0.13)	.967	0.02 (0.14)	.909
Working during nonwork time							-0.02 (0.00)	< .001	-0.02 (0.00)	< .001
Nonwork expectations[b]	0.09 (0.06)	.142	0.02 (0.05)	.773	-5.62 (1.79)	.002				
Explicit expectations x nonwork expectations	0.43 (0.08)	< .001	-0.19 (0.08)	.014	5.98 (2.04)	.003				

Note. N = 201, n = 1,206. [a] Explicit expectations refer to a dummy variable indicating the within-person vignette manipulation (0= neutral contact with supervisor, 1 = explicit expectation).

[b] Nonwork expectations refers to a dummy variable manipulating high vs. low expectations (-1 = *low nonwork expectations*, 1 = *high nonwork expectations*).

Table 4.6

Study 1: Interaction-Effects Model With Supervisors' Implicit Expectations as Predictor and Nonwork Expectations as Cross-Level Moderator

	Role conflict		Boundary control		Working during nonwork time		Psychological detachment		Relaxation	
Predictor	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*
Within-person level										
Implicit expectations[a]	1.15 (0.07)	< .001	-0.98 (0.06)	< .001	23.34 (1.79)	< .001	-0.21 (0.05)	< .001	-0.16 (0.05)	.002
Role conflict							-0.28 (0.03)	< .001	-0.28 (0.04)	< .001
Boundary control							0.19 (0.04)	< .001	0.23 (0.04)	< .001
Working during nonwork time							-0.01 (0.00)	< .001	-0.01 (0.00)	< .001
Between-person level										
Role conflict							-0.56 (0.09)	< .001	-0.61 (0.09)	< .001
Boundary control							-0.04 (0.13)	.734	-0.03 (0.13)	.824
Working during nonwork time							-0.02 (0.00)	< .001	-0.02 (0.00)	< .001
Nonwork expectations[b]	0.09 (0.06)	.120	0.02 (0.05)	.747	-5.51 (1.78)	.002				
Implicit expectations x nonwork expectations	0.33 (0.07)	< .001	-0.05 (0.06)	.395	2.18 (1.78)	.220				

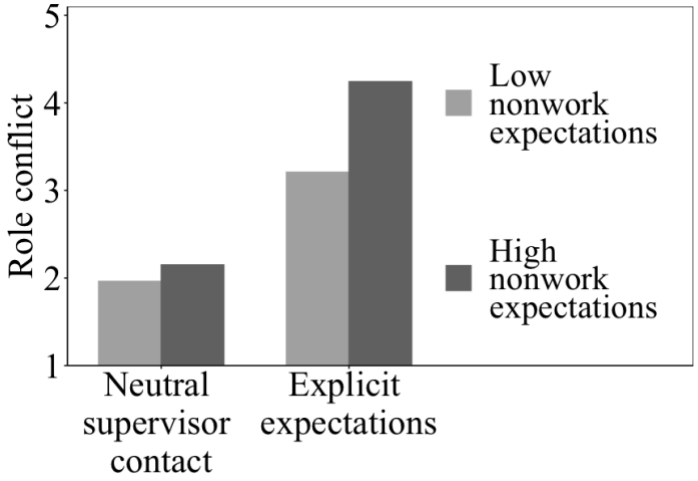
Note. N = 201, n = 1,206. [a] Implicit expectations refer to a dummy variable indicating the vignette manipulation (0= *neutral contact with supervisor,* 1 = *implicit expectation*).

[b] Nonwork expectations refers to a dummy variable manipulating high vs. low expectations (-1 = *low nonwork expectations,* 1 = *high nonwork expectations*).

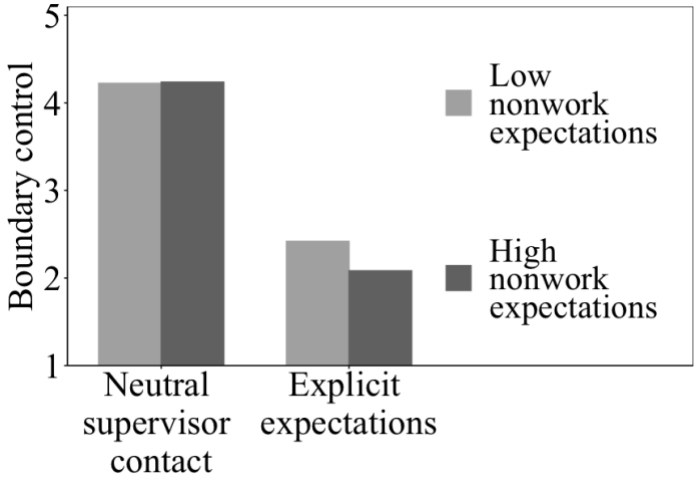
Figure 4.2

Study 1: Plot of the Between-Person Moderation of Nonwork Expectations on the Effects of Explicit Expectations on (a) Role Conflict, (b) Boundary Control, and (c) Working During Nonwork Time

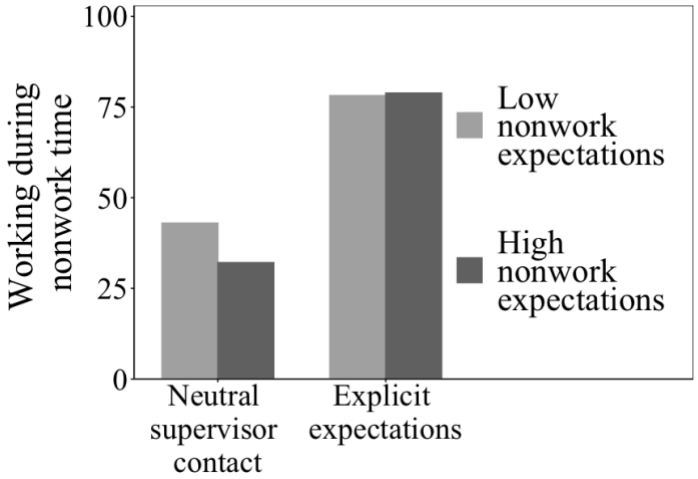
(a)



(b)



(c)



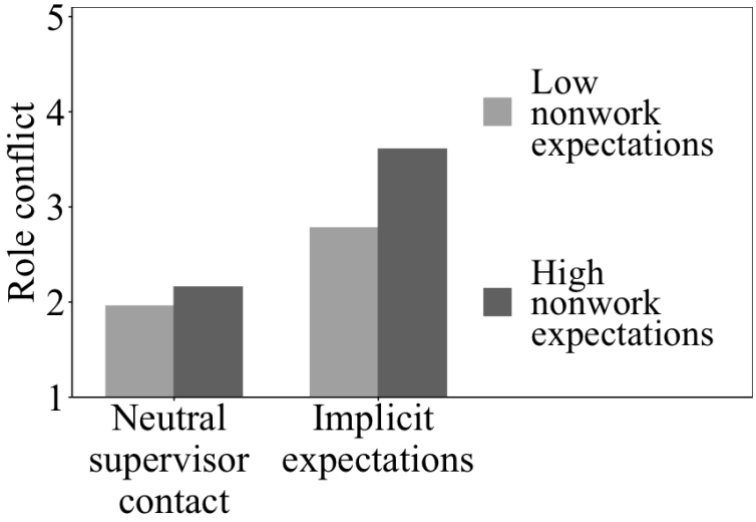
Nonwork expectations also moderated the effect of explicit expectations on the working during nonwork time, estimate = 5.98, *SE* = 2.04, *p* = .003. However, in contrast to Hypothesis 7a, when vignettes manipulated explicit expectations, we found no significant mean difference in the working during nonwork time between the group with high nonwork expectations (*M* = 78.14, *SD* = 24.62) compared to the group with low nonwork expectations (*M* = 78.86, *SD* = 23.67), *t*(199) = 0.21, *p* = .415, Cohen's *d* = 0.03. When vignettes manipulated neutral contact with the supervisor, the group with high nonwork expectations (*M* = 32.24, *SD* = 23.72) reported a lower likelihood to decide to work compared to the group with low nonwork expectations (*M* = 42.88, *SD* = 27.16), *t*(198) = 2.95, *p* = .004, Cohen's *d* = 0.42. Thus, explicit expectations seem to be a strong cue that triggers working during nonwork time regardless of nonwork expectations. Hence, Hypothesis 7a was not supported.

Next, we turn to nonwork expectations as a moderator on the effects of implicit expectations. Supporting Hypothesis 5b, the moderation of nonwork expectations on the effect of implicit expectations on role conflict was significant, estimate = 0.33, *SE* = 0.07, *p* < .001. The moderator effect is displayed in Figure 4.3. When vignettes manipulated implicit expectations, the group with high nonwork expectations (*M* = 3.60, *SD* = 0.84) reported higher role conflict compared to the group with low nonwork expectations (*M* = 2.77, *SD* = 0.94), *t*(199) = 6.61, *p* < .001, Cohen's *d* = 0.93. As described above, the mean difference when reading vignettes with neutral supervisor contact was not significant. Thus, Hypothesis 5b was supported.

Nonwork expectations neither moderated the effect of implicit expectations on boundary control, estimate = -0.05, *SE* = 0.06, *p* = .395, nor the effect of implicit expectations on working during nonwork time, estimate = 2.18, *SE* = 1.78, *p* = .220, providing no support for Hypothesis 6b and 7b.

Figure 4.3

Study 1: Plot of the Between-Person Moderation of Nonwork Expectations on the Effect of Implicit Expectations on Role Conflict



Discussion

Study 1 provided initial support for our hypotheses. While Study 1 has important strengths (e.g., experimental design which allows causal inferences), there are several open issues. First, due to the nature of vignette studies, participants did not report their own real-life experiences but how they would act in a hypothetical situation. Second, supervisors' expectations may also be invariant across time and thus, explicit and implicit expectations to work during nonwork time could be general assessments of one's supervisor. Consequently, enduring explicit and implicit expectations could also affect subordinates' general recovery experiences. Following these limitations, we conducted a three-wave field study in which we tested our model on the between-person level with respect to participants' actual supervisor.

Study 2

Method

Procedure and Sample

We conducted a three-wave study with three measurement points separated by one week. We measured supervisors' explicit and implicit expectations as well as nonwork expectations in the first survey, the mediators (i.e., role conflict, boundary control, working during nonwork time) one week later in the second survey, and the recovery experiences again one week later in the third survey.

We recruited participants via personal contacts and a study exchange platform (www.surveycircle.com). Employees were eligible to participate if they worked 20 hours or more per week. Participants had the chance to win vouchers with a total value of 150€ if they filled in two or more surveys.

In total, 331 participants completed the first survey, 250 participants completed the second survey, and 143 participants completed the third survey. We excluded participants who did not have a supervisor (e.g., because they were self-employed), participants who did not correctly fill in two out of three attention check items per survey, participants who filled in the surveys too quickly (Leiner, 2019b), and participants who completed only the first survey. This procedure led to a final sample of 222 employees. Participants' mean age was 40.77 years (*SD* = 13.60, Range: 18 – 65) and 151 participants (68.0%) were female. Moreover, 154 participants (69.4%) worked in a full-time position (i.e., 35 hours or more per week), 57 participants (25.7%) held a leadership position, and 117 participants (52.7%) held a university degree. Participants worked in different sectors, with 13.1% in health and social services, 10.4% in the industry, and 9.9% in education. With respect to the nonwork domain, 181 participants (81.6%) lived together with other people in a household (e.g., partner, children) and 45 participants (20.3%) lived together with children under the age of 18.

Measures

We assessed our constructs referring to participants' general real-life experiences. Explicit and implicit expectations referred to participants' current supervisor and nonwork expectations referred to participants' actual partner, family, and friends. We asked participants to answer all items regarding their experiences "in general". All measures are displayed in Table 4.1. Table 4.7 shows descriptive statistics, reliabilities, and correlations.

Table 4.7

Study 2: Descriptive Statistics, Reliabilities, and Correlations Among Study Variables

	M	*SD*	α	1	2	3	4	5	6	7
1. Explicit expectations	1.35	0.74	.95							
2. Implicit expectations	1.56	0.94	.95	.66***						
3. Nonwork expectations	3.27	0.77	.81	-.05	.08					
4. Role conflict	2.40	0.93	.87	.04	.21***	.08				
5. Boundary control	3.87	0.81	.80	-.23***	-.38***	-.11	-.29***			
6. Working during nonwork time[a]	2.78	1.57	-	.40***	.44***	-.06	.20**	-.32***		
7. Psychological detachment	3.22	0.94	.92	-.24**	-.32***	-.01	-.29***	.39***	-.40***	
8. Relaxation	3.45	0.78	.85	-.13	-.20*	.15	-.31***	.27***	-.18*	.49***

Note. $N = 222$.

[a] Working during nonwork time was measured with one item on a response scale ranging from 1 = *never* to 6 = *daily*.

* $p < .05$.

Construct Validity

Again, we ran several confirmatory factor analyses to test construct validity. A seven-factor model with factors reflecting explicit expectations, implicit expectations, nonwork expectations, role conflict, boundary control, psychological detachment, and relaxation fit the data well, $\chi^2 = 479.25$, $df = 303$, $p < .001$, RMSEA = .06, CFI = .94, TLI = .93. This model fit the data better than a six-factor model where we combined explicit and implicit expectations on one factor, $\chi^2 = 997.10$, $df = 309$, $p < .001$, RMSEA = .12, CFI = .78, TLI = .74, $\Delta\chi^2(6) = 517.85$, $p < .001$, and a one-factor model where all items loaded on one overall factor, $\chi^2 = 2{,}289.75$, $df = 324$, $p < .001$, RMSEA = .20, CFI = .36, TLI = .30, $\Delta\chi^2(21) = 1{,}810.50$, $p < .001$.

Data Analysis

We analyzed the data with path models and, again, used full information maximum likelihood estimation to handle missing data (Newman, 2014). We tested our hypotheses in a main-effects model and an interaction-effects model. First, we specified a main-effects model with both explicit and implicit expectations as predictors in the same model. In this model, we tested Hypotheses 1 to 4. We again calculated indirect effects with the MODEL CONSTRAINT command in Mplus and obtained confidence intervals with the Monte Carlo method (Selig & Preacher, 2008). To answer our open research question of whether explicit or implicit expectations have stronger associations with the mediators and outcomes, we compared the model fit of our main-effects model with several other models. In separate models, we specified the paths of explicit and implicit expectations with one of the mediators and outcomes as equal and compared the model fit of each of the constrained models (i.e., paths set to be equal) with the unconstrained model (i.e., paths freely estimated). Second, we ran an interaction-effects model with nonwork expectations as a moderator. In this model, we tested Hypotheses 5 to 7.

Results

The results of the main-effects model are displayed in Table 4.8. Due to several insignificant paths, the model fit was less than optimal, $\chi^2 = 10.27$, $df = 2$, $p = .006$, RMSEA = .14, CFI = .96, TLI = .59[20]. Failing to support Hypothesis 1, we found neither a direct relationship of explicit expectations, estimate = -0.04, *SE* = 0.11, $p = .721$, nor of implicit expectations, estimate = -0.02, *SE* = 0.09, $p = .810$, with psychological detachment. Similarly, neither explicit expectations, estimate = -0.04, *SE* = 0.10, $p = .672$, nor implicit expectations, estimate = -0.01, *SE* = 0.08, $p = .901$, directly predicted relaxation.

Now turning to indirect effects, the indirect effects of explicit expectations via role conflict on psychological detachment, estimate = 0.03, *SE* = 0.02, 95% CI [-0.006, 0.084], and on relaxation, estimate = 0.04, *SE* = 0.03, 95% CI [-0.006, 0.095], were not significant, providing no support for Hypothesis 2a. Supporting Hypothesis 2b, the indirect effects of implicit expectations via role conflict on psychological detachment, estimate = -0.05, *SE* = 0.03, 95% CI [-0.110, -0.005], and on relaxation, estimate = -0.06, *SE* = 0.03, 95% CI [-0.121, -0.016], were significant.

[20] The model achieved acceptable fit when we included the measurement model in this structural model, $\chi^2 = 346.87$, $df = 232$, $p < .001$, RMSEA = .05, CFI = .97, TLI = .96.

Table 4.8

Study 2: Main-Effects Model With Supervisors' Explicit and Implicit Expectations as Predictors

	Role conflict		Boundary control		Working during nonwork time		Psychological detachment		Relaxation	
Predictor	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*
Explicit expectations	-0.19 (0.11)	.095	0.01 (0.09)	.911	0.45 (0.17)	.008	-0.04 (0.11)	.721	-0.04 (0.10)	.672
Implicit expectations	0.31 (0.09)	< .001	-0.35 (0.07)	< .001	0.54 (0.13)	< .001	-0.02 (0.09)	.810	-0.01 (0.08)	.901
Role conflict							-0.16 (0.05)	.026	-0.20 (0.06)	.002
Boundary control							0.27 (0.09)	.003	0.16 (0.08)	.041
Working during nonwork time							-0.16 (0.05)	.001	-0.02 (0.04)	.638

Note. $N = 222$.

The indirect effects of explicit expectations via boundary control on psychological detachment, estimate = 0.00, *SE* = 0.03, 95% CI [-0.050, 0.057][21], and on relaxation, estimate = 0.00, *SE* = 0.02, 95% CI [-0.033, 0.037], were not significant, failing to support Hypothesis 3a. In support of Hypothesis 3b, the indirect effects of implicit expectations via boundary control on psychological detachment, estimate = -0.09, *SE* = 0.04, 95% CI [-0.174, -0.029], and on relaxation, estimate = -0.06, *SE* = 0.03, 95% CI [-0.121, -0.002], were significant.

In partial support of Hypothesis 4a, we found a significant indirect effect of explicit expectations via working during nonwork time on psychological detachment, estimate = -0.07, *SE* = 0.04, 95% CI [-0.152, -0.013], but not on relaxation, estimate = -0.01, *SE* = 0.02, 95% CI [-0.054, 0.031]. Similarly, in partial support of Hypothesis 4b, we found a significant indirect effect of implicit expectations via working during nonwork time on psychological detachment, estimate = -0.08, *SE* = 0.03, 95% CI [-0.166, -0.025], but not on relaxation, estimate = -0.01, *SE* = 0.02, CI [-0.061, 0.035].

The indirect effects provide initial evidence that implicit expectations – compared to explicit expectations – are more strongly related to the mediators. When examined jointly with explicit expectations, only implicit expectations directly predicted role conflict and boundary control (see Table 4.8), while both explicit and implicit expectations significantly predicted working during nonwork time. When we constrained the paths of explicit

[21] When we examined explicit expectations as sole predictor (i.e., without implicit expectations, see Table S10 in the online supplement on OSF), we found a significant relationship of explicit expectations with boundary control, estimate = -0.28, *SE* = 0.08, $p < .001$, and, thus, the indirect effect of explicit expectations via boundary control on psychological detachment, estimate = -0.07, *SE* = 0.03, 95% CI [-0.148, -0.020], and on relaxation, estimate = -0.05, *SE* = 0.02, 95% CI [-0.100, -0.003], were significant in this model. Results with respect to implicit expectations did not differ when we examined implicit expectations as sole predictor (see Table S11 in the online supplement on OSF).

expectations and implicit expectations on role conflict to be equal, this model showed a significantly worse fit than our main-effects model, $\chi^2 = 17.69$, $df = 3$, $p < .001$, RMSEA = .15, CFI = .93, TLI = .51, $\Delta\chi^2(1) = 7.42$, $p = .006$. Thus, implicit expectations had a stronger relationship with role conflict compared to explicit expectations. When we constrained the paths of explicit and implicit expectations on boundary control to be equal, the model also showed a significantly worse fit than our main-effects model, $\chi^2 = 15.93$, $df = 3$, $p = .001$, RMSEA = .14, CFI = .94, TLI = .57, $\Delta\chi^2(1) = 5.66$, $p = .017$. Thus, implicit expectations also had a stronger relationship with boundary control than explicit expectations. When we constrained the paths of explicit and implicit expectations on working during nonwork time to be equal, the model fit did not significantly differ from the model fit of our main-effects model, $\chi^2 = 10.36$, $df = 3$, $p = .016$, RMSEA = .11, CFI = .96, TLI = .76, $\Delta\chi^2(1) = 0.09$, $p = .764$. Thus, explicit and implicit expectations had equally strong associations with working during nonwork time.

The results of the interaction-effects model are displayed in Table 4.9. We found no support for Hypothesis 5. Nonwork expectations neither moderated the relationship of explicit expectations, estimate = -0.10, $SE = 0.17$, $p = .570$, nor the relationship of implicit expectations, estimate = -0.02, $SE = 0.11$, $p = .892$, with role conflict. Failing to support Hypothesis 6, nonwork expectations did not moderate the association of explicit expectations, estimate = -0.12, $SE = 0.14$, $p = .416$, and of implicit expectations, estimate = 0.06, $SE = 0.09$, $p = .512$, with boundary control. Hypothesis 7 was also rejected. We found no significant moderation effect of nonwork expectations on the relationship of explicit expectations, estimate = -0.04, $SE = 0.27$, $p = .876$, nor of implicit expectations, estimate = -0.22, $SE = 0.17$, $p = .201$, and working during nonwork time.

Table 4.9

Study 2: Interaction-Effects Model With Supervisors' Explicit and Implicit Expectations as Predictor and Nonwork Expectations as Moderator

	Role conflict		Boundary control		Working during nonwork time		Psychological detachment		Relaxation	
Predictor	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*	est. (*SE*)	*p*
Explicit expectations	0.11 (0.53)	.843	0.35 (0.44)	.426	0.49 (0.81)	.548	-0.04 (0.11)	.733	-0.04 (0.10)	.683
Implicit expectations	0.38 (0.40)	.345	-0.53 (0.33)	.106	1.37 (0.60)	.023	-0.02 (0.09)	.829	-0.01 (0.08)	.912
Nonwork expectations	0.20 (0.19)	.289	-0.03 (0.16)	.857	0.20 (0.29)	.485				
Explicit expectations x nonwork expectations	-0.10 (0.17)	.570	-0.12 (0.14)	.416	-0.04 (0.27)	.876				
Implicit expectations x nonwork expectations	-0.02 (0.11)	.892	0.06 (0.09)	.512	-0.22 (0.17)	.201				
Role conflict							-0.16 (0.07)	.027	-0.20 (0.06)	.002
Boundary control							0.27 (0.09)	.002	0.16 (0.08)	.044
Working during nonwork time							-0.15 (0.05)	.001	-0.02 (0.04)	.606

Note. $N = 222$.

General Discussion

Conducting two studies, we provided compelling empirical evidence that explicit and implicit expectations to work during nonwork time have downstream consequences on subordinates' after-work recovery. In Study 1, we found within-person indirect effects of explicit and implicit expectations to work during nonwork time on employees' psychological detachment and relaxation via role conflict, boundary control, and working during nonwork time. Interestingly, explicit expectations had stronger indirect effects on psychological detachment and relaxation than implicit expectations. In addition, nonwork expectations enhanced adverse effects of explicit and implicit expectations on some of the mediators. In Study 2, we found between-person indirect effects of implicit expectations on psychological detachment and relaxation via role conflict and boundary control, and we found between-person indirect effects of both explicit and implicit expectations on psychological detachment via working during nonwork time. In addition, in Study 2 implicit expectations had stronger effects on role conflict and boundary control than explicit expectations and the effects of explicit and implicit expectations on working during nonwork time did not differ. We found no support for the moderation of nonwork expectations in Study 2. Overall, we found indirect effects of explicit and implicit expectations on recovery in both studies, suggesting that expectations to work during nonwork time can have adverse effects on subordinates' recovery.

Theoretical Implications

Our study offers several important theoretical implications. First, by differentiating between explicit and implicit expectations, we advance role theory (Ashforth et al., 2000; Katz & Kahn, 1978) and refine role-sending and receiving processes between supervisors and subordinates. Both explicit and implicit expectations to work during nonwork time are relevant because these expectations foster role conflict between work and private roles (Katz

& Kahn, 1978) and harm boundary control over work-life boundaries (Ashforth et al., 2000; Kossek et al., 2012). In addition, explicit and implicit expectations convey a role-sending process that drives in-role behavior while in the nonwork domain (Katz & Kahn, 1978), resulting in higher likelihood of working during nonwork time. Importantly, we demonstrated that this role-sending process that ultimately harms subordinates' recovery experiences in the nonwork domain even occurs when supervisors do not directly request subordinates to work (i.e., when subordinates perceive implicit expectations). Implicit expectations were particularly relevant when examining enduring implicit expectations in a field setting. Accordingly, even if supervisors do not directly communicate their expectations to work during nonwork time, implicitly perceived expectations can still affect subordinates' recovery experiences. This is a crucial finding because supervisors may not be aware that they convey implicit expectations and could, therefore, unknowingly harm subordinates' recovery. Hence, the differentiation of explicit and implicit expectations refines role theory (Katz & Kahn, 1978) by showing that expectations may not always be communicated explicitly and, accordingly, it is highly important for future research to disentangle explicit and implicit expectations.

Second, we highlight the relevance of supervisors' explicit and implicit expectations for subordinates' recovery both regarding short-term within-person differences, as well as regarding stable between-person differences. Interestingly, we observed some differences in the results when examining consequences of explicit and implicit expectations. Whereas episodic explicit expectations had stronger within-person indirect effects than implicit expectations on role conflict, boundary control, and working during nonwork time in Study 1, stable implicit expectations had stronger between-person effects than explicit expectations on general role conflict and boundary control in Study 2. These differences between Study 1 and

2 may result from the differentiation between episodic versus enduring expectations as well as the study design (experimental vignette study versus field study).

With respect to differences resulting from episodic versus enduring expectations, it is worthwhile to consider our differentiation between autonomy and uncertainty resulting from expectations. Specifically, our results highlight that the autonomy granted by perceiving implicit expectations compared to explicit expectations results in less adverse effects on subordinates' recovery in the short-term. In contrast, when constantly being confronted with high implicit expectations, the uncertainty resulting from implicit expectations seems to prevail, resulting in stronger negative effects on subordinates' recovery compared to stable explicit expectations. This is an interesting finding because it might question multilevel homology (i.e., similarity in relationships across different levels) when examining supervisor behaviors on the within-person and between-person level (Chen et al., 2005). Our study thereby contributes to a recent stream of research comparing within-person and between-person associations of supervisor behaviors with well-being (Poetz & Volmer, 2024; Rudolph et al., 2022; Tóth-Király et al., 2024). It is crucial to take into account both levels in empirical research because supervisor behaviors can occur in specific situations as well as refer to more stable supervisor behaviors. Accordingly, we not only contribute to recent advancements in the literature that investigate leadership as dynamic behaviors (Kelemen et al., 2020; McClean et al., 2019) but we also demonstrate that more enduring perceptions of explicit and implicit expectations are highly relevant. Consequently, it is not only critical to differentiate explicit versus implicit expectations but also episodic versus more stable expectations.

With respect to the study design, differences in results between Study 1 and Study 2 may also result from the different operationalizations of supervisors' expectations to work during nonwork time. Whereas we manipulated expectations in Study 1, we assessed real-life supervisor expectations to work during nonwork time in Study 2. Thus, implicit expectations

from subordinates' actual supervisor may have particularly adverse consequences for recovery because they go along with real-life uncertainty about the required behavior. In contrast, implicit expectations described in artificial vignettes would have no real-life consequences and, consequently, participants might feel less uncertainty. Accordingly, our findings highlight the relevance of complementing experimental vignette studies with real-life experiences in field study designs to replicate results across settings.

Third, our study puts a finer point to the role of employees' broader social environment in recovery processes by taking into account nonwork expectations as a boundary condition. Whereas previous recovery studies primarily investigated experiences with the partner (e.g., Hahn et al., 2012; Y. Park & Haun, 2017; Völker et al., 2023), we extend this line of research by including expectations of different groups of people in the nonwork domain (e.g., partner, children, parents, friends). Surprisingly, we could underpin the moderating role of nonwork expectations in Study 1 but not in Study 2. It may be that due to the field study design in Study 2, selection effects have occurred such that participants with supervisors who hold high expectations to work during nonwork time might not have a social environment in the nonwork domain with high expectations (e.g., because the partner has a similarly demanding job) or participants with high nonwork expectations (e.g., childcare responsibilities) may not work in jobs where supervisors hold high expectations to work during nonwork time. However, when we manipulated nonwork expectations in Study 1, nonwork expectations indeed increased the adverse within-person indirect effects on recovery because selection effects could not drive our findings. Including in-role expectations of different actors in the role episode model is highly relevant to disentangle conflicting role expectations in research on the work-nonwork interface. Future studies could further unravel consequences of contradictory role expectations by looking at nonwork expectations of

different actors separately (e.g., subordinates' own nonwork expectations, partners' nonwork expectations, or children's nonwork expectations).

Fourth, our study advances research on expectations and recovery from work (Dettmers, Bamberg, et al., 2016; Mellner, 2016) by going beyond availability expectations and introducing supervisors' explicit and implicit expectations to work during nonwork time as important antecedents of impaired recovery experiences. In both studies, supervisors' explicit and implicit expectations had indirect effects on subordinates' recovery experiences, suggesting that supervisors' expectations to work during nonwork time harm recovery from work. Overall, it is therefore critical to include supervisor behaviors in research on recovery and close the gap between employees' larger social environment and research on their after-work recovery (Sonnentag et al., 2017, 2022). Supervisors' expectations are central for subordinates' well-being because supervisors have a core role at work with the power to assign work tasks and desired resources (Delfgaauw et al., 2020; Vermunt, 2015). Importantly, we also provide in-depth insights into *why* supervisor expectations are related to subordinates' recovery. Previous studies showed that ICT use during nonwork time harms employees' recovery (Barber & Jenkins, 2014; Braukmann et al., 2018). We demonstrate that working during nonwork time (which most often might imply ICT use) is a mediating mechanism between supervisors' expectations to work during nonwork time and subordinates' recovery. Thus, our findings speak to research on ICT use (Barber & Jenkins, 2014; Braukmann et al., 2018) and we suggest that employees may not always voluntarily work during nonwork time but may react to their supervisors' expectations. However, supervisors' expectations to work during nonwork time can be harmful for recovery beyond working during leisure time as we also demonstrated that supervisors' expectations trigger conflict between work and nonwork roles and impaired control over the boundaries between the work and nonwork domains. Accordingly, our study refines previous recovery studies on

availability expectations (Dettmers, Bamberg, et al., 2016; Mellner, 2016) and ICT use (Barber & Jenkins, 2014; Braukmann et al., 2018) by introducing supervisors' expectations to work during nonwork time to the recovery literature.

Limitations and Directions for Future Research

Although our research project has important strengths (e.g., two studies with different designs), it is not without limitations. First, we only used self-reports to assess our focal constructs. Hence, there is a risk that we overestimated effects due to common method variance (CMV; Podsakoff et al., 2012). However, across both studies, we took measures to reduce CMV. In Study 1, we tested our hypotheses on the within-person level such that between-person differences such as social desirability cannot explain our findings. Moreover, we manipulated our central predictors and the moderator in Study 1. In Study 2, we separated our assessment of focal constructs to reduce CMV (Podsakoff et al., 2003). Nevertheless, future studies could include ratings of different persons (e.g., partner ratings of nonwork expectations).

Second, the generalizability of the Study 1 might be limited. Following recommendations from Antonakis (2017) on the use of experiments in leadership research and other experimental vignette studies (e.g., H. Park et al., 2022; Yu & Duffy, 2020), we decided to manipulate supervisors' expectations using vignettes. While such experimental vignette studies have high internal validity, this comes at the cost of external validity (Aguinis & Bradley, 2014). Thus, explicit and implicit expectations did not refer to participants' real-life supervisors and we did not measure naturally occurring recovery experiences. Importantly, however, we applied our conceptual model in Study 2, providing evidence from a field study for our hypotheses.

Third, Study 2 does not allow us to make inferences about causality because of its correlational design. Thus, we cannot draw causal conclusions, for example, whether working

during nonwork time precedes low recovery experiences or whether participants who have difficulties to recover work more often during nonwork time (Heissler et al., 2022). Again, we tried to overcome this limitation by combining this study with an experimental-vignette design in Study 1. Nevertheless, future studies should consider different approaches to draw conclusions about causality in field studies. Because experimentally manipulating supervisors' expectations to work during nonwork time in a field study would be unethical, researchers could apply cross-lagged panel designs where focal variables are assessed at all measurement points, yielding the possibility to model reversed causality (for an example, see Liang et al., 2018).

Future studies could investigate the convergence between supervisors' and subordinates' ratings of expectations to work during nonwork time (comparable to research on LMX, Zhou & Schriesheim, 2010). On the one hand, – because implicit expectations are subjective in nature – subordinates might mistakenly perceive an expectation to work during nonwork time, although supervisors did not convey this expectation intentionally. On the other hand, subordinates might be able to detect subtle cues in their supervisor's behavior and, thus, draw correct inferences about their supervisor's implicit expectations. In addition, it would be interesting to examine whether co-workers who report to the same supervisor perceive converging implicit expectations or whether the perception of implicit expectations to work during nonwork time differs from one subordinate to another. To better understand the triggers and characteristics of implicit expectations, investigating the convergence between ratings of different actors would be a fruitful avenue for future research.

Moreover, because employees hold various roles in different life domains (Ashforth et al., 2000; Katz & Kahn, 1978), the concept of explicit and implicit expectations could be extended. Other people at work (e.g., co-workers) also hold expectations towards employees to show in-role behaviors at work. For example, co-workers may expect employees to

complete their work tasks rather than being distracted by private demands. Consequently, co-workers could also directly request employees to work on their tasks (i.e., an explicit expectation) or indirectly convey this expectation such as by pointing out the importance of the task (i.e., an implicit expectation). In addition, employees can hold multiple roles in the work domain and researchers could investigate explicit and implicit expectations to engage in one role or the other. For example, in the context of workplace friendships, co-workers may explicitly or implicitly expect employees to engage in their friendship roles which can produce role conflict at work (Fasbender et al., 2023).

Practical Implications

Our study offers several practical implications. First, supervisors should be aware that their behaviors and expectations have a tremendous influence on subordinates' nonwork time. Therefore, importantly, supervisors should not expect subordinates to work during nonwork time, unless there is a very strong reason to do so (e.g., asking a nurse to take on a shift during the weekend due to staff shortages). However, even if supervisors do not explicitly request subordinates to work during nonwork time, subordinates can perceive implicit expectations that have negative downstream consequences on their recovery from work. As implicit expectations are highly subjective, various supervisor behaviors could convey implicit expectations (e.g., sending e-mails during nonwork time, supervisors extending their own work hours). Therefore, supervisors could discuss specific guidelines for working during nonwork time with their subordinates to reduce implicit expectations (Barber et al., 2023). For example, if supervisors write e-mails to their subordinates outside of office hours, supervisors could schedule those e-mails to be send during work hours (e.g., on the next day), reducing the implicit expectation to work during nonwork time.

Second, both employees and organizations should bear in mind the adverse effects of supervisors' expectations to work during nonwork time. Employees could ask supervisors to

clarify expectations if they are unsure about their supervisor's expectations to work during nonwork time. Organizations should introduce rules on how to deal with working during nonwork time. If subordinates know that they are not formally required to work outside of office hours, subordinates might perceive implicit expectations from their supervisor to a lesser extent. In this regard, organizational rules can be considered a framework for both supervisors and subordinates on what is expected from employees. For example, organizations could introduce specific guidelines on availability and working during nonwork time (Barber et al., 2023; Shockley et al., 2021).

Conclusion

Across two studies with different designs, we provide compelling evidence that supervisors' expectations to work during nonwork time have negative downstream consequences on subordinates' recovery from work. By expanding role theory with the concept of implicit expectations, we showed that both supervisors' explicit and implicit expectations had indirect effects on subordinates' psychological detachment and relaxation via role conflict, boundary control, and working during leisure time. We also included the broader social environment in the nonwork domain and demonstrated that nonwork expectations can be an important boundary condition.

Appendix: Sample Vignettes

Table A1

Study 1: Between-Person Vignettes Manipulating Nonwork Expectations

High nonwork expectations	Low nonwork expectations
You live together with your partner in a multigenerational home. They **strongly** assume that you spend the majority of your leisure time with family or friends and **naturally** expects you to put work aside during the evening. They **often** expect you to get involved at home and to help with household duties in your leisure time. Thus, you, for example, **often** do the shopping together.	You live together with your partner in a multigenerational home. They **do not necessarily** assume that you spend the majority of your leisure time with family or friends and **does not really** expect you to put work aside during the evening. They **seldom** expect you to get involved at home and to help with household duties in your leisure time. Thus, you, for example, **rarely** do the shopping together.
Your parents live on another floor. You have a good relationship with them and you help them with smaller tasks around the house. Your parents expect you, for example, to keep the garden neat and cut the hedges. Moreover, they **assume** that you **often** come over and spend time with them.	Your parents live on another floor. You have a good relationship with them and you help them with smaller tasks around the house. However, your parents **do not necessarily** expect you, for example, to keep the garden neat and cut the hedges. Moreover, **it suffices for them** that you **occasionally** come over and spend time with them.

Table A2

Study 1: Sample Within-Person Vignettes Manipulating Supervisors' Explicit and Implicit Expectations to Work During Nonwork Time

Explicit expectations	**Implicit expectations**	**Neutral contact**
Imagine that you came home after finishing work. You change your clothes and start with dinner preparations. After you have finished eating, you remember that you have to give an important presentation at one of your clients tomorrow. Because you could not finish the slides today at work, you think about whether you should continue working on them tonight using your work laptop. Shortly thereafter, you receive an e-mail from your supervisor Mr./ Mrs. Schmidt. He/ she has sent a new version of the incomplete slides and **asks you to finish them until tomorrow morning. That means that Mr./ Mrs. Schmidt expects you to work on the slides tonight.**	Imagine that you came home after finishing work. You change your clothes and start with dinner preparations. After you have finished eating, you remember that you have to give an important presentation at one of your clients tomorrow. Because you could not finish the slides today at work, you think about whether you should continue working on them tonight using your work laptop. Shortly thereafter, you receive an e-mail from your supervisor Mr./ Mrs. Schneider. He/ she has sent a new version of the incomplete slides, **but he/ she does not directly ask you to finish them until tomorrow morning. Nevertheless, you have the feeling that Mr./ Mrs. Schneider expects you to work on the slides tonight.**	Imagine that you came home after finishing work. You change your clothes and start with dinner preparations. After you have finished eating, you remember that you have to give an important presentation at one of your clients tomorrow. Because you could not finish the slides today at work, you think about whether you should continue working on them tonight using your work laptop. Shortly thereafter, you receive an e-mail from your supervisor Mr./ Mrs. Weber. **He/ she has forwarded a mail in which the company announces that window cleaners will come next week. Employees are asked to remove objects that are blocking the windows.**

CHAPTER V: GENERAL DISCUSSION

In my dissertation, I linked the leadership literature with research on recovery from work. Drawing on boundary management theory (Ashforth et al., 2000) and the WH-R model (ten Brummelhuis & Bakker, 2012a), I conceptualized supervisor behaviors as work resources and work stressors that can spill over into the nonwork domain and affect subordinates' recovery. Although recovery researchers emphasized the need to include supervisor behaviors in studies on recovery (Sonnentag et al., 2017, 2022), empirical research on this topic remained scarce. In each study, I identified distinct types of supervisor behaviors that have downstream consequences on subordinates' recovery experiences (i.e., supportive behaviors, abusive supervision, expectations to work during nonwork time). By taking a dynamic, behavioral approach to leadership (Kelemen et al., 2020), I investigated specific supervisor behaviors as antecedents of subordinates' recovery, contributing to research on leadership and well-being. In the following, I will summarize my findings, discuss the theoretical and practical implications, and reflect on strengths and limitations of my dissertation as well as directions for future research.

Summary of Findings

I identified different supervisor behaviors that have downstream consequences on subordinates' recovery. Supervisor work and nonwork support can be seen as work resources that positively affect subordinates' recovery (Study 1), while abusive supervision (Study 2) and expectations to work during nonwork time (Study 3) are work stressors that harm subordinates' recovery. Interestingly, in all field studies (Study 1, Study 2 and the field study of Study 3) the supervisor behaviors were not directly related to subordinates' recovery experiences across all days when accounting for the mediators. However, I identified energetic (i.e., vitality, Study 1), cognitive and affective personal resources (i.e., rumination and anger, Study 2) as well as work-related roles stressors and behaviors (i.e., role conflict,

boundary control, and working during nonwork time, Study 3) as mediating mechanisms that link supervisor behaviors with subordinates' recovery experiences.

In addition, in Study 1 and 3, I disentangled different aspects of related supervisor behaviors and found differential results for the specific behaviors. Whereas supervisor work support was indirectly related to subordinates' recovery experiences via increased vitality, supervisor nonwork support directly predicted subordinates' recovery experiences on working-from-home days. Moreover, in the experimental vignette study of Study 3, explicit expectations to work during nonwork time had stronger indirect effects on subordinates' recovery experiences than implicit expectations, whereas, in the field study, implicit expectations had stronger indirect effects on the recovery experiences than explicit expectations. Therefore, it proved highly valuable to examine specific but related supervisor behaviors separately rather than confounding them in one leadership style.

Besides supervisor behaviors, I examined the broader social environment of employees by including additional interpersonal resources (Study 2) and interpersonal stressors (Study 3) stemming from people in the work and nonwork domain as moderators. In Study 2, I demonstrated that co-workers could buffer subordinates' cognitive processes in response to abusive supervision by providing reappraisal support, resulting in weaker indirect effects of abusive supervision on psychological detachment. In Study 3, I found mixed results for the moderating role of nonwork expectations because nonwork expectations strengthened some of the harmful effects of expectations to work during nonwork time on the mediators in the experimental vignette study but not in the field study. Accordingly, both co-workers and people in the nonwork domain moderate within-person indirect effects of supervisor behaviors with subordinates' recovery experiences (but not between-person associations, Study 3).

Theoretical Implications

Because my dissertation contributes both to the recovery literature and the leadership literature, I discuss the theoretical implications for these streams of research separately in the following section.

Implications for the Recovery Literature: Including Interpersonal Stressors and Resources

By examining interpersonal stressors and resources, my dissertation broadens the understanding of how the social environment in the work and nonwork domain affects employees' recovery. Accordingly, I address a frequently mentioned oversight in the recovery literature that called for the inclusion of social processes in studies on recovery (Sonnentag et al., 2017, 2022). Specifically, the focus of my dissertation is to uncover how supervisors may harm or benefit their subordinates' recovery experiences in the nonwork domain. Because supervisors hold a powerful role in the work domain (J. R. French & Raven, 1959), their behaviors can be particularly influential for subordinates' well-being (Inceoglu et al., 2018; Montano et al., 2017). The results of my dissertation underline the important role of supervisors. Across three studies with different foci, I found that supervisor behaviors indeed have downstream consequences on subordinates' recovery experiences. This is highly relevant because it suggests that supervisors can shape subordinates' recovery processes in the nonwork domain, contributing to their subsequent affective well-being and performance (Binnewies et al., 2009; McGrath et al., 2017). My dissertation moves the recovery literature forward by providing empirical evidence that supervisors matter for subordinates' recovery.

Specifically, I introduce supervisor behaviors as both work stressors and work resources. Underlining previous research on interpersonal stressors as predictors of impaired recovery (Nicholson & Griffin, 2015; Y. Park & Kim, 2019), I show that supervisor behaviors harm subordinates' recovery processes. In Study 2, I show that abusive supervision

is a particularly harmful work stressor that undermines subordinates' recovery experiences. While previous studies on interpersonal work stressors looked at other groups of people (e.g., customers, Park & Kim, 2019), I demonstrate that negative interpersonal experiences with the supervisor matter over and above other social stressors. Therefore, it proved highly relevant to exclusively examine supervisor behaviors as work stressors that undermine subordinates' recovery. Moreover, by introducing expectations to work during nonwork time to the literature (Study 3), I examine work stressors that are more subtle than openly hostile behaviors such as abusive supervisory behaviors. Importantly, these "subtle" work stressors can also undermine subordinates' recovery experiences, even if supervisors do not explicitly state their expectations (i.e., when subordinates perceive implicit expectations). In addition, I show that supervisor behaviors are work resources that foster subordinates' recovery. Whereas previous recovery studies that examined interpersonal antecedents focused on work stressors (Y. Park & Kim, 2019; Volmer et al., 2012), my perspective that supervisor behaviors can also promote subordinates' recovery has previously been neglected. With Study 1's focus on positive experiences with the supervisor as a facilitator of subordinates' recovery (i.e., by showing supportive behaviors), I offer a first starting point how recovery processes can be fostered. This positive view is particularly important because employees' *successful* recovery is a practically relevant organizational goal (rather than *impaired* recovery which should be avoided). All in all, by taking a close look at supervisor behaviors as work stressors and work resources, I examine supervisor behaviors from different angles and, therefore, I can draw conclusions about which supervisor behaviors promote or harm subordinates' recovery.

In addition, by identifying underlying mechanisms, I show *how* supervisor behaviors affect subordinates' recovery. The theoretical lenses of the WH-R model (ten Brummelhuis & Bakker, 2012a) and boundary management theory (Ashforth et al., 2000) provided insights

into the mediating mechanisms. With respect to the resource-based approach of the WH-R model (ten Brummelhuis & Bakker, 2012a), I found that energetic (Study 1), cognitive and affective (Study 2) personal resources can explain the spillover processes of different supervisor behaviors into the nonwork domain. Therefore, supervisor behaviors in the work domain can trigger a work-home enrichment process by fostering personal resources (i.e., when supervisors show work supportive behaviors, Study 1) as well as a work-home conflict process by impairing personal resources (when supervisors show abusive behaviors, Study 2) and both processes ultimately affect subordinates' recovery. In addition, by examining personal resources as mechanisms that link the work and nonwork domain, I extend previous findings that recovery from work depends on momentary states (Sonnentag et al., 2022). Drawing on boundary management theory (Ashforth et al., 2000), I demonstrate that supervisor behaviors can also violate boundaries between the work and nonwork domain (i.e., when supervisors expect subordinates to work during nonwork time, Study 3). Therefore, I identify work-related role stressors (i.e., higher role conflict, lower boundary control) and behaviors (i.e., working during nonwork time) as underlying mechanisms of how supervisor behaviors can affect subordinates' recovery. Taken together, I show that supervisor behaviors are linked with subordinates' recovery experiences via internal processes within the subordinate (i.e., personal resources and perception of work-related role stressors) and via work-related behavior while in the nonwork domain.

Although the focus of my dissertation is on supervisor behaviors, I show that the broader social environment is relevant by including interpersonal resources and stressors in the work and nonwork domain as boundary conditions. I demonstrate that co-workers can mitigate cognitive processes in response to abusive supervisory behaviors by providing reappraisal support (Study 2). Co-workers can help employees deal with negative experiences at work which buffers adverse effects of work stressors on subordinates' recovery in the

nonwork domain. Therefore, I contribute to sparse findings on the role of positive experiences with co-workers for employees' recovery processes (McGrath et al., 2017; Rodríguez-Muñoz et al., 2020). Moreover, I demonstrate that social support can both be considered as an antecedent (Study 1) as well as a moderator in the recovery process which is in line with established theoretical models on social support and well-being (Cohen & Wills, 1985; McKay, 1984). In addition to the role of co-worker behaviors, I also examine the moderating role of people in the nonwork domain (i.e., expectations of partner, children, parents, friends; Study 3). Unfortunately, findings regarding the moderating role of nonwork expectations were less clear because I found differential results in the vignette study and the field study which might have been due to methodological reasons (see Discussion of Study 3). Nevertheless, it is crucial to not only focus on the role of partners for employees' recovery (e.g., Hahn et al., 2012; Y. Park & Haun, 2017), but to account for new living arrangements and private situations. Not all employees live in traditional living arrangements together with a partner (Eurostat, 2024) and, therefore, it is an important next step for the recovery literature to examine how various actors in the nonwork domain can contribute to employees' recovery. All in all, I demonstrate that including interpersonal resources and stressors from the work and the nonwork domain as boundary conditions is highly relevant in studies on recovery to account for social actors in both domains.

Implications for the Leadership Literature: Taking a Dynamic Approach to Specific Supervisor Behaviors

In my dissertation, I show that supervisor behaviors matter for subordinates' recovery, and it proved highly valuable to examine specific supervisor behaviors rather than general leadership styles. This approach allowed me to find differential results regarding supervisor work support versus supervisor nonwork support (Study 1) and explicit versus implicit expectations to work during nonwork time (Study 3). While both work and nonwork

supportive behaviors had positive downstream effects on subordinates' recovery, they fostered recovery in different ways. Therefore, it proved highly relevant to disentangle domain-specific supportive behaviors rather than examine general supportive leadership (e.g., Rafferty & Griffin, 2006). With the distinction between explicit and implicit expectations, I refine role theory by showing that not only explicitly stated expectations matter but implicitly perceived expectations are just as relevant (Ashforth et al., 2000; Katz & Kahn, 1978). Interestingly, I found that explicit expectations had stronger indirect effects than implicit expectations on the recovery experiences in the vignette study, whereas implicit expectations had stronger effects than explicit expectations in the field study. The differential findings in Study 1 and Study 3 regarding related but distinct supervisor behaviors point toward the benefit of examining different aspects of supervisor behaviors separately rather than confounding them within a general leadership style.

In addition, my dissertation adds to a recent stream of research in the leadership literature that investigates dynamic supervisor behaviors on within-person consequences (Kelemen et al., 2020; McClean et al., 2019). This focus on fluctuations in supervisor behaviors unraveled important insights regarding short-term consequences on subordinates' recovery experiences. Specifically, I found that higher-than-usual supportive behaviors (Study 1) and higher-than-usual abusive supervisory behaviors (Study 2) have downstream consequences on subordinates' daily recovery. Therefore, not only the general level of these behaviors are important (Lord et al., 2017), but also small acts of support or abuse during the workday matter. Relatedly, I show that episodic supervisor behaviors in single situations have within-person downstream consequences on subordinates' recovery experiences (Study 3). However, in this study I combined a within-person with a between-person approach by also examining enduring expectations. I demonstrate that both episodic and enduring supervisor expectations matter for subordinates' recovery, while results regarding explicit versus

implicit expectations differed when examining within-person or between-person consequences. Thus, it proved highly valuable to use a multi-study approach to compare fluctuating and enduring supervisor behaviors. Taken together, I demonstrate that dynamic supervisor behaviors matter for subordinates' recovery experiences on the within-person level, while enduring supervisor behaviors also affect subordinates' recovery on the between-person level.

Lastly, I show that supervisor behaviors not only matter for subordinates' general well-being (Montano et al., 2017) but are also relevant for subordinates' recovery processes. This is an important insight for leadership scholars, as recovery from work is essential to restore personal resources in the nonwork domain which can have positive consequences on subordinates' productivity in the work domain. Not only is recovery important for subordinates' subsequent well-being (Liu et al., 2021; McGrath et al., 2017) but also for their performance (Binnewies et al., 2009). Thus, supervisors should promote recovery and protect subordinates' recovery periods. By linking the leadership literature with research on recovery, I introduce a new perspective to the leadership field that underlines the relevance of ensuring subordinates' recovery from work.

Methodological and Theoretical Strengths and Limitations

When discussing the findings and implications of my dissertation, it is important to keep the limitations of the studies in mind, while also considering their strengths.

Strengths

My dissertation has four central methodological and theoretical strengths. First, I used different study designs to investigate supervisor behaviors and recovery from different lenses. In Study 1 and 2, I gathered intensive longitudinal data in field settings and, thus, examined supervisor behaviors as dynamic phenomena that fluctuate from day to day. This dynamic view on supervisor behaviors aligns closely with emerging trends in the leadership literature

(Kelemen et al., 2020). By taking this perspective, I demonstrated that fluctuating supervisor behaviors have within-person downstream consequences on subordinates' recovery in their everyday lives. While Study 1 and 2 are correlational and do not allow causal conclusions, I complemented these studies with an experimental vignette study in Study 3. Thus, I also investigated supervisor behaviors and subordinates' recovery in an experimental setting which goes along with high internal validity and the ability to make causal inferences. To increase external validity and address the limitations of vignette studies, I replicated the model of Study 3 in a field study, resulting in a multi-study paper. Moreover, the field study has the benefit of examining enduring supervisor behaviors and between-person consequences on subordinates' recovery which reconciles the dynamic perspective of leadership with traditional views on stable supervisor behaviors (Lord et al., 2017). Overall, my dissertation combines correlational field data with experimental data, leading to a compensation of the individual weaknesses of the respective designs.

Second, the conceptualization of my studies closely aligns with the dissertation's overall goal of examining supervisor behaviors as antecedents of subordinates' recovery experiences. I examined different supervisor behaviors, while keeping the outcome consistent across studies (i.e., subordinates' recovery experiences). This parallel structure of the studies' conceptual models yields the benefit of inferring conclusions about how supervisors can foster or harm subordinates' recovery experiences in particular. The clear focus on recovery experiences as outcomes (rather than, for example, recovery activities; Alameer et al., 2023; Tu & Chi, 2024) is in line with the idea that recovery experiences as the underlying psychological experiences are "core elements of the recovery process" (Steed et al., 2021, p. 870). Thus, I can infer theoretical and practical implications specifically about antecedents of employees' recovery experiences. The similar structure of the studies' conceptual models allows for comparability between the studies.

Third, I examined different positive and negative supervisor behaviors while taking into account the broader social environment in the work and nonwork domain. Thus, I addressed the clearly identified need to examine how social processes relate to employees' recovery (Sonnentag et al., 2017, 2022). I conceptualized both supervisor behaviors and interpersonal experiences in the work and nonwork domain as stressors and resources that can affect employees' recovery. With this approach, I can make specific recommendations how supervisors (Study 1) and co-workers (Study 2) promote subordinates' recovery experiences as well as how supervisors (Study 2 and Study 3) and people in the nonwork domain (Study 3) harm subordinates' recovery experiences. Therefore, I demonstrated that different actors in the work and nonwork domain contribute to employees' recovery processes both positively and negatively. Overall, my dissertation introduced a refined social angle to the recovery literature.

Fourth, I utilized theoretical approaches that specifically address the work-nonwork interface to guide my research. Drawing on the WH-R model (ten Brummelhuis & Bakker, 2012a) and boundary management theory (Ashforth et al., 2000) as theoretical frameworks, I identify underlying mechanisms that connect the work and the nonwork domain. While the resource-based approach guided me to introduce personal resources as mechanisms that link supervisor behaviors with subordinates' recovery, the role-based approach suggested work-related roles stressors and behaviors as explanation why supervisors' behaviors that violate the boundary between work and nonwork harm subordinates' recovery. The clear common theme of work experiences affecting nonwork outcomes via mechanisms that bridge the boundary between work and nonwork provides a compelling application of work-nonwork theories and contributes to research on the work-nonwork interface.

Limitations

Despite these important strengths, my dissertation is not without limitations. First, all studies relied on self-report measures to assess study variables. On the one hand, this increases the risk of overestimating effects due to common method variance (CMV; Podsakoff et al., 2012). Although I took steps to reduce the possibility of CMV in each study (e.g., measuring constructs at different measurement points, controlling for morning states; Gabriel et al., 2019), it would be preferrable to partly assess constructs with other-ratings (e.g., Barnes et al., 2015; Hahn et al., 2014) or with objective measures (e.g., Parker et al., 2020). For example, recovery from work could also be objectively measured by assessing cognitive capacity during nonwork time (Perzl et al., 2023). This approach would ensure that findings on recovery from work are not exclusively driven by CMV. On the other hand, by using self-report measures, I captured interpersonal experiences from the subordinates' point of view only. Because the focus of my dissertation was on supervisor behaviors and employees' broader social environment, neglecting to integrate other peoples' point of view limits the implications of the findings by focusing on subordinates' subjective experiences. While it was indeed the goal of my dissertation to zoom in on subordinates' subjective perspective, future research could also capture supervisors' and co-workers' assessments of interpersonal constructs. This would not only reduce methodological limitations such as CMV but also gives researchers the opportunity to investigate consequences of these interpersonal experiences on supervisors and co-workers.

Second, the design of the daily diary studies (i.e., with measurement points in the morning, end-of-work, and bedtime) turned out not optimal to capture supervisor behaviors. I found low base rates of the respective daily supervisor behaviors, indicating that these behaviors did not occur frequently on the day-level. In addition, I excluded days on which subordinates did not report contact with their supervisor (Barnes et al., 2015), leading to a

reduced data set on the day-level in both studies. Thus, limited contact with the supervisor and infrequent occurrence of the supervisor behaviors on the day-level makes it difficult to detect effects of supervisor behaviors in daily diary studies. Consequently, interval-contingent sampling (i.e., collecting data at specified times; Kelemen et al., 2020) may not be the optimal design to investigate supervisor behaviors on the day-level, although this sampling strategy is commonly used in diary studies on recovery from work (e.g., Demerouti et al., 2012; Sonnentag et al., 2008) and leadership (Barnes et al., 2015; Volmer, 2015). Moreover, my results regarding the significant consequences of the supervisor behaviors show the value of the design. However, future studies could use event-based sampling (i.e., assessing data every time an event with the supervisor occurs; Kelemen et al., 2020) to increase the likelihood of detecting supervisor behaviors when they occur.

Third, the studies are limited in their generalizability because the samples of my studies may not be representative for the general public. Across all studies, most participants worked in a full-time position and were highly educated with a majority of participants holding a university degree. Thus, most likely, the samples consisted of white-collar workers (who had, for example, the possibility to work from home, Study 1) with access to technological equipment during the workday to answer surveys. Including blue-collar workers would be an important next step because these occupations may work more closely with their supervisors (e.g., because of more frequent task-related assignments), making the occurrence of harmful as well as beneficial supervisor behaviors more likely. In addition, all samples were collected in Germany which is a Western, educated, industrialized, rich, and democratic (WEIRD, Henrich et al., 2010) country. Thus, my results cannot directly be transferred to other countries or cultures, making cross-cultural research necessary (Hofstede, 2011). For example, abusive supervision may have less adverse effects in cultures with high power distance because, in high-power-distance cultures, supervisors are expected to exercise

power (House et al., 2002; Lyubykh et al., 2022). Moreover, expectations to work during nonwork time might be more common in countries such as the U.S. and, consequently have less severe consequences on subordinates' recovery because expectations to work during nonwork time might not be considered a role boundary violation (Ashforth et al., 2000). Thus, more diverse samples with respect to occupations, education and cultures would be necessary.

Directions for Future Research

Although my dissertation offers first answers to the question how the social environment affects employees' recovery experiences, there are several interesting avenues for future research. To further investigate how interpersonal experiences relate to recovery, researchers can investigate the role of supervisor behaviors for subordinates' recovery, the role of co-worker behaviors for employees' recovery, and the role of people in the nonwork domain for employees' recovery. Moreover, scholars could investigate supervisors' own recovery from work in future studies. To more rigorously examine supervisor behaviors, future research could utilize different designs to capture supervisor behaviors.

The Role of Supervisors for Subordinates' Recovery

There is a need to further examine how supervisors can affect subordinates' recovery. Researchers could move beyond the day-level perspective and examine spillover effects on the following day(s). In Study 1 and Study 2, I studied whether supervisor behaviors affect subordinates' recovery on the same day but beneficial effects of supervisor behaviors may also accumulate and affect recovery across multiple days (Keller & Meier, 2023). For example, supervisor supportive behaviors on a specific workday can foster subordinates' recovery in the evening, which might help them starting the next workday with refreshed energetic resources, resulting in higher energetic resources after work and, again, higher recovery in the evening. Thus, beneficial supervisor behaviors may result in gain cycles that

increasingly foster subordinates' recovery, whereas negative supervisor behaviors may result in loss cycles (Hobfoll et al., 2018; Sonnentag & Meier, 2024). Relatedly, researchers could investigate whether supervisor behaviors indeed have beneficial effects on next-day subordinate outcomes at work (e.g., Binnewies et al., 2009; Sonnentag et al., 2012). Future research could examine whether positive and negative supervisor behaviors have beneficial or harmful effects on next-day performance via increased versus decreased recovery during the evening. This would confirm previous meta-analytic findings on the between-person level that beneficial leadership styles positively relate to performance via increased mental health indicators (Montano et al., 2017) and, additionally, transfer those findings to short-term processes and the within-person level.

Moreover, it would be interesting to see how supervisor behaviors affect subordinates' recovery over longer periods of time. One possibility can be weekly diary studies. Because subordinates may not have contact with their supervisor every day, researchers could investigate week-level within-person relationships of supervisor behaviors with weekend recovery (e.g., Breevaart & Zacher, 2019; Hahn et al., 2012). Another possibility are longitudinal studies over longer periods of time (e.g., several weeks or months). For example, abusive supervision predicts subsequent rumination over a time interval of four months (Liang et al., 2018), suggesting that supervisor behaviors affect subordinates' impaired recovery processes over the long term as well. Another advantage of longitudinal designs would be the possibility to model reversed causal relationships using a random-intercept cross-lagged panel model (Hamaker et al., 2015). Thus, while accounting for different levels in supervisor behaviors and recovery between individuals, higher-than-usual supervisor behaviors could predict subordinates' improved recovery experiences the next measurement point, but beneficial recovery experiences may not predict changes in subsequent supervisor behaviors. Although I took several measures to address the possibility

of reverse causality (i.e., modeling reverse causality in Study 2, conducting an experimental vignette study in Study 3), a design that specifically addresses the possibility of reverse causality would give greater confidence in the directionality of the associations.

In addition to those design-related aspects, future research could examine crossover processes of recovery between supervisors and subordinates (Westman & Chen, 2017; Westman & Etzion, 1995). It would be interesting to investigate how supervisors' recovery experiences relate to subordinates' recovery experiences and vice versa. A first cross-sectional study found an association of supervisors' detachment with subordinates' detachment (Sonnentag & Schiffner, 2019). On the one hand, the traditional view of leadership research that I utilized throughout my dissertation would suggest that supervisors influence their followers, suggesting crossover processes of recovery from supervisors to subordinates (Westman & Chen, 2017). In line with this reasoning, Tariq et al. (2020) found in their diary study that supervisors' poor sleep quality is indirectly related to subordinates' poor sleep quality via supervisors' ego depletion and abusive supervision. Thus, when supervisors are insufficiently recovered, they may show more abusive supervisory behaviors and withhold resources such as social support (Westman & Chen, 2017), resulting in subordinates' lower recovery experiences. On the other hand, there could also be crossover of recovery experiences from subordinates to supervisors (Pindek et al., 2020; Wirtz et al., 2017). For example, Wirtz et al. (2017) found that subordinates' work engagement was positively related to supervisors' work engagement eight months later and subordinates' emotional exhaustion positively predicted supervisors' exhaustion, but only when supervisors' emotional self-efficacy was high. Researchers could investigate with longitudinal designs whether crossover of recovery experiences occurs from supervisors to subordinates or from subordinates to supervisors (or both). In addition, it would be interesting to investigate underlying mechanisms that explain the crossover processes. These

mechanisms may differ, depending on the directionality of the crossover. Beneficial supervisor behaviors (e.g., higher supportive behaviors or lower abusive supervisory behaviors) could explain the crossover of recovery experiences from supervisors to subordinates. However, subordinates' low performance could explain the crossover of recovery experiences from subordinates to supervisors because subordinates' low performance (due to subordinates' insufficient recovery) can serve as a stressor for supervisors (Shen et al., 2021), potentially harming supervisors' recovery.

The Role of Co-Workers for Employees' Recovery

In addition to studying supervisor behaviors, researchers could take a closer look at the role of co-worker behaviors for employees' recovery experiences. While previous recovery research mostly focused on negative experiences with co-workers as antecedents of employees' recovery (Meier & Cho, 2019; Nicholson & Griffin, 2015; Völker et al., 2024), future research could examine how co-workers can benefit employees' recovery processes in the nonwork domain. Although I could not find a main effect of co-worker reappraisal support on subordinates' recovery experiences in Study 2, other supportive behaviors of co-workers might be beneficial after all. Researchers could, for example, examine whether work and nonwork supportive behaviors of co-workers also foster employees' recovery. Particularly co-worker nonwork support could be relevant because co-workers might have closer relationships to employees than supervisor have to their subordinates, making informal conversations about nonwork issues more likely and, thus, increase opportunities for providing nonwork support. Moreover, it would be interesting to examine how co-worker dyads support each other (Zeijen et al., 2024) and investigate if receiving and providing support relates to evening recovery. Because providing support can also come at a cost for actors themselves (e.g., higher negative affect, Lanaj & Jennings, 2020; less time in the nonwork domain, Lin et al., 2017), disentangling beneficial and adverse effects of supportive

behaviors on recovery of both actors using a dyadic approach would provide new insights. In addition to supportive behaviors, future research could examine whether private conversations with co-workers have beneficial effects on employees' recovery in the nonwork domain. A first study on private conversations during lunch breaks found that companionship of co-workers during the break was positively related to private conversation which, in turn, predicted psychological detachment during the lunch break (von Dreden & Binnewies, 2017). It would be interesting to investigate whether these beneficial effects of private conversations with co-workers translate into beneficial recovery experiences in the nonwork domain. All in all, I would like to see more research on how positive experiences at work can foster employees' recovery in the nonwork domain and, in particular, examining positive experiences with co-workers can be a fruitful avenue for future research.

The Role of People in the Nonwork Domain for Employees' Recovery

Recovery researchers could also investigate the role of people in the nonwork domain further. While previous studies mostly focused on experiences with the partner (e.g., Hahn et al., 2012; Y. Park & Haun, 2017), I suggested in Study 3 that it is worthwhile to examine the broader nonwork social environment of employees by including children, parents, and friends as important actors in the nonwork domain. However, future studies should examine these groups of people separately and investigate specific research questions that address the distinct roles of each group. For example, the role of children for employees' recovery was mostly investigated as an additional responsibility because employed parents need to take care of their children during nonwork time (i.e., similar to my idea in Study 3). Previous studies on the role of children either classified child-care duties as a household activity that impairs recovery (Sonnentag, 2001) or examined the presence of children in the household as a moderating variable on the relationship of partner experiences with recovery (Hahn et al., 2014; Hahn & Dormann, 2013), showing, for example, that employees are more strongly

affected by their partners' psychological detachment if there are no children in the household. However, this simplified view on the role of children for employees' recovery may only be part of the story. Researchers could investigate how spending time with children directly relates to employed parents' recovery experiences in the nonwork domain. While spending leisure time with children may be related to impaired control over nonwork time because parents do not have the autonomy to spend their leisure time as they wish, spending time with children could foster psychological detachment from work because parents must focus their attention on their children. Similar to the role of children, employees' parents and friends were only examined as social activities that have the potential to foster recovery (Alameer et al., 2023; Sonnentag, 2001). However, examining these social experiences with parents and friends more closely would be an interesting next step. For example, distracting employees from their work by talking about private topics may benefit employees' recovery experiences, whereas talking about work-related issues could harm employees' recovery experiences (Tremmel et al., 2019).

Zooming in on Supervisors' Own Recovery From Work

Moreover, future studies could further investigate the role of supervisors' own recovery from work (S. Kim et al., 2023; Lanaj et al., 2023; Qin et al., 2018). On the one hand, researchers could investigate whether supervisors' recovery while in the nonwork domain translates into subordinates' positive work outcomes. For example, Kim et al. (2023) found that supervisors engaging in a pleasurable recovery activity in the evening indirectly predicts subordinates' task performance and creative behavior via the crossover of positive affect from supervisor to subordinate. It would be interesting to pursue this line of research and investigate whether supervisors' recovery experiences also predict other subordinate work outcomes such as subordinates' extra-role behavior (e.g., organizational citizenship behavior or proactive behavior). On the other hand, future research could investigate which

antecedents in the work domain predict whether supervisors can recover in the nonwork domain. For example, Qin et al. (2018) found that engaging in abusive supervision during the workday positively predicts supervisors' recovery level after work, whereas this relationship was negative when examining longer periods of time (i.e., one work week). However, there may also be other work-related predictors that have an impact on supervisors' recovery. For example, subordinates' behavior at work could predict supervisors' recovery in the evening (e.g., subordinates' performance, Shen et al., 2021). Moreover, due to supervisors' demanding role at work, supervisors might work under particularly stressful working conditions, giving rise to workaholism tendencies and challenges to set boundaries between work and nonwork (Balducci et al., 2020; Huyghebaert et al., 2018). Studying these challenging working conditions of supervisors in the context of recovery would be a fruitful avenue for future research.

Future Research on Supervisor Behaviors

With respect to the leadership literature, I recommend that researchers investigate specific supervisor behaviors rather than examining broad leadership styles (Fischer et al., 2024). While I attempted to capture supervisor behaviors, I relied on subordinates' subjective perception of their supervisor's behaviors rather than objective measures of those behaviors. Future research could investigate supervisor behaviors with different measurement techniques to overcome shortcomings of self-reports (Antonakis, 2017). One promising approach could be behavioral interaction coding which refers to segmenting naturally occurring interactions between supervisors and subordinates into single units and assigning the behavior of each unit previously defined codes (Güntner et al., 2023). Interaction coding can be used to zoom in on supervisors' concrete behaviors and can, for example, identify which specific, observable behaviors underlie previously studied leadership styles (e.g., servant leadership; Güntner et al., 2023). In a similar vein, Hemshorn de Sanchez et al.

(2022) recommend – based on their comprehensive literature review on behavioral research on leader-follower interactions – the use of more unconventional methods to collect data on interactions by using eye-tracking devices, Bluetooth and infrared technology, or virtual reality. For example, to study non-verbal behavior of supervisors, eye tracking can be used to examine the gaze movement and direction of supervisors as an indicator of social attention (Hemshorn de Sanchez et al., 2022) which could be examined during meetings of supervisors and subordinates. In addition, experimental vignettes could be displayed with virtual reality to increase realistic and immersive experiences (Hemshorn de Sanchez et al., 2022), leading to higher external validity of vignette studies. Because new technologies become more and more accessible to researchers, future research could examine supervisor behaviors with these tools. Taken together, future research could use more objective measures of supervisor behaviors and examine how these behavioral indicators relate to subordinates' recovery from work and well-being.

Practical Implications

My dissertation offers critical practical implications regarding behavioral guidelines for supervisors, strategies for employees to protect their recovery, and approaches how organizations can implement strategies to foster employees' recovery.

Practical Implications for Supervisors

With respect to recommendations for supervisors, I identified several different supervisor behaviors that can foster or harm subordinates' recovery experiences. Importantly, supervisors can foster subordinates' recovery by displaying supportive behaviors during the workday. Specifically, supervisors should consider the work domain and the nonwork domain when supporting their subordinates. Both support regarding subordinates' work role and support regarding nonwork roles can be beneficial for subordinates' recovery in the nonwork domain. With respect to the work role, supervisors could help subordinates with

their work tasks (e.g., answering questions about tasks) or provide emotional support on stressful days. With respect to nonwork roles, supervisors could listen to private problems or support subordinates when subordinates have to tend to private demands during the workday (e.g., signaling support when family members call subordinates during worktime). Moreover, supervisors should avoid showing hostile behaviors such as abusive supervision at all costs because these behaviors can trigger cognitive and affective processes that harm subordinates' recovery.

In addition to these clear recommendations how supervisors should behave while subordinates are in the work domain, supervisors should be aware that their expectations can also trigger recovery-harming processes while subordinates are in the nonwork domain. Thus, supervisors should not expect subordinates to work during nonwork time and could introduce specific guidelines how working during nonwork time should be handled within their team. In addition to general guidelines how working during nonwork time should take place (e.g., avoiding contacting team members during nonwork time), supervisors should discuss this topic with each subordinate separately as preferences to draw boundaries between the work and nonwork domain differ between employees (Kreiner, 2006). It is important to preserve subordinates' autonomy, so subordinates can decide themselves whether they want to pursue work-related tasks during nonwork time without being required to do so due to supervisors' expectations.

Moreover, it is important to note that in my studies the supervisor behaviors were measured subjectively from the subordinates' point of view. It is possible that subordinates perceived hostile behaviors or implicit expectations to work during nonwork time, while the respective supervisor did not intent to show or notice the behavior. Thus, supervisors should generally reflect on their behavior towards their subordinates. Relatedly, supervisors could openly ask for subordinates' feedback on their leadership (e.g., in annually performance

reviews with subordinates) to avoid showing negative behaviors that harm subordinates' nonwork experiences and identify strategies how they could support each subordinate individually.

Practical Implications for Employees

Employees can take measures to protect their recovery. I found that evening recovery experiences in the nonwork domain depend on momentary energetic, cognitive, and affective states. Thus, after demanding workdays employees should try to restore their personal resources. For example, on days with high work demands, employees could foster their energetic resources after work by taking a nap (Wofford et al., 2022). Moreover, employees could actively pursue private activities to restore their energetic resources and focus their cognitive attention on joyful activities (e.g., physical activities; Calderwood et al., 2021; Dodge et al., 2022). In addition, engaging in emotion regulation strategies such as cognitive reappraisal could help to deal with enhanced negative affective states (Gross, 1998, 2008; Schraub et al., 2013). Relatedly, I found that reappraisal can also be induced by co-workers who can buffer adverse effects of negative interpersonal experiences on subordinates' cognitive processes. Therefore, employees should engage in constructive conversations about negative events to help cognitively process the situation. Nevertheless, all these strategies should be considered short-term strategies to protect one's recovery: If work stressors persist over a longer period of time and put a significant strain on employees' personal resources, employees should take measures to reduce work stressors.

In addition, I recommend that employees draw boundaries between the work and nonwork domain when noticing that these boundaries get increasingly blurred. Study 3 provided yet another example that working during nonwork time harms employees' recovery experiences (Kühner et al., 2023). Avoiding working during nonwork time can be a helpful strategy how employees can protect their own recovery. In addition, employees could set

temporal boundaries (e.g., not working after a pre-defined time) and physical boundaries (e.g., not working outside of their home office) to maintain boundaries between the work and nonwork domain and avoid role boundary violations (Haun et al., 2022; Sonnentag & Braun, 2013).

Lastly, employees should be aware that their supervisor's behavior can affect their recovery in the nonwork domain. Thus, subordinates should seek to communicate with their supervisors about their nonwork recovery experiences. To reduce the perception of implicit expectations, employees could ask their supervisor to clarify expectations with respect to how and when to pursue work-related tasks. When subordinates face problems with their supervisor (e.g., due to experienced abusive supervision or supervisors' sustained expectations to work during nonwork time), subordinates could try to talk to their supervisor and give feedback on how supervisors can behave to promote their recovery.

Practical Implications for Organizations

Because organizations should have a strong interest to promote their employees' well-being and productivity, fostering employees' recovery from work should be a core tenet of organizational health strategies. Organizations can achieve this goal by introducing guidelines that benefit recovery as well as implement trainings for supervisors and subordinates. First, organizations could develop specific guidelines addressing the work-nonwork interface. Because employees may increasingly face blurred boundaries (e.g., due to working from home and work-related technological equipment in the nonwork domain that enables employees to work during nonwork time), employees would benefit from measures that help them maintain boundaries between work and nonwork (Barber et al., 2023; Shockley et al., 2021). For example, organizations could introduce guidelines that address availability during nonwork time to clarify expectations (e.g., by defining at what times during the workday employees have to be available and at what times they do not). This

strategy could also entail technological approaches that hinder employees to accidently violate other employees' boundaries (e.g., with the possibility to write e-mails during nonwork time that are then automatically send out during work hours). In addition, organizations can introduce behavioral guidelines for supervisors. This should include zero-tolerance policies regarding abusive supervisory behaviors (Liang et al., 2018; Tepper et al., 2009) as well as guidelines how supervisors can support their subordinates at the work-nonwork interface (e.g., avoiding expectations to work during nonwork time).

Second, organizations could offer trainings for supervisors and subordinates. Both supervisors and subordinates would benefit from specific recovery trainings to promote knowledge about the importance of recovery from work among all employees (Hahn et al., 2011; Karabinski et al., 2021). For supervisors in particular, these recovery trainings could be extended by modules addressing how they can promote recovery among their subordinates. The training could provide information about which behaviors supervisors can display to facilitate recovery among their subordinates (i.e., work and nonwork supportive behaviors; Kossek et al., 2024; Stein et al., 2021) and which behaviors supervisors should avoid (i.e., abusive supervision, Gonzalez-Morales et al., 2018; and expectations to work during nonwork time). In addition, interventions could also target boundary management tactics, to provide strategies for employees how to deal with blurred boundaries on the work-nonwork interface (Reinke & Ohly, 2024).

Conclusion

In my dissertation, I identified several supervisor behaviors that have downstream consequences on subordinates' recovery from work. Thereby, I addressed a critical oversight in the recovery literature that previously neglected the social environment at work and particularly the role of supervisor behaviors for employees' recovery (Sonnentag et al., 2017, 2022). While the leadership literature had long identified supervisor behaviors as important

determinant of subordinates' well-being (Montano et al., 2017), this idea received little attention by recovery scholars. My studies provide compelling evidence that supervisors can both promote (i.e., by providing supervisor work and nonwork support) and hinder (i.e., by showing abusive supervisory behaviors during the workday and expecting subordinates to work during nonwork time) subordinates' recovery experiences. Therefore, supervisor behaviors are important drivers of subordinates' recovery processes and investigating how supervisors treat their subordinates proved highly relevant.

"*If you want to know what a man's like,*
take a good look at how he treats his inferiors,
not his equals."

Sirius Black,
Harry Potter and the Goblet of Fire
(Rowling, 2000, p. 456)

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