



Facilitating Employee Recovery From Work: The Role of Leader-Member-Exchange

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Abstract

Building on Affective Events Theory (AET), this study examined within-person relationships between employee perceptions of day-level leader-member exchange (LMX) and day-level positive affect as well as between positive affect and recovery from work in the evening (i.e., relaxation, mastery, control, and psychological detachment from work). In addition, LMX variability was examined as a moderator of these within-person relationships. Employees ($N=160$) completed surveys at the end of the workday and in the evening across five consecutive workdays. Results indicate direct relationships between perceptions of LMX and employee positive affect at work. In addition, positive affect was positively associated with two of the four recovery experiences (mastery and relaxation). Furthermore, LMX variability across the workweek moderated these positive indirect effects such that the indirect associations between the perceptions of LMX and employees' recovery experiences during the evening via positive affect was only positive when LMX variability was low. The indirect effects, however, were nonsignificant when LMX variability was moderate or high. The present study expands LMX research by adopting a dynamic within-person perspective and by connecting the literature on workplace leadership with the literature on recovery from work, indicating that perceptions of LMX can potentially impact employees' nonwork time.

Keywords Leader-member exchange (LMX) · LMX variability · Recovery from work · Positive affect · Daily diary study

An employee's relationship with their supervisor is considered as one of the most salient and important relationships at work (Thomas et al., 2013). Accordingly, leader-member exchange (LMX) – i.e., the quality of interactions between supervisor and employee (Erdogan & Bauer, 2014) – has been linked to a wide variety

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of positive employee outcomes including higher job satisfaction and increased job performance (Montano et al., 2017). While examining the relevance for employee work-related experiences in depth, it is also important to understand how leadership at work can be associated with employee recovery from work demands during non-work time given its importance for employee well-being and performance (Bennett et al., 2018; Sonnentag & Fritz, 2015, 2018; Steed et al., 2021).

Further, recent research points to the importance of understanding the dynamic aspects of leadership given that leader behavior varies from day to day (Kelemen et al., 2020; McClean et al., 2019; McCormick et al., 2020). Accordingly, our study examines day-level employee perceptions of LMX and their associations with day-level employee outcomes.

We integrate Affective Events Theory (AET; Weiss, 2002; Weiss & Cropanzano, 1996) with corresponding research in the leadership field (e.g., Cropanzano et al., 2017; Volmer, 2012) to connect LMX with recovery experiences and thus extend initial findings on the impact of the supervisor on employee recovery experiences (Bennett et al., 2016). The core of the AET is the description of within-person changes in affective states that are associated in turn with employees' feelings, attitudes, and performance. Adapting AET to the present study, the quality of the perceived LMX relationship can be seen as an affective event that in turn is associated with employees' affective experiences at work. Building on past research that has examined the leadership–well-being relationships (Ellis et al., 2019; Liao & Hui, 2021; see Erdogan & Bauer for a review) we examine day-level employee perceptions of LMX and its impact on employee positive affect. Furthermore, we examine links between day-level positive affect that can facilitate recovery from work during nonwork time in the evening.

In addition to investigating day-level LMX quality, we examine the role of LMX variability across the workweek (i.e., the standard deviation of LMX) as an indicator of the stability of job resources. Research suggests that employees prefer consistent leader behavior (Johnson et al., 2012; Matta et al., 2017; Winkler et al., 2015). Therefore, we examine LMX variability across the workweek as a moderator in the link between LMX and employee outcomes. We propose a moderated mediation model in which LMX variability moderates the indirect effect of day-level LMX on employee recovery from work in the evening via employee positive affect.

Our study adds to the still scarce research examining day-level leadership thereby providing a better understanding of its dynamic properties and resulting relationships with employee outcomes with a specific focus on LMX. By examining the link between LMX and employee recovery from work in the evening, our study broadens the focus of employee outcomes considered pointing to the potential role of leadership in employee experiences during nonwork time. Finding that high levels of LMX at work are beneficial for employees beyond work should encourage employees and organizations even more to improve LMX relationships at work and to facilitate experiences that help mediate the links between LMX and nonwork experiences. By examining employee positive affect as a mediator, our study provides a more nuanced understanding of the mechanisms underlying the within-person relationships between LMX and employee nonwork experiences (i.e., recovery experiences in the evening). Our study also examines the possibility that it might not only be the

absolute level of the perceived LMX-relationship but also its consistency over the course of the workweek that helps facilitates positive employee outcomes. Finally, our study connects two important – but so far mostly separate – domains of research, namely, leadership research and research on recovery from work during nonwork time thereby contributing to the consideration of leadership role in a wider range of employee experiences.

LMX as a Within-Person Phenomenon

According to LMX theory leaders' form relationships of different quality with each of their employees (Dansereau et al., 1975; Graen & Uhl-Bien, 1995). A high-quality relationship encompasses favorable reciprocal exchanges between supervisor and employee (Blau, 1964; Kelley & Thibaut, 1978). High-quality LMX is characterized by trust, liking, positive affect, and respect (Liden & Maslyn, 1998, as cited in Ellis et al., 2019). LMX is one of the most researched leadership constructs (3rd place) over the past decades (Dinh et al., 2014). Meta-analytical research indicates that LMX is associated with numerous positive employee outcomes such as increased performance, higher organizational commitment, increased job satisfaction, and a higher degree of mutual liking (Dulebohn et al., 2012; Gerstner & Day, 1997; Erdogan & Bauer, 2014; Ilies et al., 2007). More recent meta-analytical findings (Montano et al., 2017) also indicate positive relationships between LMX and a variety of indicators of employee mental health outcomes, including reduced burnout and increased well-being. Despite recent criticism of LMX (e.g., Scandura & Meuser, 2022; Sheer, 2015) which might not fully capture the exchange for mutual benefit and reliance but rather close leader–follower relationships, we state that one of the most important – if not *the* most important – factors for work-related outcomes is the relationship between supervisor and employee (Erdogan & Bauer, 2014). We therefore acknowledge the criticism of LMX, yet believe that the perception of the relationship quality deserves particular attention, also in combination with recovery research.

Research on LMX so far has focused on between-person (rather than within-person) relationships with LMX employee outcomes (for exceptions see Ellis et al., 2019; Volmer, 2014 for day-level assessments and Griep et al., 2015 for week-level assessments of LMX). Employee perceptions of LMX can fluctuate over time which indicate that leaders may – for a variety of reasons – not be able to create high-quality interactions in line with high levels of LMX each and every day. This inability as well as factors on the employee side may contribute to varying employee perceptions of LMX from day to day. Therefore, it is important to examine day-level employee perceptions of LMX and their potential relationships with day-level employee outcomes.

Kelemen et al. (2020) suggest that examining *within-person* relationships between leadership can challenge and expand our existing understanding of leadership relations. Within-person studies of leadership also allow the examination of the relevance of consistency of leadership over time. Accordingly, our study contributes

to within-person research on leadership by examining the role of day-level LMX as well variability in LMX across the workweek in employee day-level outcomes.

Day-level LMX and Positive Affect

High-quality exchanges between supervisors and employees – as indicated by high levels of LMX – help build a work environment that is supportive of the employee's needs and values which in turn is associated with increased employee well-being (Ellis et al., 2019). Brummelhuis and Bakker (2012) suggest that receiving support at work increases positive affect. Recent meta-analytical findings on the between-person level indicate that LMX is positively associated with employee well-being (Montano et al., 2017). Therefore, we focus on day-level positive affect as an indicator of individual well-being.

Positive affect can be conceptualized as a trait or a state and includes a range of positive emotions including feeling “enthusiastic, active, and alert” (Watson et al., 1988, p. 1063). The extensive research on positive affect has demonstrated its importance for numerous work-related and nonwork-related outcomes. For example, a recent review by Diener et al. (2020) suggests that through the experience of positive affect, employees can increase state-like constructs (i.e., specific cognitions, behaviors, affect, or changes in physiology) which in turn can help create positive beliefs, creativity, health, and interactions at work.

On the day-level, high levels of LMX are beneficial through the experience of positive social interactions, the reduction of uncertainty, an increase of feeling of belongingness, a sense of justice, or higher self-efficacy (Montano et al., 2017). LMX can be seen as an affective event influencing employees affective experiences (Cropanzano et al., 2017). Thus, we hypothesize that day-level employee perceptions of LMX will be positively associated with day-level positive affect at work.

Hypothesis 1: Day-level perceptions of LMX at work are positively associated with day-level positive affect at work.

Recovery From Work During the Evening

Following the call for more research on antecedents of recovery from work (Bennett et al., 2016; Steed et al., 2021), we examine daily LMX as an antecedent of recovery experiences during the evening. We focus on four recovery experiences during nonwork time, namely psychological detachment, relaxation, mastery, and control. *Psychological detachment from work* has been defined as “the individual sense of being away from the work situation” (Etzion et al., 1998, p. 579). It means not being engaged in work-related activities or thoughts. *Relaxation* refers to a state of low physical and mental activation and increased positive affect (Sonnentag & Fritz, 2007). It can include activities such as meditation, listening to music, or taking a leisurely walk in nature. *Mastery experiences* include engaging in activities that distract from work by providing challenging or learning opportunities outside of

work (Sonnentag & Fritz, 2007, p. 206). Mastery experiences can include learning a new skill, engaging in a hobby, or challenging exercise. Finally, *control* refers to the freedom to decide which activities to pursue during nonwork time (Sonnentag & Fritz, 2007).

Past research indicates the importance of recovery experiences during nonwork time for employee well-being and performance (e.g., Sonnentag & Fritz, 2018; Sonnentag et al., 2017). A recent meta-analysis by Steed et al. (2021) showed that at all four of these recovery experiences were associated with psychological well-being, including increased mental well-being, state positive affect, and life satisfaction as well as reduced state negative affect. Furthermore, recovery experiences were positively associated with job performance. Thus, it is important to understand ways in which employees and organizations can facilitate employee recovery during nonwork time.

Day-level Positive Affect and Recovery Experiences in the Evening

Regarding antecedents of recovery experiences, there is much less research compared to research on the consequences of recovery experiences (cf. Bennett et al., 2016). Following AET, we further investigate how the experience of the relationship with one's supervisor (i.e., LMX), and consequential affective experiences (here: daily positive affect at work) are associated with recovery experience in the evening. While research so far indicates positive affect as an outcome of recovery experiences (e.g., Fritz et al., 2010; Steed et al., 2021), research examining positive affect as antecedent of recovery from work during nonwork time has rarely been examined (see Demsky et al., 2021; Rodríguez-Muñoz et al., 2018 for exceptions).

Building on the feeling-as-information hypothesis (Schwarz, 1990; Schwarz & Clore, 1983, 2003) – which suggests that feelings have an informative function in the judgment of a situation – we posit that the experience of positive affect at work signals to employees that they are doing well at work. As a result, employees are more likely to let go of work-related concerns. Therefore, we expect a positive association between positive affect and psychological detachment.

Furthermore, there is evidence that day-level positive affect is positively associated with relaxation in the evening (Rodríguez-Muñoz et al., 2020). Positive affect signals the availability of psychological resources, which can be invested into experiences and behaviors outside of work such as mastery experiences. According to the broaden-and-build theory (Fredrickson, 2001, 2005), the experience of positive emotions “broaden people's momentary thought-action repertoires” (Fredrickson, 2001, p. 219). This means that people with positive emotions produce manifold thoughts and actions, are more engaged “to play, explore, to savor and integrate, or to envision future achievement” (Fredrickson, p. 220), compared to people with negative or neutral emotions. According to the broaden-and-build theory, this broadened spectrum of action and thoughts in turn builds resources and make people resilient for future drawbacks. Translated to the present study, we expect people with positive affect to engage more in mastery experiences during nonwork time because

their expanded thought-action repertoire motivates them to take on challenges and learn something new.

Likewise, positive affect may also provide employees with a higher sense of control during nonwork time. According to the broaden-and-build theory, employees in a positive emotional state show a more flexible mindset (e.g., Kiken & Fredrickson, 2017) as well as higher level of self-efficacy (Schutte, 2014). Thus, positive affect might also lead to the perception to have more control over how to spend time in the evening.

Taken together, we hypothesize that day-level positive affect at work will be positively associated with recovery experiences during the evening after work.

Hypothesis 2: Day-level positive affect at work is positively associated with day-level recovery experiences in the evening (i.e., psychological detachment, relaxation, mastery, and control).

The Moderating Role of LMX Variability

So far, we have proposed that experienced high-quality LMX as an affective event during the workday will be associated with state positive affect. In turn, positive affect at work resulting from high levels of LMX during the workday will be associated with higher levels of recovery from work during the evening after work. Thus, perceptions of LMX are linked to recovery experiences in the evening via positive affect at work.

The relationship with one's supervisor (here: LMX) can be considered as a proximal cause of employees' affective experiences at work (Weiss & Cropanzano, 1996). In terms of AET, the experience of variation in the LMX-relationship as an environmental factor might interact with the experience of the quality of the LMX relationship as cause for positive affect. A high-quality relationship might not function as a positive event anymore but the experience of variation could attenuate the indirect effects of day-level perceptions of LMX on recovery experiences via day-level positive affect.

In line with this theoretical assumptions, previous research supports the impact of fluctuations in leader behavior for their employees (McClean et al., 2019). For example, employees prefer consistent leader behavior (Johnson et al., 2012 as cited in McClean et al., 2019; Matta et al., 2017, as cited in McClean et al., 2019; Winkler et al., 2015, as cited in McClean et al., 2019). In contrast, when employees' perceptions of LMX vary across the workweek, employees experience a sense of insecurity and ambiguity because they are not sure how much support they can expect from their supervisor on a given day. This instability and unpredictability in support may be perceived as a threat and can therefore reduce the benefits associated with high levels of day-level LMX-relationships. Thus, we suggest that the variability of employee perceptions of LMX across the workweek will reduce the positive relationships between day-level perceptions of LMX and day-level positive affect at work.

Furthermore, we suggest that LMX variability across the workweek will moderate the indirect effects of day-level LMX on recovery experiences in the evening via day-level positive affect at work. Similarly, Ellis et al. (2019) found that the indirect effect of day-level LMX on day-level vigor and exhaustion via experienced belongingness was moderated by LMX variability. Specifically, while the indirect effect was significant and positive under low LMX variability, it turned non-significant under high LMX variability. Building on these findings, we hypothesize that the indirect effect of day-level LMX on recovery experiences in the evening via positive affect will be significant under low and moderate levels of LMX variability and will be non-significant under high levels of LMX variability.

Hypothesis 3: Perceptions of LMX variability moderate the indirect effects of day-level perceptions of LMX on recovery experiences (psychological detachment, relaxation, mastery, and control) via day-level positive affect. The indirect effects will be positive and significant when perceptions of LMX variability are low or moderate and will be non-significant when perceptions of LMX variability are high.

Method

Procedure and Sample

Data were collected pre-pandemic online via an initial general survey as well as daily surveys twice per day (i.e., at the end of the workday, at bedtime) over five consecutive workdays (Monday–Friday). Study participants completed the general survey one week before the start of the daily surveys. Employee perceptions of LMX and employee positive affect were assessed at the end of work, whereas recovery experiences during the evening (i.e., relaxation, mastery experiences, control, and psychological detachment from work) were reported at bedtime.

Our sample consisted of academic staff (i.e., employees working in research under the supervision of a tenured professor). We chose academic staff as a sample because the German higher education system is very competitive and challenges people to manage their careers in an “up or out” and “bottleneck” system (Kreckel, 2017) in which support from supervisors is very important to advance in one’s career. In addition, due to high work demands, recovery from work in the evening is considered of utmost importance for employee well-being and performance capacity.

Overall, 174 employees agreed to participate in our study. From these, 160 filled out the questionnaires, resulting in a response rate of 91.95%. At the day-level, participants answered on average 3.66 surveys, resulting in a sample size of 586 and a response rate of 73.25% on the day-level. On average, participants (58% were women) were 32.39 years old ($SD=6.27$) and had 5.78 years ($SD=5.82$) of research job experience. Most participants held a master’s degree (64%), followed by a Ph.D. (29%), and a habilitation (6%). Participants worked in different

academic fields including social sciences and business (30%), mathematics and natural sciences (29%), engineering (12%), humanities (12%), and law (2%). Fifteen percent of participants reported working in other academic fields.

Measures

Leader-member Exchange (LMX) Day-level LMX was assessed with seven items adapted from Graen and Uhl-Bien (1995) in its German version (Paul & Schyns, 2004) to fit the day-level assessment of LMX. A sample item was “Today, my supervisor understood my problems and needs”. For the respective day, participants indicated their agreement with each statement on a 5-point scale (1 = *not at all*, 5 = *to a very high extent*). Cronbach’s alpha ranged from 0.83 to 0.95 over the five days (mean $\alpha = 0.91$). In addition to calculating means for day-level employee perceptions of LMX quality, we computed a standard deviation score for each participant based on their daily reports of LMX quality, representing the *variability of LMX* perceptions across the workweek, following the procedure used by Ellis et al. (2019).

Positive Affect Following Sonnentag et al.’s (2008) approach, we assessed day-level positive affect with six items from the Positive and Negative Affect Scale (PANAS; Watson et al., 1988). Using five-point Likert scales (1 = *not at all*, 5 = *entirely*), employees rated the intensity of their momentary affective experience described by adjectives such as “active”, “interested”, and “excited”. Cronbach’s alpha ranged from 0.82 to 0.87 over the five days (mean $\alpha = 0.84$).

Recovery Experiences We measured recovery experiences during the evening after work (i.e., psychological detachment, relaxation, mastery, and control) at bedtime using the recovery experience questionnaire developed by Sonnentag and Fritz (2007). Sample items were “Today after work, I forgot about work” for psychological detachment, (four items; Cronbach’s alpha ranged from 0.88 to 0.95 over the five days; mean $\alpha = 0.92$), “Today after work, I used the time to relax” for relaxation (four items; Cronbach’s alpha ranged from 0.89 to 0.91 over the five days; mean $\alpha = 0.90$), “Today after work, I did things that challenged me” for mastery; (four items; Cronbach’s alpha ranged from 0.87 to 0.92 over the five days; mean $\alpha = 0.89$), and “Today after work, I decided my own schedule” for control (three items; Cronbach’s alpha ranged from 0.89 to 0.93 over the five days; mean $\alpha = 0.91$). Participants responded using 5-point Likert scales (1 = *fully disagree*, 5 = *fully agree*).

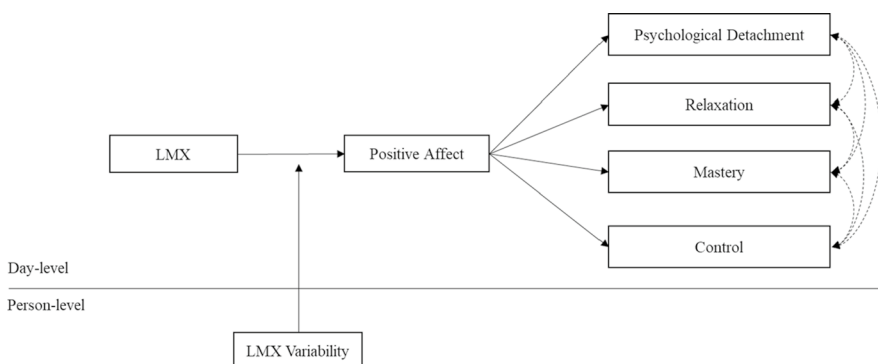
To examine the distinctiveness of the four recovery experiences, we conducted confirmatory factor analyses (CFA) for the five days. Results showed an acceptable to good fit for each day (Day 1: $\chi^2 = 145.635$, $df = 84$, CFI = 0.941, RMSEA = 0.079, SRMR = 0.056; Day 2: $\chi^2 = 144.108$, $df = 84$, CFI = 0.948, RMSEA = 0.078, SRMR = 0.050; Day 3: $\chi^2 = 123.835$, $df = 84$, CFI = 0.959, RMSEA = 0.067, SRMR = 0.056; Day 4: $\chi^2 = 108.363$, $df = 84$, CFI = 0.971, RMSEA = 0.056, SRMR = 0.056; Day 5: $\chi^2 = 103.196$, $df = 84$, CFI = 0.978, RMSEA = 0.052, SRMR = 0.048).

Control Variables We controlled for the effects of several variables (i.e., age, gender (1 = men, 2 = female), and job tenure (years in academia) that are theoretically linked to the relationships of interest (Berneth & Aguinis, 2016; Berneth et al., 2018). Based on previous research on antecedents of recovery experiences (e.g., Bennett et al., 2018; Chawla et al., 2020; Sonnentag et al., 2022), we included time pressure as a control variable. We measured time pressure with a four-item scale developed by Semmer (1984) and Zapf (1993). A sample item was “I work faster than usual to get my work done”. Cronbach’s alpha was 0.80. Beside these person-level controls, which were assessed in the baseline survey, we also controlled for the day of the week at the day-level.

Results

Statistical Analysis

Due to the nature of our data (i.e., days nested within persons), we tested our hypotheses with multilevel modelling using Mplus version 8.4 (Muthén & Muthén, 1998–2017). First, we specified a within-person model (i.e., at the day level), to test the relationships between daily LMX and daily positive affect (H1) as well as between daily positive affect and daily recovery experiences (H2). Second, to test the cross-level effect of LMX variability, we applied a random slope model examining LMX variability as a person-level moderator (moderated mediation; H3; cf. Fig. 1). Specifically, we calculated the indirect effects of daily LMX on psychological detachment, relaxation, mastery, and control via positive affect for different levels of LMX variability (i.e., high, medium, and low variability). We applied maximum likelihood estimation with robust standard errors (MLR) and full-information



Note. LMX = leader-member exchange; we controlled for gender, age, job tenure, and time pressure at the person-level as well as for the day of the week at the day-level.

Fig. 1 Conceptual Model of the Within-Person Relationship of LMX at work, Positive Affect, and Recovery Experiences in the evening as well as the Cross-Level Moderation

maximum likelihood (FIML). Person-level predictor variables were centered around the sample mean, and day-level predictor variables were centered around the respective person mean. We controlled for the day of the week as well as age, gender, tenure, and time pressure. To test the appropriateness of multilevel modelling, we calculated intraclass correlations based on within-person and between-person variance in a null model. The intraclass correlation coefficients (ICCs) ranged between 0.33 (mastery) and 0.47 (positive affect). Accordingly, between 33 and 47% of the variance could be explained by person level differences. Means, standard deviations, intercorrelations, and intraclass correlation coefficients are presented in Table 1. Results of the hypothesis testing are presented in Table 2.

Hypotheses Testing

To examine the relationships between within-person variables, we specified a day-level path model with positive affect regressed on LMX and with recovery from work (i.e., psychological detachment, relaxation, mastery, and control) regressed on positive affect. The model showed a good fit, $\chi^2(4) = 1.91$, $p = 0.75$; comparative fit index (CFI) = 1.00; root-mean-square error of approximation (RMSEA) < 0.001; standardized root-mean-square residual (SRMR_{within} = 0.011, SRMR_{between} = 0.002). As anticipated, higher employee perceptions of LMX quality on a given day were positively associated with employee positive affect on that day, $b = 0.13$, $SE = 0.03$, $p < 0.001$, 95% CI [0.067, 0.182], supporting Hypothesis 1.

Results also confirm the positive associations between positive affect and employee recovery experiences at bedtime, namely relaxation, $b = 0.18$, $SE = 0.09$, $p = 0.04$, 95% CI [0.006, 0.356], and mastery, $b = 0.21$, $SE = 0.08$, $p = 0.01$, 95% CI [0.050, 0.372]. Contrary to our expectations, we found neither a relationship between positive affect and control, $b = -0.003$, $SE = 0.10$, $p = 0.98$, 95% CI [-0.189, 0.184], nor between positive affect and psychological detachment from work, $b = 0.12$, $SE = 0.10$, $p = 0.24$, 95% CI [-0.076, 0.310]. Thus, Hypothesis 2 was partially supported.

To test the moderated mediation model, we examined the cross-level effects of LMX variability (Ellis et al., 2019) on the LMX-positive affect association. Comparing the Akaike's Information Criterion (AIC) and Bayesian Information Criterion (BIC) for Model 1 (i.e., day-level model; AIC = 5615.70; BIC = 5874.12) and Model 2 (i.e., model including the cross-level effect of LMX variability; AIC = 5444.08; BIC = 5717.38), indicated that Model 2 is the more appropriate model. Specifically, LMX variability moderated the relationship between day-level LMX and positive affect, $b = -0.17$, $SE = 0.07$, $p = 0.01$, 95% CI [-0.308, -0.037]. We present the plot of this interaction in Fig. 2. When LMX variability was high (i.e., sample mean + 1 SD), LMX and positive affect were not significantly related at the within-person level (simple slope = -0.01, $p = 0.88$). However, under low LMX variability (sample mean - 1 SD) or medium levels of LMX variability (i.e., sample mean) the relationship between day-level LMX and positive affect was significant and positive (simple slopes = 0.18; $p < 0.001$ and 0.06; $p = 0.04$, respectively). Further, we found indirect effects of day-level LMX on mastery, $b = 0.04$, $SE = 0.02$, $p = 0.03$, 95% CI [0.004,

Table 1 Descriptive Statistics and Correlations for all Study Variables

Variable	M	SD	ICC	1	2	3	4	5	6	8	9	10	11
1. LMX	2.39	1.16	0.43	–	0.18	-0.15	-0.03	0.10	0.05	0.03	0.02	0.10	0.02
2. PA	2.80	0.80	0.47	0.17***	–	-0.07	0.08	0.38**	0.19	0.03	-0.01	0.05	-0.02
3. Psychological detachment	2.98	1.16	0.40	-0.05	0.05	–	0.71***	0.07	0.26†	0.03	-0.13	-0.05	-0.42***
4. Relaxation	2.99	1.12	0.43	0.02	0.14**	0.61***	–	0.41***	0.38**	0.04	-0.17†	0.02	-0.32***
5. Mastery	2.36	1.10	0.34	0.06	0.24***	0.08†	.15***	–	0.14	-0.12	-0.01	-0.15	-0.11
6. Control	3.69	1.08	0.39	0.08	0.22***	0.43***	0.48***	0.40***	–	-0.12	0.09	-0.04	-0.23*
7. Day	–	–	–	-0.03	-0.01	-0.06	-0.05	-0.04	-0.03	–	–	–	–
8. Age	32.39	6.25	–	–	–	–	–	–	–	–	-0.11	0.85***	-0.04
9. Gender	–	–	–	–	–	–	–	–	–	–	–	-0.08	0.01
10. Job tenure	5.78	5.80	–	–	–	–	–	–	–	–	–	–	-0.00
11. Time pressure	2.84	0.89	–	–	–	–	–	–	–	–	–	–	–

Within-level (i.e., day-level; N = 405–586) correlations are depicted below the diagonal and between-level (i.e., person-level; N = 160) correlations are depicted above the diagonal. Gender coded as 1 = male and 2 = female

LMX leader-member exchange

PA positive affect

Day Day of the week

ICC intraclass correlation coefficient

† $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

Table 2 Day-level and Person-level Results of the Association of Leader-member exchange and Recovery Experiences (Model 1)

Predictor	Mediator		Outcomes							
	PA		Psychological Detachment				Relaxation		Mastery	
	<i>b</i> (SE)	95% CI	<i>b</i> (SE)	95% CI	<i>b</i> (SE)	95% CI	<i>b</i> (SE)	95% CI	<i>b</i> (SE)	95% CI
Day-level effects										
LMX	0.13*** (0.03)	[0.067, 0.182]								
PA			0.12 (0.10)	[-0.076, 0.310]	0.18* (0.09)	[0.006, 0.356]	0.21* (0.08)	[0.050, 0.372]	-0.00 (0.10)	[-0.189, 0.184]
Day	0.01 (0.02)	[-0.035, 0.050]	0.11** (0.04)	[0.037, 0.186]	0.08* (0.04)	[0.004, 0.155]	-0.03 (0.04)	[-0.103, 0.037]	-0.01 (0.04)	[-0.090, 0.075]
Person-level effects										
Age	-0.01 (0.02)	[-0.048, 0.020]	0.02 (0.02)	[-0.027, 0.061]	0.00 (0.02)	[-0.043, 0.051]	0.02 (0.02)	[-0.026, 0.058]	-0.04* (0.02)	[-0.080, 0.000]
Gender	-0.02 (0.11)	[-0.240, 0.203]	-0.18 (0.15)	[-0.465, 0.110]	-0.26† (0.15)	[-0.555, 0.028]	-0.06 (0.15)	[-0.347, 0.220]	0.07 (0.15)	[-0.216, 0.353]
Job tenure	0.02 (0.02)	[-0.018, 0.052]	-0.02 (0.03)	[-0.067, 0.033]	-0.01 (0.03)	[-0.064, 0.041]	-0.03 (0.03)	[-0.075, 0.019]	0.03 (0.03)	[-0.016, 0.079]
Time pressure	-0.01 (0.06)	[-0.131, 0.107]	-0.33*** (0.08)	[-0.479, -0.181]	-0.25*** (0.08)	[-0.393, -0.098]	-0.05 (0.08)	[-0.203, 0.112]	-0.15* (0.07)	[-0.288, -0.002]

Age, gender, job tenure, time pressure (person-level) and the day of the week (day-level) were included as control variables

CI confidence interval. Estimates are unstandardised

LMX leader-member exchange

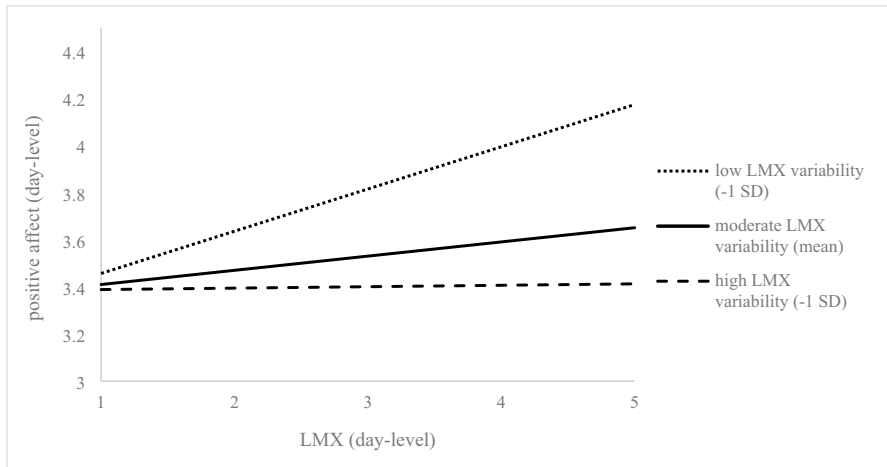
PA Positive affect

† $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$



Note. LMX = leader-member exchange

Fig. 2 LMX Variability as a Moderator of the Within-Person Relationship Between Day-Level LMX and Day-Level Positive Affect

0.071], and a marginal significant indirect effect on relaxation, $b=0.03$, $SE=0.02$, $p=0.09$, 90% CI [0.001, 0.062], via positive affect for individuals with low LMX variability, but not for individuals with high or medium LMX variability. No moderated indirect effect was found for LMX on psychological detachment and on control via positive affect. Results are presented in Table 3. Taken together, our findings partially support Hypothesis 3.

Discussion

Summary of Results and Theoretical Contributions

Our study shows that employee perceptions of the supervisor-subordinate relationship were linked not only to positive affect at the end of the work but also to employee experiences outside of work. In line with AET theory, we proposed that day-level LMX as an affective event is associated with employees' state affect. Our results support this hypothesis suggesting that day-level LMX facilitates employee well-being in form of positive affect. AET provides a highly useful framework for our study as Weiss and Cropanzano (1996) emphasize in their work that “people react to the events of their work lives” (p. 66) and that the association between affective events and subsequent immediate states is not stable but fluctuates over time. In line with AET we hypothesized that employees' experience of the daily LMX relationships represents an affective event which is positively related with their positive affect. In line with AET theory we also hypothesized that positive affect would facilitate the engagement in experiences during nonwork time. Furthermore, we suggested that – in line with the feeling-as-information hypothesis (Schwarz, 1990;

Table 3 Day-level, Person-level, Cross-level, and Indirect Results of the Association of Leader-member exchange and Recovery Experiences (Model 2)

Predictor	Mediator		Outcomes					
	PA		Psychological Detachment		Relaxation		Mastery	
	<i>b</i> (SE)	95% CI	<i>b</i> (SE)	95% CI	<i>b</i> (SE)	95% CI	<i>b</i> (SE)	95% CI
Day-level effects								
LMX	0.21*** (0.06)	[0.105, 0.323]						
PA			0.10 (0.10)	[-0.102, 0.302]	0.16 [†] (0.09)	[-0.008, 0.358]	0.21* (0.09)	[0.038, 0.381]
Day	0.00 (0.02)	[-0.039, 0.045]	0.11** (0.04)	[0.030, 0.180]	0.08* (0.04)	[0.001, 0.152]	0.03 (0.04)	[-0.099, 0.043]
Person-level effects								
LMX Var	0.11 (0.10)	[-0.087, 0.301]						
Age	-0.02 (0.02)	[-0.051, 0.017]	0.02 (0.02)	[-0.024, 0.063]	0.00 (0.03)	[-0.045, 0.050]	0.02 (0.02)	[-0.025, 0.059]
Gender	-0.00 (0.12)	[-0.240, 0.233]	-0.15 (0.15)	[-0.442, 0.136]	-0.24 (0.15)	[-0.539, 0.054]	-0.02 (0.15)	[-0.308, 0.279]
Job tenure	0.02 (0.02)	[-0.019, 0.054]	-0.02 (0.03)	[-0.069, 0.034]	-0.01 (0.03)	[-0.059, 0.046]	-0.03 (0.03)	[-0.081, 0.016]
Time pressure	0.00 (0.06)	[-0.117, 0.125]	-0.31*** (0.08)	[-0.459, -0.162]				
	-0.22** (0.08)	[-0.371, -0.076]						
	-0.04 (0.08)	[-0.195, 0.126]	-0.16* (0.08)	[-0.304, -0.010]				
Cross-level moderation								
LMX Var	-0.17* (0.07)	[-0.308, -0.037]						
Indirect effects of LMX via PA on recovery experiences depending on LMX variation								
Low LMX Var	0.02 (0.02)	[-0.018, 0.054]	0.03 [†] (0.02)	[-0.005, 0.067]	0.04* (0.02)	[0.004, 0.071]	-0.00 (0.02)	[-0.036, 0.034]

Table 3 (continued)

Predictor	Mediator		Outcomes					
	PA		Psychological Detachment		Relaxation		Mastery	
	<i>b</i> (SE)	95% CI	<i>b</i> (SE)	95% CI	<i>b</i> (SE)	95% CI	<i>b</i> (SE)	95% CI
Medium LMX		0.01 (0.01)	[-0.008, 0.020]	0.01 (0.01)	[-0.003, 0.025]	0.01 (0.01)	[-0.003, 0.029]	[-0.012, 0.012]
Var								
High LMX Var		0.00 (0.00)	[-0.008, 0.009]	0.00 (0.01)	[-0.014, 0.016]	0.00 (0.00)	[-0.016, 0.019]	[-0.001, 0.001]

Age, gender, job tenure, time pressure (person-level) and the day of the week (day-level) were included as control variables

CI confidence interval. Estimates are unstandardised

LMX leader-member exchange

LMX Var LMX variation

PA Positive affect

* $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

Schwarz & Clore, 1983, 2003) as well as earlier findings on the association between positive affect and recovery experiences (Demskey et al., 2021; Rodríguez-Muñoz et al., 2018) – positive affect at work indicates that things are going well at work and that therefore employees do not need to stay mentally involved with work during nonwork time and instead can actively engage in nonwork experiences. The study's results support our hypothesis for two of the four recovery experiences we captured in our study. Specifically, positive affect at work measured at the end of the workday seems to make it easier for employees to create experiences in the evening after work that are relaxing and provide a sense of mastery. We found, however, that positive affect at work was not associated with psychological detachment in the evening. This finding, while maybe initially disappointing and not in line with our hypotheses, may indicate that positive affect (which was captured as a form of positive emotional arousal in our study) can facilitate psychological detachment from work. At other times, however, these feelings of high arousal (while positive) may make it more difficult for employees to mentally disengage from work during the evening. In addition, results did not show a significant relationship between positive affect and control during nonwork time. Thus, positive affect at work does not seem to facilitate employees' sense of control outside of work. Instead, control during nonwork time may be facilitated by situational factors such as social support (e.g., spousal support for recovery, Park & Fritz, 2015). Time pressure as a person-level variable was negatively associated with the three recovery experiences psychological detachment, relaxation, and control. These findings corresponds to theory from Sonnentag and Fritz (2007) who state that a high level of activation corresponds with impaired recovery.

We further suggested that employees prefer consistent leader behavior (Johnson et al., 2012 as cited in McClean et al., 2019; Matta et al., 2017, as cited in McClean et al., 2019; Winkler et al., 2015, as cited in McClean et al., 2019). As a result, high variability in LMX across the workweek would diminish the positive relationships between day-level LMX and positive day-level employee outcomes because employees may not be able to predict what kind of support to expect from their supervisors each day. Results show that LMX variability (i.e., the standard deviation of LMX across the workweek) moderated the predicted indirect effects for two of the four recovery experiences (relaxation, mastery). Specifically, the indirect effects were significant and positive when LMX variability was low or moderate but were not significant when LMX variability was high. These findings point to the importance of the stability of LMX perceptions.

Our study further expands leadership theory to the context of day-level LMX pointing to short-term processes of leadership. In addition, by examining LMX variability across the workweek we point to the relevance of fluctuations in perceived leadership behavior for employee outcomes. By examining day-level LMX together with person-level LMX variability our study applies a multi-level approach to leadership that helps better understand the interaction between day-level processes and general behaviors. Our findings support central assumptions of AET (Weiss & Cropanzano, 1996) by showing that interactions with one's supervisors can be considered as proximal causes of affective states which in turn have consequences for employees' lives. Going beyond the core assumptions outlined in AET, our findings

show that work events can also spill over into employees' private lives. Having a high-quality and stable LMX relationship enables employees to relax and engage in challenging tasks after work.

Limitations and Suggestions for Future Research

The findings of our study should be interpreted in the context of its limitations. For example, our sample – German university staff – may raise questions about the generalizability of our findings. Our sample included non-tenured academics in the German system of higher education that is very competitive, associated with a lack of career security and a pressure for creativity (Kreckel, 2017). Support from significant others in academia is of special importance for career success (Spurk et al., 2015). While our data does not indicate that our sample differs from others regarding the means for and correlations between key study variables of our study (i.e., LMX, positive affect, and recovery experiences), findings should be replicated with samples from other industries (e.g., blue-collar work) and other cultural contexts. Especially, given that day-level LMX and variability in LMX has not been widely studied regarding employee outcomes yet, it would be important to examine their role in a variety of contexts.

Another limitation of our study is the use of self-reports for all study variables which may create concerns about common method bias (Podsakoff et al., 2003). To alleviate such concerns, we created temporal separation between the independent and the dependent variables and assessed study variables in their natural context and close in time to the actual experience (i.e., LMX perceptions and positive affect during the workday and recovery experiences in the evening after work) as suggested by Kelemen et al. (2020). Given that we were interested in capturing the subjective experience of employees with regard to the key study variables, we believe that the use of self-reports was appropriate. Nevertheless, future research should complement our research and help further reduce concerns related to common method bias by including supervisor as well as employee perceptions of LMX. Considering aspects of LMX (dis)agreement would be a promising area for future research (Epitropaki et al., 2020). Given the so far limited amount of research examining outcomes of day-level LMX and its variability across the workweek and our study being the first to examine links between day-level LMX and recovery experiences in the evening, our study may serve as a stepping stone for future research on LMX and employee experiences outside of work. To allow for causal inferences, experimental research including scenarios of LMX variability could complement our research, although the manipulation of LMX in an experiment has been described as challenging (Gottfredson et al., 2020).

While our study provides important contributions to a better understanding of short-term-processes of and fluctuations in leadership, future research should explore the ebb and flow of leadership in more depth (McCormick et al., 2020). For example, it would be beneficial to better understand the antecedents and consequences of fluctuations in leadership behavior over longer periods of time (e.g., weeks or months). Given that our study indicates that high variability in LMX over

one workweek is detrimental to employee outcomes, it is important to understand if the same detriments occur when considering longer time periods. Furthermore, it would be beneficial to explore work-related or personal factors that could alleviate such detrimental effects.

Regarding LMX as our core construct for measuring the supervisor-subordinate relationship in the present study, one has to mention that there has been substantial criticism recently (e.g., Scandura & Meuser, 2022; Sheer, 2015). The LMX-construct has been criticized for being ill defined and having non-sufficient theoretical foundation. Notwithstanding these issues, we believe that LMX can capture the overall relationship quality between supervisors and employees and indicate an affective event for employees as intended in our study. Future research should pay particular attention for instance to a more recently developed supervisor support for recovery (SSR) scale (Bennett et al., 2016) to better capture specific support of employee recovery during time outside of work. In addition, researchers should use more nuanced scales to capture the exchange for mutual benefit and reliance to differentiate LMX from general supervisor support.

We also encourage future research to take ingroup vs. outgroup perceptions into account. In the present study, we do not have team data, which would give us information about LMX configurations (e.g., Buengeler et al., 2021; Estel et al., 2019; Seo et al., 2018), and qualitative differences based on ingroups vs. outgroup status.

We focused in the present study on the relationship quality between leaders and supervisors and incorporated time pressure (as a demand) in our research model. We measured time pressure however at the trait-level and would encourage researchers to include other demands as well in future research (e.g., role ambiguity as a hindrance stressor, cf. Bennett et al., 2016).

Practical Implications

Organizations have the power to design workplaces and to build a culture that supports employee well-being and work-nonwork balance. With that in mind, organizations should be aware of the importance of supervisor-employee relationship quality. Our study adds to past research that shows between-person relationships between LMX and a range of positive employee outcomes (Dulebohn et al., 2012; Montano et al., 2017) by showing links between day-level perceptions of LMX and positive affect as well as recovery experiences during nonwork time. Therefore, supervisors should be aware that the way in which they interact with and show support for their employees on a given workday can impact employees' affective experience at work as well as their experiences outside of work that day. Positive leader-member relationships are reciprocal in nature. Thus, also employees should be trained in fostering rewarding relationships with their supervisor(s). In addition, supervisors should be aware that the consistency of LMX across day is crucial for these positive processes to unfold on a workday. Therefore, organizations should support supervisors in building high levels of LMX with their employees (e.g., through supervisor training) and in maintaining this LMX-quality consistently over time.

Conclusion

To date, leadership and recovery research have rarely been linked with each other. Our findings illustrate the dynamic nature of leader-member exchange relationships at work as affective events that impact employees' affective experiences at work and non-work experiences in the evening. Moreover, consistency of LMX played a moderating role in the leadership-affect association, indicating that low variability is beneficial for employees' affective experiences at work that in turn are associated with their non-work experiences.

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Declarations

Competing Interests The authors have no relevant financial or non-financial interests to disclose.

On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethics Approval The study was conducted in alignment with APA ethical standards. Given that in Germany universities have no IRB committees, no official approval was required.

Consent to Participate Informed consent was obtained from all individual participants included in the study.

Consent to Publish The manuscript does not contain any individual's person data in any form.

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