Leader-member exchange as a moderator of the job characteristics – well-being relationship: A daily diary study considering same day and next day effects

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Abstract

Job characteristics play an essential role for the well-being of employees. Especially in situations when job characteristics cannot be changed, leader behavior becomes relevant in order to weaken negative consequences. In a daily diary study over ten consecutive working days with 112 scientific employees, it was assumed that leader-member exchange (LMX) attenuates the negative consequences of low job control and high time pressure on well-being (job satisfaction and emotional exhaustion). Additionally, it was assumed that the relationships of job characteristics, well-being and LMX cannot only be found within one day but also delayed on the next day. Findings from hierarchical linear modeling (HLM) demonstrated that on the day-level higher perceived levels of job control in the morning were associated with higher perceived job satisfaction and lower perceived emotional exhaustion in the afternoon. High perceived day-level time pressure in the morning was negatively related to perceived day-level afternoon job satisfaction and positively to perceived day-level afternoon emotional exhaustion. Within one day, perceived LMX moderated the relationship between perceived job control and perceived job satisfaction. There was no evidence for the hypothesized lagged effects on the next day. Theoretical and practical implications of the findings as well as strengths and limitations of the study will be discussed.

Keywords: job characteristics; well-being; leader-member exchange; conservation of resources theory; lagged effects

1 Introduction

Employees are the central component of an organization. Having energetic and satisfied employees is beneficial for organizations in several ways. Research showed that job satisfaction is positively connected to job performance and productivity (Alessandri et al., 2017; Judge et al., 2001; Wright & Cropanzano, 2000), as well as to organizational commitment (Mathieu et al., 2016) and negatively to turnover intentions (Tett & Meyer, 1993; Wright & Bonett, 2007) or (albeit the association was only small) to absenteeism (Hackett & Guion, 1985). Looking at emotional exhaustion as one of the three main symptoms of burnout, this variable is considered an indicator of impaired well-being (Bakker & Oerlemans, 2012). Besides the negative effect on employees´ well-being, exhaustion also comes along with disadvantages for the organization, for example reduced organizational commitment, increased absenteeism (Lee & Ashforth, 1996) or lower other-rated job performance (Leiter et al., 1998).

Research has shown that job characteristics have an impact on outcomes of well-being (e.g. Crawford et al., 2010). Ideally, the organization or the employees themselves should adapt job characteristics in a way that produces positive outcomes, i.e. high levels of well-being of the employees. Not only are the general characteristics of a job important but also the characteristics of the everyday tasks that are assigned to the employees. Therefore, the present study attempts to investigate the relationship of daily job characteristics (time pressure and job control) on daily outcomes of well-being (job satisfaction and emotional exhaustion). Time pressure is defined as “a situation in which the amount of work to be done exceeds the amount of time available for task accomplishment” (Fay & Sonnentag, 2002, p. 225). Job control is understood as a job resource and describes the range of freedom a person has when carrying out a task. According to Ulich (2011) job control refers to the possibility to decide on how to solve a task (e.g. time structuring or choice of tools and approaches), the amount of variability one has and the degree to which a person is allowed to make own decisions on which tasks to work on. One relevant outcome in the present study is job satisfaction which functions as a positive indicator of job-related well-being (Bakker & Oerlemans, 2012). Locke (1969) defines job satisfaction as “the pleasurable emotional state resulting from the appraisal of one's job as achieving or facilitating the achievement of one's job values” (Locke, 1969, p. 316). Following Spector (1997), job satisfaction can be described as both a more general feeling about one´s job as well as a set of attitudes about specific aspects of a job. Such facets can for example be salary, job security, job conditions, coworkers or appreciation. The second relevant outcome in the present study is emotional exhaustion. Following Bakker and Oerlemans (2012), emotional exhaustion is understood as an indicator of unwell-being, i.e. a negative indicator of well-being. Besides depersonalization and reduced personal

accomplishment, emotional exhaustion is one of the three core components of burnout (Maslach & Zimbardo, 2003) and refers to a chronic state of being physically and emotionally depleted by one´s job demands (Shirom, 1989). According to Demerouti et al. (2001) "emotional exhaustion closely resembles traditional stress reactions that are studied in occupational stress research, such as fatigue, job-related depression, psychosomatic complaints, and anxiety" (p. 449).

As described above, jobs should always be designed in a way that is beneficial for employees. However, depending on the work setting, a beneficial work design is often not possible or only to a certain degree. In cases like that it is the supervisor´s task to ensure that unfavorable job characteristics (e.g. high time pressure or low job control) do not have a negative impact on employees´ well-being. Limiting the negative impact of stressful job characteristics can for example be reached by making sense of the situation or by showing acknowledgement of the current unfavorable work situation. In work settings or situations in which a change of job characteristics is not possible the leader might play an important role in buffering the negative consequences of job stressors on employees´ well-being by establishing good relationships with followers and by ensuring a reciprocal exchange with them. Therefore, this study sets a focus on investigating the influence of the quality of the relationship between leaders and followers (leader-member exchange, LMX) on the job characteristics – well-being link. Leader-member exchange refers to the quality of the relationship between the supervisor and the follower. In contrast to other leadership constructs, LMX does not only focus on the supervisor but especially on the dyadic relationship between supervisor and follower (Graen & Uhl-Bien, 1995) and has its roots in role-theory (Graen & Scandura, 1987) and social-exchange theory (cf. Dulebohn et al., 2012). There are different conceptualizations of LMX. On the one hand, LMX has been understood as a one-dimensional approach focusing on trust, respect and mutual obligation (Graen & Uhl-Bien, 1985). However, other researchers see LMX as a multi-dimensional construct (Liden & Maslyn, 1998) comprising the four dimensions *contribution*, i.e. the "perception of the current level of work-oriented activity each member puts forth toward the mutual goal" (Liden & Maslyn, 1998, p. 50), *loyalty*, defined as "the expression of public support for the goals and the personal character of the other member of the LMX dyad" (Liden & Maslyn, 1998, p. 50) , *affect,* i.e. "the mutual affection members of the dyad have for each other" (Liden & Maslyn, 1998, p. 50) and *professional respect*, described as the "perception of the degree to which each member of the dyad has built a reputation […] of excelling at his or her line of work" (Liden & Maslyn, 1998, p. 50).

In conclusion, the present study aims at answering three main questions. First, do day-level job characteristics have an effect on day-level well-being? Second, does day-level LMX moderate the relationship between job characteristics and well-being? And last, are the direct and moderating effects limited to one day only or can lagged effects on the next day be observed?

The present study contributes to the literature on leadership, job characteristics and well-being in at least three important ways: First, this study focuses on a daily perspective of the assumed relationships. Indeed, the relationship between job stressors or job characteristics and (work-related) well-being has been profoundly studied (Humphrey et al., 2007; Loher et al., 1985; Parker, 2014; Spector, 1986). Nevertheless, a high amount of research in this field was conducted by using between-person designs. It is only in recent research history that the importance of day-level within-person studies gets more attention. Spector and Pindek (2016) analyzed that around 10 % of the studies in work and occupational health psychology between 2010 and 2014 have been diary studies. This is already a starting point and a step towards the right direction. Nevertheless, more day-level research is needed for several reasons. Pindek et al. (2019) for example demonstrated in their meta-analysis that the strength of the stressor-strain relationship on the within-person level differed significantly from the between-person level. Therefore, they concluded that it makes a difference if stressful work situations are understood as stable or episodic. This goes in line with Chen et al. (2005) who argued that findings of between-person studies should not be taken for granted when conducting studies on within-person relationships. Instead of a cross-sectional design, the present study is applying a daily diary method that allows drawing conclusions about within-person effects. Looking at within-person effects is especially important considering a recent study showing that about half of the observed variance of certain variables in applied psychology can be attributed to within-person effects (N. P. Podsakoff et al., 2019). Additionally, concepts such as well-being are thought to fluctuate over time (Sonnentag, 2015) and the within-person variability is predictable through the measurement of events (Weiss et al., 1999). That is why well-being should not solely be considered as a stable variable. The present study therefore treats well-being as a fluctuating variable and aims at explaining why one person reports more well-being on one day than on the other day. A within-person approach can be adequate to clarify for example “why people who generally experience positive emotions on the job are sometimes having a bad day” (Ilies et al., 2015, p. 828) or to better understand day-level predictors of changes in well-being (Ilies et al., 2015). Hence, it is a possibility to find more fitting explanations for employees´ day-to-day functioning at work (Xanthopoulou, Bakker, & Ilies, 2012) and to find out optimal time frames for interventions (Pindek et al., 2019). It is important to study LMX on a daily basis as well, as relationships play a central role in the LMX concept (Graen & Uhl-Bien, 1995) and relationships go through

different phases (Kram, 1988) and need constant care (Waldron, 1991). Therefore, it is conceivable that LMX is susceptible to a certain degree of variation. A study by Ellis et al. (2019) who demonstrated that daily perceptions of LMX quality were associated with day-level well-being as well as research on variability in other leadership concepts support this assumption (Breevaart et al., 2014).

Second, most existing research so far has concentrated on LMX as a predictor of e.g. job attitudes, workplace behaviors or well-being or antecedents of LMX, such as personality, leader and member behaviors or dyad characteristics. Thus, in most cases only the direct effects of LMX have been tested (a summary is provided e.g. in Erdogan & Bauer, 2014). Only very little research has investigated the moderating influence of LMX (e.g. Zhang et al., 2019). Considering moderator variables can help to understand the effects of certain variables better and to clarify under which conditions the strength of a relationship changes. As the moderating effect of LMX on the job characteristics – well-being relationship has only scarcely been investigated so far, this study follows a call by Sonnentag and Pundt (2016). They encouraged researchers to test the buffering role of LMX on the job characteristics – well-being link and the conceptualization of a high-quality relationship between a leader and a follower as an important job resource that might attenuate the negative effects of job stressors on well-being.

Third, the present study extends previous research on the within-person job stressor – well-being relationship (e.g. Rudolph et al., 2016) by investigating not only the effects of stressors on well-being within one day but furthermore by clarifying if these effects transfer onto the next day. Thereby, conclusions about the stability of affective (job satisfaction) or cognitive and physical (emotional exhaustion) states can be drawn.

In the next section, the theoretical reasoning for the hypotheses will be outlined. It will start with the direct same day effects of job characteristics on well-being, followed by the moderator hypotheses. After that, arguments for the next day direct and moderator effects will be presented.

2 Theoretical background and hypotheses

2.1 Predicting same day well-being

Job control is an important job characteristic and has been conceptualized as autonomy in the influential Job Characteristics Model (JCM) (Hackman & Oldham, 1980). Several studies have shown a positive association between autonomy and job satisfaction and there is also meta-analytic evidence showing that autonomy correlates most with job satisfaction (.46) compared to the other components of the Job Characteristics Model (Loher et al., 1985). Another study

reported that autonomy (together with voice) played a larger role in predicting job satisfaction than did wage (Carr & Mellizo, 2013).

In terms of emotional exhaustion as an indicator of (un)well-being, there is strong support for the important role of job control as a predictor. For example, a meta-analysis by Nahrgang et al. (2011) provided evidence for the Job Demands-Resources Model of burnout (JD-R model; Demerouti et al., 2001) finding that job resources, such as autonomy, are negatively related to burnout (-.39). In another meta-analysis, Crawford et al. (2010) as well came to the conclusion that high levels of job resources are associated with lower levels of burnout (-.24). This finding is especially relevant as emotional exhaustion has been considered the most important symptom of burnout and the one preceding the other two symptoms (Maslach et al., 2009). On the day-level, job resources such as job control were primarily found to be connected to work engagement (Kühnel et al., 2012). Work engagement in turn is negatively linked to emotional exhaustion (Halbesleben, 2011). Additionally, dealing with a lack of job control can also be understood as a job demand which is thought to have detrimental effects on daily emotional exhaustion (Bakker, 2015).

One can argue that high levels of job control ensure that individuals have the chance to perform tasks according to their own strengths and preferences. Making use of own strengths might be connected to feelings of competence or increased self-efficacy which in turn could be reflected in an increased job satisfaction. Even though deciding on how to perform a task might need some resources, less effort is needed during the actual task performance, e.g. because no additional information control processing is necessary. Less effort should be associated with a lower level of emotional exhaustion at the end of the working day.

Drawing on this argumentation and on the findings reported above, I state the following hypotheses about the influence of job control on work-related well-being:

Hypothesis 1a: Day-level job control in the morning is negatively related to day-level emotional exhaustion in the afternoon.

Hypothesis 1b: Day-level job control in the morning is positively related to day-level job satisfaction in the afternoon.

Time pressure is considered a job stressor but research about the effects of time pressure has produced mixed findings. Baethge and Rigotti (2013) for example found that on the day-level, time pressure acted as a mediator between interruptions of the workflow and the satisfaction with one´s own performance, i.e. interruptions increased the perceived time pressure which in turn led to a decrease in the satisfaction with performance. In contrast, other researchers showed that day-level task performance increased when day-level time pressure

increased (Binnewies et al., 2009) and that time pressure positively predicted changes in personal initiative (Fay & Sonnentag, 2002). Researching creativity and proactive behavior as outcomes, Ohly and Fritz (2010) concluded that “work characteristics such as time pressure […] are challenging and have positive consequences” (p. 558). Baethge et al. (2018) emphasized the necessity to differentiate between short-term and long-term effects of time pressure. In their studies, they found that when controlling for strain, time pressure had positive within-person effects on work engagement on the daily and weekly level, but negative effects when looking at a six to eight weeks period. One explanation for the mixed findings of the effects of time pressure was brought forward by Cavanaugh et al. (2000) who distinguished between “challenge stressors” and “hindrance stressors”. Challenge stressors are those “that people tend to appraise as potentially promoting their personal growth and achievement” (N. P. Podsakoff et al., 2007, p. 438), whereas the opposite is true for hindrance stressors. The authors conceptualized time pressure as a challenge stressor because it can be dealt with by putting more effort into a task.

Looking at emotional exhaustion as an outcome, between-person studies and meta-analyses found positive relationships of challenge stressors (e.g. time pressure), even though the effects were weaker than the effects of hindrance stressors (Jeffrey A. LePine et al., 2004; Jeffery A. LePine et al., 2005). Furthermore, negative effects of time pressure on emotional exhaustion have been shown on the day-level as well (Prem et al., 2018). Further support for the assumed positive relationship of time pressure and emotional exhaustion on the day-level comes from Pindek et al. (2019) who found a positive stressor-strain relationship on the within-person level, even though the magnitude of the relationship was smaller than on the between-person level.

N. P. Podsakoff et al. (2007) contributed important findings to the work stressor literature. Looking at challenge stressors, such as time pressure, they found a positive direct effect on strain (among others captured by emotional exhaustion) which in turn had a negative effect on job satisfaction. At the same time, they found a direct positive effect on job satisfaction that was larger than the one on strain. Looking at the complete model that included some more mediators and outcome variables the authors concluded that the positive effects on job satisfaction and organizational commitment compensated the negative indirect effect on strain.

On days on which individuals face a high amount of time pressure they need to put extra effort into their task performance in order to get their work done, e.g. by working faster or doing multiple tasks at once. These increased demands are associated with psychological costs and a loss of resources, which in turn might lead to the feeling of being emotionally exhausted. At the same time, if appraised as a challenge, time pressure can go along with feelings of achievement due to an increased amount of finished work on one day or with the

perception that one has a demanding job which makes it necessary to make use of own strengths and competences. Feelings of achievement and self-competence are positive and, if attributed to the present tasks or the job, could be reflected in an increased job satisfaction.

Having these results and the line of argumentation in mind, I come to the following hypotheses about the time pressure – well-being relationship:

Hypothesis 1c: Day-level time pressure in the morning is positively related to day-level emotional exhaustion in the afternoon.

Hypothesis 1d: Day-level time pressure in the morning is positively related to day-level job satisfaction in the afternoon.

2.2 Moderation of LMX on same day effects

When studying leadership in organizations, LMX is an essential variable to be taken into account. Gottfredson and Aguinis (2017) for example investigated the leadership behaviors – follower performance link and revealed that LMX acted as a mediator within this relationship. The authors conclude that LMX is an underlying mechanism that can explain how certain leadership behaviors lead to follower performance. Similarly, one might assume that LMX does not only play a role in explaining follower performance but also in explaining follower (work-related) well-being. Considering the importance of LMX for well-being has already been done in the past and studies showed support for the positive effect LMX has on general and specific job satisfaction (Dulebohn et al., 2012; Gerstner & Day, 1997; Janssen & van Yperen, 2004; Volmer et al., 2011) and for the negative relationship of LMX and exhaustion (Ellis et al., 2019; Gregersen et al., 2016). Additionally, Gregersen et al. (2014) came to the conclusion that, compared to other leadership constructs, LMX was best suited to predict well-being, especially job satisfaction, and therefore encouraged future research to include LMX when studying leadership and well-being.

In contrast to considering only the direct and mediating effects of LMX, only few studies have investigated LMX as a moderator so far. In a recent study LMX was found to moderate the relationship between job-related stressors (perceptions of others´ entitlement behavior) and different outcome measures, such as job satisfaction or organizational citizenship behavior (Hackney et al., 2018). A similar moderating effect of LMX was found when looking at customer mistreatment, conceptualized as a job-related stressor, as a predictor of work to family conflict (Zhang et al., 2019). In both studies, LMX was interpreted as a resource buffering the negative consequences of work stressors on different outcome variables.

Following Sonnentag and Pundt (2016), the present study will test their proposed model of the job stressor – well-being link which is moderated by LMX. The basic model for the argumentation is the Conservation of Resources (COR) theory (Hobfoll, 1989; Hobfoll et al., 2018). COR theory´s basic proposition is that individuals aim at keeping, protecting and fostering their resources. Additionally, resource loss has a greater impact on the individual than resource gain and it affects people more quickly. The second principle states that people need to invest resources in order to compensate for resource loss or to gain resources. Principle three describes the gain paradox, meaning that resource gain becomes more important when resource loss is likely.

A high-quality LMX relationship has been shown to be an important resource for employees (Breevaart et al., 2015; Lee & Ashforth, 1996; Nielsen et al., 2017; Zhang et al., 2019). In line with COR theory, one can argue that high-quality LMX can both support the conservation of one´s resources (i.e. attenuating a negative effect of job stressors on well-being) as well as the gain of new resources (i.e. enhancing a positive effect of job characteristics on well-being). Specifically, this can be done by appreciative and explanatory communication (e.g. sense-making of situations), trust, guidance on a work task or feedback. Employees in turn might for example be equipped with more knowledge, interpret their current stressor as challenging, accept the situation as unchangeable at this moment or be aware of the fact that the supervisor acknowledges their current stressful period.

Taken together, I hypothesize:

Hypothesis 2a: Day-level LMX moderates the relationship between day-level job control and day-level emotional exhaustion, such that the relationship will be stronger for low (vs. high) LMX.

Hypothesis 2b: Day-level LMX moderates the relationship between day-level job control and day-level job satisfaction, such that the relationship will be stronger for low (vs. high) LMX.

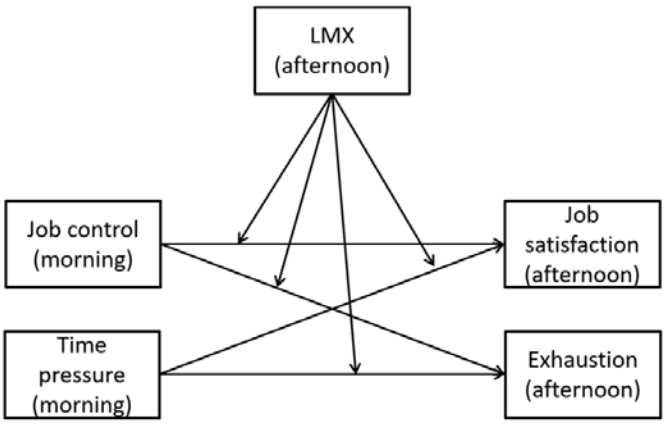
Hypothesis 2c: Day-level LMX moderates the relationship between day-level time pressure and day-level emotional exhaustion, such that the relationship will be stronger for low (vs. high) LMX.

Hypothesis 2d: Day-level LMX moderates the relationship between day-level time pressure and day-level job satisfaction, such that the relationship will be stronger for high (vs. low) LMX.

Figure 1 shows the proposed model for hypotheses 1 and 2:

Figure 1

Model of study variables and hypothesized effects (H1a-d and H2a-d)



2.3 Predicting next day well-being

Most research that has studied lagged effects of job stressors on well-being looked at an one or two year timespan. Even though one study found a causal link from emotional exhaustion on perceived stressors one year later (Hornung et al., 2013), results generally support the reverse causal direction from job characteristics on well-being (Doest & Jonge, 2006; Ford et al., 2014; Jonge et al., 2001). Regarding job stressors (e.g. time pressure), effects can especially be seen on negative indicators of well-being (e.g. exhaustion). However, job resources (e.g. job control) primarily have an effect on positive indicators of well-being (e.g. job satisfaction) (Sonnentag, 2015). Indeed, not many studies investigated these relationships from a short-term (i.e. within one day) or mid-term (i.e. within weeks) perspective. An exception is a study by Dudenhoeffer and Dormann (2013) who applied both, a diary and a panel design, to test for the effects of daily customer-related social stressors (CSS) on negative affect. They found that daily CSS predicted changes in negative affect across a time lag of a working day (i.e. after work) and a whole day (i.e. at bedtime). Next to the short-term effects, periodic CSS predicted changes in mid-term negative affect across a time lag of two weeks. Following the argumentation of these authors, studying also short-term and mid-term effects of stressors on well-being is important, as mid-term reactions to stressors can be the consequence of repeatedly occurring daily stressors. These mid-term reactions might in turn elicit long-term stress outcomes. However, research that investigates same and next day effects is more often settled in the field of recovery experiences or behavior at work and there is support for the assumption that events on one day have an effect on next day measures (e.g. Fritz &

Sonnentag, 2009; Nicholson & Griffin, 2015; ten Brummelhuis & Bakker, 2012). Bennett et al. (2018) demonstrated that job characteristics (i.e. hindrance stressors, challenge stressors and job resources) explain more variance in evening measures of well-being than do recovery experiences (29% vs. 18% for fatigue, 19% vs. 13% for vigor). As research showed that evening recovery has an influence on next day behavior and well-being (e.g. Chawla et al., 2019), one can argue that a certain degree of well-being, as a consequence of job characteristics, on one day has an impact on next day well-being as well. In line with COR theory, the term “gain cycle” describes a positive cycle of possessing, investing of and building resources. That means that those with available resources have a greater chance of coping with demands as well as investing and building new resources. The opposite is proposed for those who lack resources. They are more prone to a “loss cycle”, meaning that resources are threatened or lost which in turn impedes resource replenishment (Ellis et al., 2019; Hobfoll, 1989).

Therefore, I propose:

Hypothesis 3a: Day-level morning job control on one day is negatively related to day-level morning emotional exhaustion on the following day.

Hypothesis 3b: Day-level morning job control on one day is positively related to day-level morning job satisfaction on the following day.

Hypothesis 3c: Day-level morning time pressure on one day is positively related to day-level morning emotional exhaustion on the following day.

Hypothesis 3d: Day-level morning time pressure on one day is positively related to day-level morning job satisfaction on the following day.

2.4 Moderation of LMX on next day effects

Studies that report lagged effects of LMX on the day- or week-level are scarce in number. Ellis et al. (2019) found a negative direct link of LMX on one day and exhaustion on the next day and therefore state that a good relationship with a leader enhances employees´ well-being, even persisting until the next day. Looking at LMX as a moderator, another study demonstrated that high-quality LMX attenuated the detrimental effects of feelings of violation at work during one week and undesirable employee outcomes during the next week (Griep et al., 2016).

Based on their finding that job demands, such as time pressure, increase the likelihood of employees´ insufficient recovery, Chawla et al. (2019) argue for the important role leaders can play in enhancing the process of effective employee recovery (e.g. by signaling that

working in the evening is not expected and that employees should take their time to recover) which in turn will have positive effects on next day behavior and well-being.

In conclusion, I assume:

Hypothesis 4a: Day-level LMX on one day moderates the relationship between day-level job control on one day and day-level emotional exhaustion on the next day, such that the relationship will be stronger for low (vs. high) LMX.

Hypothesis 4b: Day-level LMX on one day moderates the relationship between day-level job control on one day and day-level job satisfaction on the next day, such that the relationship will be stronger for low (vs. high) LMX.

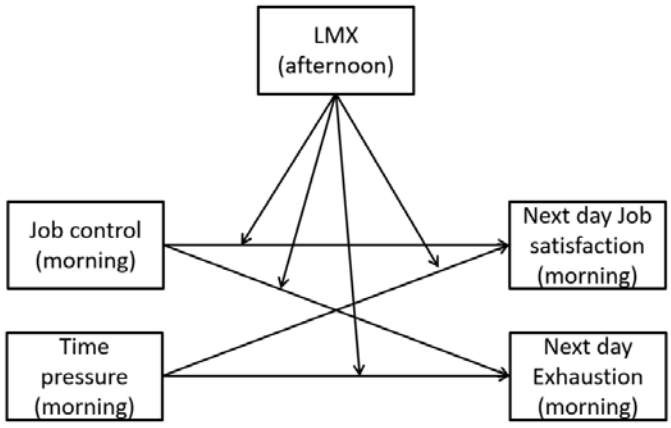
Hypothesis 4c: Day-level LMX on one day moderates the relationship between day-level time pressure on one day and day-level emotional exhaustion on the next day, such that the relationship will be stronger for low (vs. high) LMX.

Hypothesis 4d: Day-level LMX on one day moderates the relationship between day-level time pressure on one day and day-level job satisfaction on the next day, such that the relationship will be stronger for high (vs. low) LMX.

Figure 2 shows the proposed model for hypotheses 3 and 4:

Figure 2

Model of study variables and hypothesized effects (H3a-d and H4a-d)



3 Method

3.1 Procedure

Data collection for this study was done in 2013 as part of a larger research project on the relationship of job characteristics, leadership and well-being. The study consisted of a single paper-pencil questionnaire assessing trait and demographic variables and an online daily diary design, assessing state variables on a day-level.

Prior to the daily surveys participants were asked to complete an one-time paper and pencil survey (general survey) which was used to collect demographic data and trait variables of the same constructs also used in the daily measures (see section “Measures” for details). Completing the general survey took around 15 minutes. Voluntariness and anonymity have been assured. To match the data of the different measurement points, participants created an individual code that they specified at the beginning of every survey. The participants were asked to send back the completed survey to the researchers by using an enclosed and stamped return envelope.

In the week after completing the general survey, the participants started the daily diary assessments by using a smartphone, which was provided by the researchers. On ten consecutive working days, participants rated questions on the quality of leader-follower relationship and several other variables on job characteristics, affective states and well-being. The precise variables will be described in detail in the section “Measures”. Data collection took place twice a day, before noon (11 am, t1) and before the end of the working day (3 pm, t2). An automatic alarm signal was set up on the smartphone to remind participants to complete the questionnaires. Participants were granted an expense allowance of 25 € in exchange for participating in the study.

3.2 Participants

112 people participated in the study with 64% of them being female. The mean age of the participants was 30.37 years (*SD* = 5.29, range: 24-52). The sample consisted of scientific staff working at universities (84.8%) and other research institutions (15.2%). The participants came from different professions, e.g. social and economic sciences (34.8%), linguistic and cultural studies (13.4%), natural sciences (10.7%), engineering (2.7%) or law (1.8%). On average, participants worked in research for 3.63 years (*SD* = 3.45, range: .08-22). The vast majority (73.2%) named a master´s or diploma as their highest degree, 13.4% a Ph.D. and 1.8% a habilitation. Only a minority (15.2%) of the participants held a supervisory position. On average, participants were in contact with their supervisor once to twice a day (*M* = 1.69, *SD* = 1.25).

3.3 Measures

All measures were assessed in German language. Only the variables that are relevant for the present study will be described in the following section.

General survey

Demographic data. As demographic data age, gender, highest level of education, occupation, weekly working hours, number of years in research, and several questions on the work at the research institution were assessed. In addition, participants were asked about leadership responsibilities, the duration of cooperation with their supervisor and the number and duration of contact points with their supervisor per day.

Job control. Job control was assessed on a five-point Likert scale with four items of the Instrument for stress-related job analysis (ISTA) (Semmer et al., 1999). Sample items include "Normally I can decide for myself how to do my job." or "Normally my work offers me many opportunities to make my own decisions." Cronbach's alpha was .80.

Time pressure. A four-item scale of the same questionnaire as for job control (Semmer et al., 1999) was used to measure time pressure. Example items are "In general, I am under time pressure." or "Often I have to leave work late because of too much work." Cronbach's alpha was .82.

Leader-member exchange (LMX). A seven-item scale (Schyns, 2002) was applied to measure LMX. Ratings were given on a five-point scale. The names of the scale points were adapted to the respective item. Examples for the items are "How well does your supervisor understand your professional problems and needs?" or "I have enough confidence in my supervisor to defend his/her decisions." Cronbach's alpha was .89

Job satisfaction. General satisfaction with the job was assessed with the question "How satisfied are you with your work in general?". Ratings were given on a seven-point scale ranging from *"extremely dissatisfied"* to *"extremely satisfied"*. Following Kaplan et al. (2009) the named scale points were matched with a face scale (Kunin, 1955) as this proved to be the most balanced measure assessing cognitive as well as affective elements of job satisfaction.

Emotional exhaustion. In order to measure emotional exhaustion, participants were asked to rate on a four-point scale to what extent eight items generally apply to them (from *"does not apply at all"* to *"applies completely"*). Items were taken from the Oldenburg Burnout Inventory (OLBI) (Demerouti et al., 2003) which has the advantage of using positively as well as negatively phrased items. In the OLBI, affective, physical and cognitive aspects of exhaustion are covered. Sample items include "The strain of my work is quite bearable." or "I increasingly feel emotionally exhausted in my work." Cronbach's alpha was .85

Daily diary surveys

Job control. Job control was assessed with the same items as in the general survey. The only difference was that the item formulation was adapted to the day level and to the time of the assessment. In particular, “normally” was replaced by “today morning/ today afternoon”. Cronbach’s alpha ranged from .73 to .92, indicating satisfactory to high internal consistency.

Time pressure. Three items of the same measure as in the general survey were used to assess time pressure. The item “Today I had to leave work late because of too much work.” which was used in the general survey was not used in the daily surveys, as this was usually not answerable at this time of the day. Again, the wording was adapted in the same manner as for job control. Internal consistency was good with a Cronbach’s alpha ranging from .79 to .87.

Leader-member exchange (LMX). LMX was measured with the same scale as in the general survey. Item wording was adapted in order to fit to the daily assessment. Examples are “Today, my supervisor helped me.” or “Today, I had confidence in my supervisor´s decisions.” Items were specified for the time of assessment, i.e. the term “in the morning” was added for t1 and “in the afternoon” for t2. Cronbach’s alpha ranged from .89 to .95, indicating high internal consistency.

Job satisfaction. Current satisfaction with work was assessed with the question “How satisfied are you currently with your work?” The same rating scale as in the general survey was used.

Emotional exhaustion. Seven items of the same measure as in the general survey were used to measure emotional exhaustion. The item “After work I am still fit for my leisure activities.” which was used in the general survey was not used in the daily surveys as this was usually not answerable at the time of the assessment. The phrasing of the items was adapted to the day level and to the time of the assessment by adding “today morning/ today afternoon”. Cronbach’s alpha ranged from .79 to .87, indicating good internal consistency.

4 Results

4.1 Analytic strategy

There are two levels of analysis in a diary study: the person-level (Level 2) and the day-level (Level 1). Person-level data refer to those measures, which are thought not to vary over time, such as demographic data and trait variables. In this study, all the variables assessed with the general survey can be considered person-level variables. In contrast, all the variables

assessed with the daily diary survey have been measured on the day-level. They are presumed to differ intraindividually across the measurement points. The daily scores are nested within individuals.

In order to consider the multilevel structure of the data, the analysis of choice for this study is hierarchical linear modeling (HLM) (Raudenbush & Bryk, 2002). Furthermore, this strategy takes into account that observations in the data set are not independent from each other. This is important as the day-level measurements are nested within each person (Snijders & Bosker, 2012). As HLM does not allow missing data on Level 2, missing values in the general survey have been replaced by the respective scale mean.

Data have been analyzed using the programs IBM SPSS Statistics 25 and HLM 7.03 (Raudenbush et al., 2011). Person-level and control variables have been centered at the grand mean and day-level predictors have been centered at the respective person-mean, i.e. the mean across days for each person, as the focus was on within-person effects.

4.2 Descriptive results

Means, standard deviations and zero-order correlations of the Level 2 study variables are shown in Table 1. Means, standard deviations and correlations of the group-mean centered Level 1 study variables are shown in Table 2.

On a descriptive basis, participants reported relatively low daily levels of time pressure and emotional exhaustion but relatively high daily levels of job control and job satisfaction. The reported daily LMX quality was slightly lower than the scale mean. Interestingly, the reported daily LMX quality was around one scale point lower than the reported general LMX quality. At first glance, correlational data mostly supported the assumed direct effects of job characteristics on well-being within one day. An exception was the time pressure – job satisfaction link, which showed to have a negative instead of a positive direction.

Table 1

Means (M), standard deviations (SD) and correlations of Level 2 study variables

	M	SD	1	2	3	4	5	6	7	8
1 Gender[a]	1.35	.48	1							
2 Age	30.37	5.29	.26**	1						
3 Dyad tenure	2.86	2.57	.24*	.52**	1					
4 Job control	3.99	.71	-.06	-.12	.03	1				
5 Time pressure	3.07	.87	-.06	.20*	.05	-.20*	1			
6 LMX	3.58	.79	-.11	-.15	-.11	.53**	-.04	1		
7 Job satisfaction	5.23	1.14	-.05	-.15	-.09	.54**	-.25**	.57**	1	
8 Emotional exhaustion	2.19	.60	.06	.09	.10	-.44**	.50**	-.38**	-.73**	1

Note. [a] female = 1, male = 2. N = 112.

* p < .05. ** p < .01.

4.3 Preliminary analysis

In order to use HLM as a method there needs to be sufficient variance in the Level 1 outcome variables, i.e. within-person variance. To examine if this precondition is met, the intra-class correlation (ICC) can be calculated. Statistically, the ICC is the ratio of the between-person variance to the total variance. The amount of between-person variance in the dependent variables can be examined by running a null model to predict job satisfaction and emotional exhaustion, respectively. In HLM, a null model is a regression of the dependent variable without any Level 1 or Level 2 predictors. For job satisfaction, the ICC was .65, meaning that 65% of the variance of job satisfaction was on the between-person level and 35% of the variance was on the within-person level. The ICC for emotional exhaustion was .41, indicating that 41% of the variance of emotional exhaustion was on the between-person level and 59% of the variance was on the within-person level. The ICC for LMX was .54, indicating that 54% of the variance of LMX was on the between-person level whereas 46% of the variance was on the within-person level. These results are fairly comparable to the ones that N. P. Podsakoff et al. (2019) reported. As the ICC indicates a nontrivial amount of variance on the day-level, the use of HLM for hypotheses testing is justified.

Table 2

Means (M), standard deviations (SD) and correlations of group-mean centered Level 1 study variables

	M	SD	1	2	3	4	5	6	7	8	9	10
1 JC (m)	3.84	.97	1									
2 JC (a)	3.77	.98	.61**	1								
3 TP (m)	2.22	1.04	-.31**	-.24**	1							
4 TP (a)	2.32	1.06	-.24**	-.31**	.61**	1						
5 LMX (m)	2.60	1.17	.01	-.02	.07	.04	1					
6 LMX (a)	2.48	1.16	.03	-.04	.00	.11**	.23**	1				
7 JS (m)	5.07	1.15	.23**	.13**	-.11**	-.11**	.23**	.07	1			
8 JS (a)	4.99	1.16	.22**	.25**	-.14**	-.14**	.06	.22**	.45**	1		
9 EXH (m)	1.92	.62	-.25**	-.17**	.27**	.17**	-.04	-.05	-.53**	-.38**	1	
10 EXH (a)	2.04	.60	-.20**	-.24**	.21**	.29**	.06	-.03	-.36**	-.49**	.62**	1

Note. *n* = 584-941. JC = Job control; TP = Time pressure; LMX = Leader-member exchange; JS = Job satisfaction; EXH = Emotional exhaustion. m = assessment in the morning. a = assessment in the afternoon.

** $p < .01$.

4.4 Test of hypotheses

Hypotheses testing was done using full maximum likelihood estimation. For hypotheses testing, four different models were compared: First, a null model containing only the intercept was analyzed. Then control variables (i.e. age, gender, trait job satisfaction respectively trait emotional exhaustion and dyad tenure) were entered in Model 1 as previous research reported links of age (Schulte, 2006) and gender (Clark, 1997) with job satisfaction and of dyad tenure with LMX (Bernerth et al., 2018). The core model for testing hypotheses 1a-d is Model 2 for which the predictor variables time pressure respectively job control were entered. For testing hypotheses 2a-d Model 4 was of interest, containing both the direct effect of LMX (Model 3) as well as the LMX by time pressure respectively the LMX by job control interaction. Testing hypotheses 3a-d was done similarly to testing hypothesis 1 using Model 2 except that the next day variables were used as dependent variables. The test of hypotheses 4a-d was done similarly to testing hypothesis 2 using Model 4 except that the next day variables were used as dependent variables.

Tables 3-6 show results from HLM analyses, including standardized parameter estimates, variance components for all models, model fit information (i.e. –2*log, deviance values) and differences between the deviance values of the different models to be compared (i.e. difference of –2*log). The difference is submitted to a X^2-test. A significant decline in the deviance, by adding a predictor variable, indicates an improved model fit compared to the previous model. Tables A1-A4 display the results of the analyses of the lagged effects and can be found in the appendix.

Same day job satisfaction as dependent variable

Adding control variables to the null model significantly improved the model fit (Δ –2*log = 91.97, $p < .001$). Results indicated that only trait job satisfaction was a significant predictor of daily job satisfaction ($\gamma = .65$, $SE = .07$, $t(106) = 9.87$, $p < .001$). In the next model (Model 2) the predictor variables job control respectively time pressure were entered. The models including job control respectively time pressure fit the data better than the previous one (for job control: Δ –2*log = 185.26, $p < .001$; for time pressure: Δ –2*log = 135.38, $p < .001$). Job control was significantly and positively predicting job satisfaction ($\gamma = .21$, $SE = .05$, $t(110) = 4.25$, $p < .001$), therefore confirming hypothesis 1b as more job control in the morning went along with more job satisfaction in the afternoon. Job satisfaction was also significantly predicted by time pressure ($\gamma = -.12$, $SE = .04$, $t(110) = -2.88$, $p < .01$). Counter to my hypothesis, both variables were negatively related, therefore hypothesis 1d was not supported. To test hypotheses 2b and 2d, Model 2 was first extended by LMX (Model 3) and then by the LMX by job control respectively the LMX by time pressure interaction (Model 4). Compared to

Model 3, Model 4 did not show a better model fit (Δ –2*log = 7.19, p = .21). However, the LMX by job control interaction showed to be a significant predictor of job satisfaction (γ = -.13, SE = .04, t(102) = -2.88, p < .01). The nature of the interaction effect is displayed in Figure 3. As can be seen, the relationship of job control and job satisfaction is stronger for low LMX quality. Thus, hypothesis 2b was supported by the data. However, there was no support for hypothesis 2d as including the LMX by time pressure interaction (Model 4) did not result in a better model fit (Δ –2*log = 2.11, p > .50). Furthermore, the interaction term failed to reach significance (γ = .00, SE = .04, t(102) = .11, p = .92).

Figure 3

Interaction between daily job control and daily LMX quality on job satisfaction

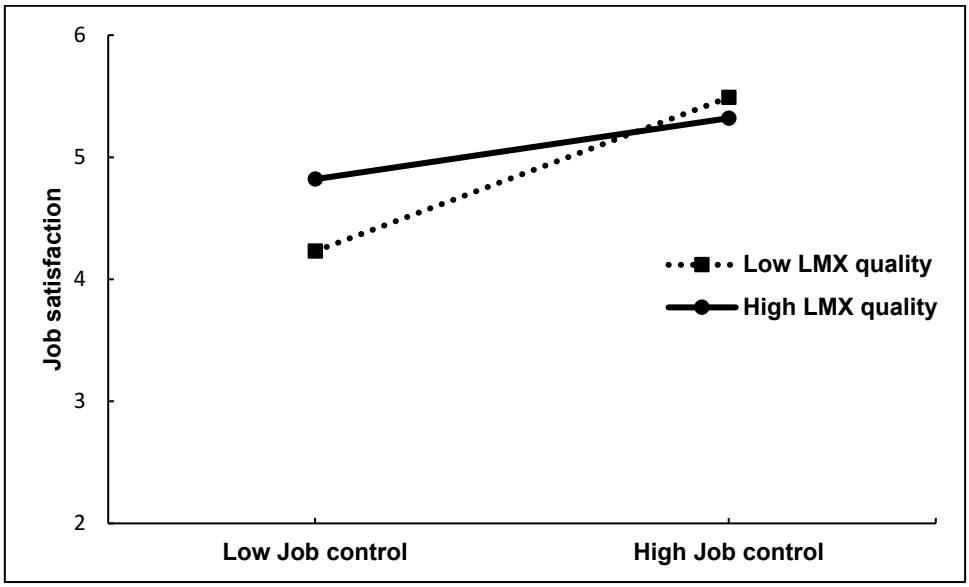


Table 3

Multilevel regression analysis predicting same day afternoon job satisfaction

	Null model			Model 1			Model 2			Model 3			Model 4		
	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*
Intercept	5.00***	0.09	54.14	5.00***	0.06	82.29	5.01***	0.06	82.53	5.01***	0.07	74.50	5.01***	0.07	74.73
Age[a]				0.01	0.01	0.84	0.01	0.01	0.76	-0.00	0.01	-0.35	0.00	0.02	0.20
Gender[a]				-0.05	0.15	-0.32	-0.05	0.15	-0.32	0.01	0.16	0.01	0.01	0.17	0.05
Dyad Tenure[a]				0.01	0.03	0.25	0.01	0.03	0.32	0.04	0.03	1.16	0.03	0.03	1.00
Trait Job satisfaction[a]				0.65***	0.07	9.87	0.65***	0.06	10.21	0.68***	0.07	9.90	0.68***	0.07	9.78
Job control[b]							0.21***	0.05	4.25	0.18**	0.06	3.26	0.16**	0.05	3.12
LMX[b]										0.20***	0.04	4.82	0.17***	0.05	3.67
Job control*LMX[b]													-0.13**	0.04	-2.88
-2*log (lh)	2199.26			2107.29			1922.03			1264.47			1263.24		
Difference of -2*log (lh)				91.97***			185.26***			657.56***			7.19		
df[c]				4			3			4			5		
Level 1 intercept variance (SE)	0.48 (0.02)			0.48 (0.02)			0.42 (0.02)			0.41 (0.03)			0.40 (0.03)		
Level 2 intercept variance (SE)	0.88 (0.13)			0.35 (0.06)			0.35 (0.05)			0.37 (0.07)			0.37 (0.07)		

Note. [a] Predictors at the person-level. [b] Predictors at the day level. [c] df refers to the number of parameters added to the model.

** $p < .01$. *** $p < .001$.

Table 4

Multilevel regression analysis predicting same day afternoon job satisfaction

	Null model			Model 1			Model 2			Model 3			Model 4		
	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*
Intercept	5.00***	0.09	54.14	5.00***	0.06	82.29	5.01***	0.06	82.57	5.00***	0.07	74.10	5.00***	0.07	74.11
Age[a]				0.01	0.01	0.84	0.01	0.01	0.85	-0.00	0.01	-0.30	-0.00	0.01	-0.40
Gender[a]				-0.05	0.15	-0.32	-0.04	0.15	-0.25	0.04	0.16	0.26	0.04	0.16	0.25
Dyad Tenure[a]				0.01	0.03	0.25	0.00	0.03	0.13	0.03	0.03	0.90	0.03	0.03	0.93
Trait Job satisfaction[a]				0.65***	0.07	9.87	0.65***	0.07	9.97	0.67***	0.07	9.03	0.67***	0.07	9.05
Time pressure[b]							-0.12**	0.04	-2.88	-0.08*	0.04	-2.08	-0.08*	0.04	-2.08
LMX[b]										0.22***	0.05	4.51	0.22***	0.05	4.73
Time pressure*LMX[b]													0.00	0.04	0.11
-2*log (lh)	2199.26			2107.29			1971.91			1293.31			1291.20		
Difference of -2*log (lh)				91.97***			135.38***			678.60***			2.11		
df[c]				4			3			4			5		
Level 1 intercept variance (SE)	0.48 (0.02)			0.48 (0.02)			0.44 (0.02)			0.44 (0.03)			0.43 (0.03)		
Level 2 intercept variance (SE)	0.88 (0.13)			0.35 (0.06)			0.34 (0.05)			0.36 (0.07)			0.37 (0.07)		

Note. [a] Predictors at the person-level. [b] Predictors at the day level. [c] df refers to the number of parameters added to the model.

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

Same day emotional exhaustion as dependent variable

When predicting emotional exhaustion, adding control variables to the null model improved the model fit (Model 1) (Δ –2*log = 50.17, $p < .001$). However, only the trait emotional exhaustion showed to be a significant predictor of state emotional exhaustion ($\gamma = .42$, $SE = .06$, $t(106) = 7.53$, $p < .001$). Hypothesis 1a was supported as entering job control to the model (Model 2) significantly improved the model fit (Δ –2*log = 105.79, $p < .001$) and job control was significantly and negatively related to emotional exhaustion ($\gamma = -.13$, $SE = .03$, $t(110) = -4.76$, $p < .001$). Hypothesis 1c stated that more time pressure in the morning is related to more emotional exhaustion in the afternoon. Results supported this hypothesis as adding time pressure to Model 1 significantly improved the model fit (Δ –2*log = 96.63, $p < .001$) and time pressure showed to be significantly and positively related to emotional exhaustion ($\gamma = .12$, $SE = .02$, $t(110) = 4.81$, $p < .001$). To test hypotheses 2a and 2c, Model 2 was first extended by LMX (Model 3) and then the LMX by job control respectively the LMX by time pressure interaction (Model 4). There was no support of hypotheses 2a and 2c by the data as neither of the two models showed a better fit compared to Model 3 (for job control: Δ –2*log = 2.11, $p > .50$; for time pressure: Δ –2*log = 2.05, $p > .50$). Furthermore, neither the LMX by job control interaction ($\gamma = .01$, $SE = .03$, $t(102) = .36$, $p = .72$) nor the LMX by time pressure interaction ($\gamma = .02$, $SE = .02$, $t(102) = .93$, $p = .36$) significantly predicted emotional exhaustion.

Table 5

Multilevel regression analysis predicting same day afternoon emotional exhaustion

	Null model			Model 1			Model 2			Model 3			Model 4		
	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*
Intercept	2.04***	0.04	51.63	2.04***	0.03	64.45	2.04***	0.03	63.34	2.05***	0.03	58.91	2.05***	0.03	58.98
Age[a]				-0.01	0.01	-1.39	-0.01	0.01	-1.63	-0.01	0.01	-1.89	-0.01	0.01	-2.04
Gender[a]				-0.04	0.08	-0.45	-0.04	0.08	-0.54	0.04	0.08	0.46	0.04	0.08	0.43
Dyad Tenure[a]				0.02	0.02	1.43	0.02	0.02	1.59	0.01	0.02	0.54	0.01	0.02	0.67
Trait Emotional exhaustion[a]				0.42***	0.06	7.53	0.41***	0.06	7.10	0.42***	0.06	6.76	0.41***	0.06	6.76
Job control[b]							-0.13***	0.03	-4.76	-0.12***	0.03	-4.23	-0.12***	0.03	-4.33
LMX[b]										-0.00	0.04	-0.08	0.00	0.04	0.05
Job control*LMX[b]													0.01	0.03	0.36
-2*log (lh)	1391.47			1341.30			1235.50			763.02			760.91		
Difference of -2*log (lh)				50.17***			105.79***			472.48***			2.11		
df[c]				4			3			4			5		
Level 1 intercept variance (SE)	0.22 (0.01)			0.22 (0.01)			0.21 (0.01)			0.17 (0.01)			0.17 (0.01)		
Level 2 intercept variance (SE)	0.15 (0.02)			0.08 (0.01)			0.09 (0.02)			0.08 (0.02)			0.08 (0.02)		

Note. [a] Predictors at the person-level. [b] Predictors at the day level. [c] df refers to the number of parameters added to the model.

*** $p < .001$.

Table 6

Multilevel regression analysis predicting same day afternoon emotional exhaustion

	Null model			Model 1			Model 2			Model 3			Model 4		
	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*
Intercept	2.04***	0.04	51.63	2.04***	0.03	64.45	2.04***	0.03	63.52	2.05***	0.03	59.03	2.05***	0.03	59.02
Age[a]				-0.01	0.01	-1.39	-0.01	0.01	-1.48	-0.01	0.01	-1.88	-0.01	0.01	-1.86
Gender[a]				-0.04	0.08	-0.45	-0.04	0.08	-0.45	0.04	0.08	0.47	0.04	0.08	0.46
Dyad Tenure[a]				0.02	0.02	1.43	0.02	0.02	1.54	0.01	0.02	0.54	0.01	0.02	0.52
Trait Emotional exhaustion[a]				0.42***	0.06	7.53	0.41***	0.06	7.14	0.42***	0.06	6.81	0.42***	0.06	6.83
Time pressure[b]							0.12***	0.02	4.81	0.12***	0.02	5.30	0.13***	0.02	5.57
LMX[b]										-0.02	0.04	-0.50	-0.02	0.04	-0.45
Time pressure*LMX[b]													0.02	0.02	0.93
-2*log (lh)	1391.47			1341.30			1244.67			748.68			746.63		
Difference of -2*log (lh)				50.17***			96.63***			495.99***			2.05		
df[c]				4			3			4			5		
Level 1 intercept variance (SE)	0.22 (0.01)			0.22 (0.01)			0.20 (0.01)			0.17 (0.01)			0.17 (0.01)		
Level 2 intercept variance (SE)	0.15 (0.02)			0.08 (0.01)			0.09 (0.02)			0.09 (0.02)			0.09 (0.02)		

Note. [a] Predictors at the person-level. [b] Predictors at the day level. [c] df refers to the number of parameters added to the model.

***$p < .001$.

Next day job satisfaction as dependent variable

Hypotheses 3b and 3d stated that job characteristics on one day are related to morning job satisfaction on the next day. Compared to the null model predicting next day morning job satisfaction, the model fit improved by adding control variables (Δ –2*log = 86.67, $p < .001$). However, only the trait job satisfaction was significantly related to next day morning job satisfaction ($\gamma = .58$, $SE = .06$, $t(107) = 9.05$, $p < .001$). Adding job control as a predictor to that model resulted in an improved model fit (Δ –2*log = 457.42, $p < .001$), but counter to hypothesis 3b job control on one day did not significantly predict job satisfaction on the following day ($\gamma = .02$, $SE = .05$, $t(109) = .44$, $p = .66$). Adding time pressure to the control variables-only model as well led to a better model fit (Δ –2*log = 429.46, $p < .001$) but the predictor also did not reach significance ($\gamma = -.02$, $SE = .04$, $t(109) = -.41$, $p = .68$). Therefore, hypothesis 3d could not be supported. To test hypotheses 4b and 4d LMX was added to the model first. Second, the model was extended by the LMX by job control interaction respectively the LMX by time pressure interaction to predict next day job satisfaction. Adding the interaction term to the previous model did not improve the model fit for either of the models (for job control: Δ –2*log = 5.05, $p = .41$; for time pressure: Δ –2*log = 2.65, $p > .5$). The interaction terms did not reach significance (for the LMX by job control interaction: $\gamma = -.07$, $SE = .05$, $t(99) = -1.51$, $p = .13$; for the LMX by time pressure interaction: $\gamma = .05$, $SE = .05$, $t(99) = .99$, $p = .32$). Therefore, there was no support for hypotheses 4b and 4d.

Next day emotional exhaustion as dependent variable

Hypotheses 3a and 3c stated that job characteristics on one day are related to morning emotional exhaustion on the next day. Compared to the null model predicting next day morning emotional exhaustion, the model fit improved by adding control variables (Δ –2*log = 52.33, $p < .001$). However, only trait emotional exhaustion was significantly related to next day morning job satisfaction ($\gamma = .40$, $SE = .05$, $t(107) = 7.82$, $p < .001$). In model 2, job control on one day did not significantly predict emotional exhaustion on the following day ($\gamma = .01$, $SE = .03$, $t(109) = .38$, $p = .71$) even though adding the predictor to the previous model resulted in a better model fit (Δ –2*log = 305.66, $p < .001$). The same turned out to be true for time pressure as a predictor of next day emotional exhaustion: The model fit improved (Δ –2*log = 294.24, $p < .001$) but the predictor did not reach significance ($\gamma = .04$, $SE = .03$, $t(109) = 1.29$, $p = .20$). Thus, neither hypothesis 3a nor 3c was supported by the data. To test hypotheses 4a and 4c the same model test, as described above, was used with the only difference that next day emotional exhaustion was the dependent variable. Neither did adding the interaction terms to the respective model result in a better model fit (for job control: Δ –2*log = 2.60, $p > .5$; for time pressure: Δ –2*log = 2.32, $p > .5$) nor did the interaction terms

reach statistical significance in predicting next day emotional exhaustion (for the LMX by job control interaction: γ = .02, *SE* = .04, $t(99)$ = .42, p = .68; for the LMX by time pressure interaction: γ = -.04, *SE* = .03, $t(99)$ = -1.34, p = .18). Thus, data did not support hypotheses 4a and 4b.

4.5 Additional analyses

As some authors propose non-linear effects of time pressure on well-being (Reis et al., 2017), I tested for a curvilinear relationship of time pressure and job satisfaction as well. Results showed that the squared time pressure variable was not a significant predictor of job satisfaction (γ = .01, *SE* = .03, $t(110)$ = .21, p = .83) and the model fit did not improve compared to a model only containing the linear time pressure variable as a predictor (Δ –2*log = .52, p > .50). On an exploratory basis, the cross-level interactions of trait LMX on Level 2 and job control respectively time pressure on Level 1 were tested. Only the cross-level interaction of LMX and job control on job satisfaction resulted in an improved model fit (Δ –2*log = 7.00, p < .01). Trait LMX significantly moderated the effect of job control on job satisfaction (γ = -.16, *SE* = .05, $t(109)$ = -2.94, p < .01). Further analyses demonstrated that the relationship of job control and job satisfaction was stronger for low vs. high LMX.

5 Discussion

5.1 Summary of findings

By applying a daily diary design this study aimed at investigating the day-level relationship of job characteristics (job control and time pressure), well-being (job satisfaction and emotional exhaustion) and leadership behavior (leader-member exchange). Overall, the hypotheses were partly confirmed by the data. As expected, on days on which participants experienced greater job control in the morning they also reported more job satisfaction and a lower level of emotional exhaustion in the afternoon. Additionally, on days when participants perceived more time pressure in the morning they also reported a higher level of emotional exhaustion in the afternoon. Counter to my hypothesis, perceived job satisfaction in the afternoon was not higher but lower on days with more perceived time pressure in the morning. Day-level LMX showed to moderate the relationship of morning job control on job satisfaction in the afternoon. On days on which participants reported lower degrees of daily LMX, the relationship of job control and job satisfaction was stronger than on days with higher ratings of daily LMX. Therefore, on days participants reported lower levels of job control but a high quality relationship with their leader they reported higher job satisfaction than on days with lower levels of job control and a

lower-quality relationship with their supervisor. The assumed moderation effect of LMX on the job control – emotional exhaustion, the time pressure – job satisfaction and the time pressure – emotional exhaustion relationship could not be found. Additionally, the proposed lagged effects could not be detected: neither morning job control nor morning time pressure on one day were related to morning job satisfaction or morning emotional exhaustion on the following day. Furthermore, LMX on one day did not moderate the relationship between morning job characteristics on one day and morning well-being on the following day.

5.2 Limitations and strengths of the study

No study is without limitations. Thus, four shortcomings of this study need to be taken into consideration. First, only self-ratings by employees have been used in the study. Using only self-ratings is an adequate approach for measuring perceptions and internal states, which I was interested in most. However, I cannot completely rule out the issue of common-method bias (P. M. Podsakoff et al., 2012). Especially when looking at LMX with the dyadic nature as the core of the concept it might also be interesting to take the leader´s view of the quality of the relationship into account and check for the overlap of the leader´s and the employee´s view. Research suggests that the perceptions of the quality of a relationship might differ between leaders and employees (Sin et al., 2009). Therefore, future studies could also include leader perceptions of LMX and build upon existing research (Schyns & Day, 2010) that demonstrated that “the amount of agreement itself embraces important information about the relationship quality” (Sonnentag & Pundt, 2016, p. 190).

Second, the design of the study does not allow for causal inferences as no experimental manipulation and no control of third variables was conducted. Nevertheless, by assessing the predictor variables (morning) and the dependent variables (afternoon) at different times of the day I was able to bring in a temporal dimension. A temporal separation of the measurement of the predictor and the criterion variables was suggested as a possibility to control for artificially inflated relationships (P. M. Podsakoff et al., 2003).

Third, participants filled out the questions twice a day over ten consecutive working days. Hence, this design was quite demanding for participants and one might argue that the repeated answering itself led to some form of reactivity, e.g. by an increased focus of the participants on their own well-being or by actively trying to change their job characteristics (e.g. find ways to reduce the time pressure).

The last aspect concerns the sample of the study, as it consisted only of scientific employees. Scientific employees, especially those working in universities, can be a special sample as for example the degree of autonomy usually is very high (which is also reflected in

the present study with a mean job control score of four on a one to five scale) and the contact to the supervisor might not be that important and not that frequent. Therefore, the generalizability of the findings might be limited. Future research could investigate the moderating role of LMX in a sample that has a greater variance in job control and time pressure and in which employees´ contact to their supervisor is more important and more frequent. An interesting sample to study could for example be workers at an assembly line, as one might find the combination of low job control and high time pressure there.

Nevertheless, the limitations of the study should be considered in relation to its strengths. The study applied a daily diary design. One advantage of this design is that job characteristics, LMX and well-being have been measured in their natural surroundings, therefore implying high external validity, and participants had to recall their perceptions of job characteristics, LMX and well-being only within a few hours, therefore limiting the risk of retrospective bias (Ohly et al., 2010). Additionally, with a sample of 112 persons and measurements on ten consecutive working days the power of the study should have been large enough to detect also small effects (Arend & Schäfer, 2019). Furthermore, two measurements per day have been taken with a time lag of four hours. In line with Pindek et al. (2019) this can be considered a strength as they found that the magnitude of the stressor–strain relationship was stronger when the stressor was measured prior to the strain but within the same day. Consequently, they concluded that the manifestation of stressor-strain effects might take some time. By measuring the stressors in the morning and well-being in the afternoon, I increased the chance to detect these effects. Furthermore, the advantages of the multilevel structure of the data have been used. Therefore, it was possible to control for between-person differences and at the same time focus on within-person effects. Consequently, it was feasible to draw conclusions about links between the variables on the day-level. Studying within-person effects can be considered important as a not negligible part of the total variance in variables can be attributed to within-person effects (N. P. Podsakoff et al., 2019) and concepts such as well-being are thought to fluctuate over time (Sonnentag, 2015).

5.3 Theoretical implications and future research

Daily job control and daily well-being

In line with my hypothesis and past research, job control was positively related to job satisfaction. Therefore, by demonstrating that the effect can also be seen on the day-level, the present study goes beyond existing cross-sectional findings that showed that people with a higher degree of autonomy in their job report higher job satisfaction than people with a lower

degree of autonomy (Loher et al., 1985) and also beyond within-person findings of a study that demonstrated the relationship of job control and job satisfaction on the week-level (Totterdell et al., 2006). This finding shows that it is not only the general level of control in the job one has that is important but also the daily, task-based level of autonomy. Data in this study also supported this view as around half of the total variance in job control could be attributed to day-level variability. Additionally, previous findings showed that daily feelings of autonomy have an effect on several outcomes, such as innovative behavior (Orth & Volmer, 2017). These findings can now be extended to job satisfaction as an outcome as well.

Testing the job demand – job control model (Karasek & Theorell, 1999), some studies found that job control is a moderator of the stressor – well-being relationship (e.g. Fernet et al., 2004). However, the majority of the studies reported only weak or no support for the moderating role of job control on the stressor – well-being relationship (Haeusser et al., 2010). Therefore, the finding of the current study once more supports the view that job control is not so much buffering the negative effects of work stressors on well-being but more importantly has direct positive effects on job satisfaction, for example through increased feelings of responsibility (Hackman & Oldham, 1980). Another hint for a possible explanation for this effect can be found in a study of Xanthopoulou, Bakker, Demerouti, and Schaufeli (2012) who reported that daily job resources, such as autonomy, are linked to positive emotions which in turn are connected to daily personal resources (e.g. self-efficacy or self-esteem). Having a job that is leading to higher degrees of self-efficacy or self-esteem increases the chance of experiencing high levels of job satisfaction.

Job control is not only relevant for job satisfaction but also for other outcomes, such as emotional exhaustion. The present study demonstrated that people feel less emotionally exhausted on days they perceive greater job control than on days with less job control. Therefore, previous meta-analytic findings on cross-sectional research (Crawford et al., 2010; Nahrgang et al., 2011) are confirmed by the results. Additionally, the finding contributes to the current literature on job resources and burnout by showing that the day-level variation of the degree of job control is related to daily changes in the amount of feelings of exhaustion. Therefore, it is not only the *general* amount of job control that is important for affective, physical and cognitive well-being. *Daily* job control as well seems to be a resource for employees.

Daily time pressure and daily well-being

One job demand that has been suggested to be negatively related to health-related outcomes is time pressure. In line with previous research (Jeffery A. LePine et al., 2005; Prem et al., 2018), the present study demonstrated a negative impact of high time pressure on emotional exhaustion. Daily changes in the perceived amount of time pressure were connected to daily changes in the level of emotional exhaustion. It was proposed that in order to deal with

high time pressure, workers need to put extra cognitive or mental effort into their task which in turn is connected to psychological costs, such as exhaustion (Demerouti et al., 2001). Therefore, the results of the study go along with Jeffery A. LePine et al.'s (2005) findings that challenge stressors (e.g. time pressure) have negative effects on employees´ feelings of strain and exhaustion and with meta-analytic within-person results (Pindek et al., 2019) that did not show differences between the effects of challenge and hindrance stressors on strain.

In the present study, no beneficial effects of daily time pressure on daily job satisfaction have been observed which contradicts the conceptualization of challenge and hindrance stressors. In contrast to hindrance stressors (e.g. role conflict) challenge stressors (e.g. time pressure) are thought to be beneficial for employees´ performance, motivation, satisfaction or organizational commitment (Jeffery A. LePine et al., 2005; N. P. Podsakoff et al., 2007) as they are “opportunities for personal growth and task accomplishment” (N. P. Podsakoff et al., 2007, p. 441). However, data in this study did not support these previous findings. Contrary to my assumption, results in this study demonstrated that daily time pressure was not associated with higher but instead with lower job satisfaction. Especially in the light of the day-level perspective the present study focused on, this finding is surprising. In line with Baethge et al. (2018) who emphasized the necessity to differentiate between short-term and long-term effects of time pressure, long-term negative effects of time pressure on job satisfaction would not have been surprising as it is obvious that constantly exceeding own limits for a longer period of time is not beneficial for employees´ job satisfaction. Thus, it was expected to find short-term positive effects of time pressure on job satisfaction, as high time pressure might lead to the feeling of being challenged at work, to a greater amount of completed tasks or increased self-esteem through goal achievement during the workday (Widmer et al., 2012).

Two reasons for not finding a positive effect of time pressure on job satisfaction are conceivable: First, participants might have been content with the *amount* of tasks they finished during the day but not with the *quality*, for example because they did not have the time to run over it again. However, this would contradict the result of other researchers (Binnewies et al., 2009) that day-level time pressure was positively related to day-level quality of task performance. A second possible explanation can be found in appraisal theories (Lazarus & Folkman, 1984). Following those, not the objective stressor itself has negative consequences but the appraisal of the stressor as being stressful and the feeling of not being able to cope with it lead to negative effects. Precisely, in order to draw positive consequences from a stressor it needs to be appraised as challenging and a person needs to be sure to be able to cope with it, e.g. by putting more effort into a task. Indeed, Ohly and Fritz (2010) showed that challenge appraisals mediated the relationship of daily time pressure on daily creativity and

proactive behaviors. Another diary study also supports this view as the distinct appraisals of stressors were related differently to well-being (Tuckey et al., 2015).

Two recommendations for future studies on the day-level relationship of time pressure and job satisfaction can be derived from this discussion: As challenge appraisals have not been assessed in the current study, future research could address this issue by explicitly measuring challenge appraisals. One could assume that time pressure indeed is positively related to job satisfaction but only when time pressure is appraised as challenging. Additionally, following the approach of Baethge et al. (2018) who found that when controlling for strain, daily time pressure had positive within-person effects on daily work engagement, future studies could include the level of daily exhaustion as a moderator of the day-level time pressure – well-being link. It is conceivable that the positive link between time pressure and job satisfaction can only be found when the level of exhaustion is low.

Moderating role of daily LMX

To my knowledge, this study is the first to investigate the moderating role of LMX on the job characteristics – well-being link on the day-level. Data confirmed the hypothesis that daily perceptions of a high-quality LMX buffer the negative consequences of low job control on job satisfaction. This finding mirrors existing literature on the important role of a high-quality LMX as a resource for employees which makes coping with stressors easier for employees (Hackney et al., 2018; Zhang et al., 2019). In line with COR theory (Hobfoll, 1989), LMX seems to be an organizational resource that helps to protect own valuable resources (e.g. health or well-being) when facing actual or impending resource loss, e.g. triggered by unfavorable working conditions. As resource loss has much greater impact than resource gain (Hobfoll et al., 2018), leaders play an important role for maintaining employees´ well-being by buffering the negative consequences of (perhaps unchangeable) working conditions. Against the background of the third principle of COR theory (resource gains become more important when resource loss circumstances are high, i.e. the value of resource gains increases) (Hobfoll et al., 2018), it would be an interesting aspect to study if employees become more proactive and actively search for resources their leaders could provide them with in unfavorable working situations.

The result extends previous research on LMX as a resource for employees in at least two important ways: First, contrary to the aforementioned studies, the immediate, daily effects were examined. Therefore, this study is one of few that investigated LMX not as a trait but as a state variable. Comparable to the findings of Ellis et al. (2019) who demonstrated that perceptions of LMX are not stable but prone to day-to-day variability, employees´ daily perceptions of the quality of LMX play a role in buffering the negative consequence, i.e. reduced job satisfaction, that is associated with a low level of job control. Hence, the perception

of how supportive the leader is *today* concerning today´s tasks (e.g. by giving advice and guidance on a work task (Wayne et al., 1997) or through sense-making processes (Harris & Kacmar, 2006)) is important for maintaining employees´ job satisfaction when facing tasks with low job control. Additionally, this finding is consistent with other research on leadership that demonstrated that leaders´ daily transactional and transformational behavior influences the daily work environment (Breevaart et al., 2014). Interestingly, additional analyses showed that not only differences in state LMX, i.e. within-person differences, but also trait LMX, i.e. differences between participants with a high-quality LMX compared to participants with a low-quality LMX, buffered the relationship of daily job control on daily job satisfaction. That means that participants who *generally* perceive their relationship to their supervisor as rather good almost maintain their temporary level of job satisfaction even when momentarily facing tasks with low control compared to participants who report their general LMX quality to be rather low. Second, contrary to the studies of Hackney et al. (2018) who used a social stressor as predictor (i.e. perceptions of other´s entitlement behavior) the present study used aspects of work design, i.e. rather task-related stressors. Investigating the effects of task-related stressors is important because in line with other findings (cf. Dormann & Zapf, 2002), the strength of effects of social stressors differs from those of task-related stressors.

An interesting aspect for future research to study could be to examine if leader perceptions of a high-quality LMX are not only beneficial for their employees but also for leaders themselves (Wilson et al., 2010). As the idea of LMX is that it is a dyadic relationship with a focus on mutual exchange (Graen & Uhl-Bien, 1995), leaders might also benefit from the certainty of having a good relationship with their followers, e.g. by being able to rely on their employees when facing stress at work and thereby maintaining their level of job satisfaction.

One core question is why the moderating role of LMX could not be observed when using emotional exhaustion as an outcome or when using time pressure as a predictor. Looking at the relationships with emotional exhaustion as an outcome, one can argue that the nature of the task, e.g. low job control, cannot be changed by the leader in situations when a task needs to be performed in a specific way. What can be influenced by the leader is the way employees cope with the nature of the task (e.g. leaders can acknowledge the unfavorable situation and promise that the next task will include more job control again). Having this in mind, employees might find it easier to cope with the current situation and therefore their attitude to their job, e.g. their job satisfaction, might not change much. Nevertheless, it is the nature of that task that depletes the physical, psychological or cognitive resources and therefore leads to emotional exhaustion. When facing a task with low job control employees for instance need to perform the task in a way that is not their preferred way or there is no

chance to build on own strengths. Following the control model of demand management (Hockey, 1995), environmental stressors make people apply performance-protection strategies, e.g. actively controlling information processing, which increases the subjective effort (Demerouti et al., 2001). Consequently, task performance is more demanding which is reflected in a greater level of emotional exhaustion.

Two possible explanations for not finding the moderating role of LMX when using time pressure as a predictor of well-being will be discussed. First, when comparing job control with time pressure, it is noticeable that both job characteristics can be influenced to different degrees by the leader and his or her behavior. Job control might be a job characteristic that is more connected to leader behavior. Leaders have the ability to give their employees the necessary degrees of freedom that they need in order to be able to perform a task according to own preferences or strengths and thereby to experience the feeling of a high level of job control. When facing a task with low job control, e.g. because the nature of the task does not allow for the freedom to decide on how to perform the task, leaders in a high-quality relationship might be aware of that situation and therefore offer support for their employees, e.g. by acknowledging the situation and the needs of the employee or by sharing material or informational resources (Erdogan & Bauer, 2014). Contrary to job control, time pressure might be less associated with leader behavior or characteristics. Of course, leaders can also be responsible for high time pressure of their employees, for example by delegating many tasks or requiring short deadlines. Nevertheless, the feeling of being under time pressure might be something that is not so much attributed towards the leader but more towards the employee him- or herself (e.g. due to a lack of time management strategies or a lack of competences).

The second possible explanation might be found in the consequences of a very high LMX quality. Some research suggests that there is a “too much of a good thing” (Harris & Kacmar, 2006). In their study, Harris and Kacmar (2006) found a curvilinear relationship between LMX and stress, i.e. stress was highest in LMX relationships with very low or very high quality. The authors argued that employees in high-quality relationships might feel obliged to put extra effort into their work in order to meet the leader´s expectations and to not disappoint him or her. Following this argumentation, time pressure would not decrease but increase when LMX quality increases. In line with the multidimensional concept of LMX (Liden & Maslyn, 1998) the individual contribution and commitment to a shared goal might make an employee “go the extra mile” for the leader in order to reach the goal. Therefore, one can assume that in certain situations a high-quality relationship between a leader and an employee is not a job resource but rather a job stressor. Future research might want to clarify which situational characteristics lead to LMX being perceived as either a stressor or a resource.

Lagged effects of daily job characteristics on next-day well-being

Contrasting my hypotheses, no lagged effects of job characteristics on next-day well-being have been observed. This is surprising as previous research showed that events on one day have an effect on next day variables (e.g. Fritz & Sonnentag, 2009; Nicholson & Griffin, 2015). A reason for not finding the proposed lagged relationships of job characteristics on emotional exhaustion might be found in the recovery literature. Sufficient recovery in the evening is able to compensate for stressful work events during the day, which gives employees the chance to start the next day with their resources being fully recharged (Bennett et al., 2018; cf. Sonnentag et al., 2017). Therefore, also an increased level of emotional exhaustion can be neutralized by efficient evening recovery. Unfortunately, I did not control for evening recovery activities and therefore cannot rule out this explanation. Future research might want to include quantitative or qualitative measurements of recovery experiences when studying the lagged effects of job characteristics on well-being.

Next, two possible reasons for not finding lagged effects of job characteristics on job satisfaction will be discussed: the stability of job satisfaction and the role of mood in job satisfaction. Starting with the first reason, job satisfaction is a construct that is rather stable across time (Dormann & Zapf, 2001). This assumption is also supported by current data and recent research that demonstrated that the amount of within-person variation in job satisfaction is somewhat lower than in other constructs in applied psychology (N. P. Podsakoff et al., 2019). Besides explaining the stability of job satisfaction with heritage, other researchers (Bowling et al., 2005) proposed that every person has its own equilibrium level of job satisfaction which is formed by past experiences, for instance. Nevertheless, day-level changes in job satisfaction exist and by focusing on within-person differences in job satisfaction the present study followed a call by Ilies and Judge (2002) who encouraged researchers to consider the dynamic nature of job satisfaction. Therefore, one can assume that workplace events or stressful job characteristics have an effect on job satisfaction but only for a short period. But how short is short? Following the results of the present study, the effects of job characteristics on job satisfaction are limited to the same day and do not transfer onto the next day. Having Bowling et al.´s (2005) proposition of the equilibrium level of job satisfaction in mind it might be possible that at the end of the day participants´ daily job satisfaction commuted in their more stable degree of job satisfaction again. However, the velocity by which daily job satisfaction is leveling off again might depend on the strength of the stressor. Participants in the present study were perhaps not confronted with drastic stressors and therefore their decrease in job satisfaction was rather low, consequently having the chance to start the new day with their average level of job satisfaction again. Not only the strength of the stressor but also personality traits could influence the way in which a person reacts to workplace events (Bowling et al., 2005).

I recommend researchers to include personality traits (e.g. emotional stability or self-efficacy) in future studies in order to investigate if these affect the time lag with which job characteristics influence job satisfaction.

The second possible explanation, the role of mood in job satisfaction, can be derived from the study of Ilies and Judge (2002). They demonstrated that temporary mood accounts for almost one third of the within-person variance in job satisfaction and job satisfaction and mood varied concurrently. As from one day to another lots of work (other than job characteristics) or non-work events have the chance to influence participants´ mood, the effects of the job characteristics could have lost some of their significance in the meantime. This would be in line with the results of Judge and Ilies (2004) who found that the link of mood and job satisfaction dissipated rather quickly as time went by.

The present study focused only on a limited number of work-relevant variables. Future research might want to consider the moderating role of LMX on the relationship of other variables as well. For instance, these could include outcomes such as work engagement, work performance or negative and positive affect. Additionally, predictors such as positive or negative work events are conceivable as well.

5.4 Practical implications

Some practical implications can be drawn from the findings of the study. First, if possible, jobs should be designed in a beneficial manner in order to be related to high job satisfaction and low emotional exhaustion. That means that employees should be given autonomy and control over the way they perform their tasks. Leaders can reach this by upskilling their employees, sharing necessary information with them, emphasizing that the result of the task is more important than the way the task is performed and additionally trusting their employees that they will perform their task well. However, leaders should keep in mind that the ideal degree of autonomy might vary between individuals, as high levels of job control could be overwhelming for some employees, especially when being confronted with new tasks. Additionally, one should aim at reaching lower degrees of time pressure as this showed to go along with increased job satisfaction and decreased emotional exhaustion. On the one hand a reduction of time pressure at work can be enhanced by leader behavior, e.g. by not demanding unnecessarily strict deadlines or by equipping employees with time management strategies. On the other hand employees as well can actively try to reduce their time pressure, e.g. by avoiding multitasking, by communicating with their leader about the current workload or by rethinking their working style. However, even though this study suggested a linear relationship of time pressure and well-being and therefore suggests low degrees of time pressure to be the

ideal, one should keep in mind that for some people a medium level of time pressure might lead to more job satisfaction than working without any time pressure at all.

Second, leaders should not underestimate the role they play for job satisfaction and should be aware of the buffer effect of a high-quality relationship with their employees. This buffer effect might especially be significant in situations in which job characteristics, such as job control, cannot (easily) be changed, e.g. when there are none or only few degrees of freedom to perform a task. By demonstrating attention and loyalty to them, leaders can give their employees the feeling that their situation is acknowledged. Additionally, leaders can try to make sense of situations that are perceived as threats (Harris & Kacmar, 2006) or provide their employees with guidance on the task (Wayne et al., 1997).

Third, this study showed that there is some day-to-day variance in the researched constructs. For example, in case of LMX almost half (46%) of the total variance was within-person variance. This suggests that LMX is not an entirely stable construct but the quality of the relationship might be susceptible to slight changes. This view is also supported by other researchers (Ellis et al., 2019). Consequently, leaders should not rely on the quality of the relationship they once built up, but should keep in mind that changes in the perceptions of the quality might be possible and therefore they should invest in a high-quality relationship on a regular basis and make sure that the quality level stays the same or increases.

6 Conclusion

Having energetic and satisfied employees is beneficial for organizations in many different ways. Job characteristics and leader behavior are two aspects of the work environment that have the potential to influence employees´ well-being. The present study makes three important contributions to the current literature on job characteristics, well-being and leadership: First, the present study fits into a current research stream centering around the JD-R model focusing on day-level stressor-strain relationships instead of applying cross-sectional designs. Research is extended by demonstrating that daily perceptions of high job control are not only relevant for motivational and affective outcomes but also for health-relevant outcomes (i.e. emotional exhaustion) as well as by demonstrating that daily perceptions of high time pressure not only relate to health-relevant outcomes but also to affective und attitudinal outcomes (i.e. job satisfaction). Second, the present study connects with two lines of research that investigate on the one hand the buffering role of LMX on stressor–strain relationships and on the other hand the role of day-level variability of LMX. The present study goes beyond existing literature on LMX as an organizational resource for employees by combining these to recent approaches on LMX and by demonstrating that day-level LMX acts as a buffer on the

job control – job satisfaction relationship. Therefore, this study suggests that, if possible, jobs should be designed beneficially for employees and that leaders have the chance to buffer negative consequences when employees are facing unfavorable working conditions. Future research should investigate if a high-quality relationship does also have buffering effects for leaders´ well-being. Last, the present study relates to existing research on the stability of effects of work events and well-being. Not finding the assumed lagged effects from one day to another, despite sufficient statistical power, helps to understand the nature of the studied variables better and gives hints for potential mediators and moderators. Researchers could investigate under which conditions lagged effects from one day to another can be observed.

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Appendix: Results of HLM analyses of lagged effects

Table A1

Multilevel regression analysis predicting next day morning job satisfaction

	Null model			Model 1			Model 2			Model 3			Model 4		
	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*
Intercept	5.04***	0.08	60.23	5.05***	0.06	88.93	5.05***	0.06	80.33	5.04***	0.07	69.48	5.03***	0.07	69.63
Age[a]				0.01	0.01	0.99	0.01	0.01	0.92	0.01	0.01	0.78	0.01	0.01	0.72
Gender[a]				-0.01	0.14	-0.09	-0.08	0.15	-0.52	-0.12	0.20	-0.61	-0.15	0.19	-0.80
Dyad Tenure[a]				0.00	0.03	0.16	0.02	0.03	0.52	0.01	0.04	0.21	0.01	0.04	0.20
Trait Job satisfaction[a]				0.58***	0.06	9.05	0.56***	0.07	7.94	0.58***	0.08	7.61	0.59***	0.08	7.70
Job control[b]							0.02	0.05	0.44	0.00	0.05	0.05	-0.01	0.05	-0.25
LMX[b]										0.08	0.05	1.83	0.09*	0.04	2.06
Job control*LMX[b]													-0.07	0.05	-1.51
-2*log (lh)	2484.30			2397.64			1940.22			1203.40			1198.35		
Difference of -2*log (lh)				86.67***			457.42***			736.82***			5.05		
df[c]				4			3			4			5		
Level 1 intercept variance (SE)	0.62 (0.03)			0.62 (0.03)			0.60 (0.03)			0.56 (0.05)			0.55 (0.04)		
Level 2 intercept variance (SE)	0.70 (0.10)			0.28 (0.05)			0.33 (0.06)			0.36 (0.07)			0.36 (0.07)		

Note. [a] Predictors at the person-level. [b] Predictors at the day level. [c] df refers to the number of parameters added to the model.

* $p < .05$. *** $p < .001$.

Table A2

Multilevel regression analysis predicting next day morning job satisfaction

	Null model			Model 1			Model 2			Model 3			Model 4		
	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*
Intercept	5.04***	0.08	60.23	5.05***	0.06	88.93	5.05***	0.06	80.44	5.04***	0.07	68.88	5.04***	0.07	68.89
Age[a]				0.01	0.01	0.99	0.01	0.01	0.87	0.01	0.01	0.78	0.01	0.01	0.84
Gender[a]				-0.01	0.14	-0.09	-0.07	0.15	-0.49	-0.13	0.20	-0.66	-0.16	0.20	-0.80
Dyad Tenure[a]				0.00	0.03	0.16	0.02	0.03	0.59	0.00	0.04	0.11	0.00	0.04	0.10
Trait Job satisfaction[a]				0.58***	0.06	9.05	0.58***	0.06	9.32	0.59***	0.07	8.31	0.59***	0.07	8.23
Time pressure[b]							-0.02	0.04	-0.41	-0.08	0.05	-1.51	-0.08	0.05	-1.45
LMX[b]										0.09	0.04	1.93	0.10*	0.05	2.09
Time pressure*LMX[b]													0.05	0.05	0.99
-2*log (lh)	2484.30			2397.64			1968.18			1209.04			1206.40		
Difference of -2*log (lh)				86.67***			429.46***			759.14***			2.65		
df[c]				4			3			4			5		
Level 1 intercept variance (SE)	0.62 (0.03)			0.62 (0.03)			0.60 (0.03)			0.54 (0.04)			0.52 (0.04)		
Level 2 intercept variance (SE)	0.70 (0.10)			0.28 (0.05)			0.33 (0.06)			0.37 (0.07)			0.38 (0.07)		

Note. [a] Predictors at the person-level. [b] Predictors at the day level. [c] df refers to the number of parameters added to the model.

* $p < .05$. *** $p < .001$.

Table A3

Multilevel regression analysis predicting next day morning emotional exhaustion

	Null model			Model 1			Model 2			Model 3			Model 4		
	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*
Intercept	1.93***	0.04	52.05	1.93***	0.03	65.84	1.93***	0.03	58.61	1.92***	0.04	49.40	1.92***	0.04	49.42
Age[a]				-0.01	0.01	-1.75	-0.01	0.01	-1.50	-0.01	0.01	-0.99	-0.01	0.01	-1.02
Gender[a]				-0.03	0.07	-0.39	-0.02	0.08	-0.22	0.05	0.09	0.52	0.05	0.09	0.51
Dyad Tenure[a]				0.02	0.01	1.10	0.01	0.02	0.78	0.00	0.02	0.04	0.00	0.02	0.05
Trait Emotional exhaustion[a]				0.40***	0.05	7.82	0.37***	0.06	6.39	0.41***	0.06	6.89	0.41***	0.06	6.91
Job control[b]							0.01	0.03	0.38	0.05	0.04	1.20	0.06	0.04	1.61
LMX[b]										-0.03	0.03	-0.73	-0.02	0.03	-0.54
Job control*LMX[b]													0.02	0.04	0.42
-2*log (lh)	1608.70			1556.37			1250.71			797.54			794.94		
Difference of -2*log (lh)				52.33***			305.66***			453.17***			2.60		
df[c]				4			3			4			5		
Level 1 intercept variance (SE)	0.27 (0.01)			0.27 (0.01)			0.26 (0.01)			0.25 (0.02)			0.25 (0.02)		
Level 2 intercept variance (SE)	0.12 (0.02)			0.06 (0.01)			0.08 (0.02)			0.08 (0.02)			0.08 (0.02)		

Note. [a] Predictors at the person-level. [b] Predictors at the day level. [c] df refers to the number of parameters added to the model.

*** $p < .001$.

Table A4

Multilevel regression analysis predicting next day morning emotional exhaustion

	Null model			Model 1			Model 2			Model 3			Model 4		
	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*	Est	SE	*t*
Intercept	1.93***	0.04	52.05	1.93***	0.03	65.84	1.93***	0.03	59.23	1.92***	0.04	49.83	1.92***	0.04	49.85
Age[a]				-0.01	0.01	-1.75	-0.01	0.01	-1.44	-0.01	0.01	-0.97	-0.01	0.01	-0.87
Gender[a]				-0.03	0.07	-0.39	-0.01	0.08	-0.13	0.05	0.09	0.55	0.05	0.09	0.57
Dyad Tenure[a]				0.02	0.01	1.10	0.01	0.02	0.80	0.00	0.02	0.05	-0.00	0.02	-0.01
Trait Emotional exhaustion[a]				0.40***	0.05	7.82	0.38***	0.06	6.74	0.41***	0.06	6.93	0.42***	0.06	6.98
Time pressure[b]							0.04	0.03	1.29	0.05	0.04	1.41	0.05	0.03	1.41
LMX[b]										-0.02	0.04	-0.65	-0.02	0.04	-0.68
Time pressure*LMX[b]													-0.04	0.03	-1.34
-2*log (lh)	1608.70			1556.37			1262.13			805.61			803.28		
Difference of -2*log (lh)				52.33***			294.24***			456.52***			2.32		
df[c]				4			3			4			5		
Level 1 intercept variance (SE)	0.27 (0.01)			0.27 (0.01)			0.25 (0.01)			0.25 (0.02)			0.25 (0.02)		
Level 2 intercept variance (SE)	0.12 (0.02)			0.06 (0.01)			0.08 (0.02)			0.08 (0.02)			0.08 (0.02)		

Note. [a] Predictors at the person-level. [b] Predictors at the day level. [c] df refers to the number of parameters added to the model.

*** $p < .001$.