Leader-member Exchange (LMX) quality and follower well-being: A daily diary study.

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Abstract

Guided by Self-determination and Social Exchange theories, we examine how leader-member exchange (LMX) quality impacts follower well-being. Despite LMX relationships being dynamic in nature, the way relationship quality varies over time and its impact on well-being has not been examined in detail. To address this important issue, a daily diary study is reported of employees from a variety of organizations. 158 participants completed a daily diary in the morning and evening for five consecutive workdays ($k = 603$ observations). Measures included hedonic and eudaimonic well-being, and social and economic LMX exchanges. There was a significant variation of LMX quality over the diary days. Daily LMX quality predicted daily follower well-being (while controlling for morning well-being). Further, for those that interacted with their manager, social LMX exchanges but not economic exchange predicted daily well-being. Interaction characteristics (frequency, time, content) had a relatively small impact on daily well-being. As predicted, work engagement mediated the relation between daily LMX quality and social LMX exchanges and well-being but not daily economic LMX exchanges. The results show how LMX quality affects followers' well-being that varies daily, that is affected by leaders' behaviors.

Introduction

The quality of working relationships in organizations and that with one's direct manager, is critical for individual well-being (Holt-Lunstad, 2018). Accordingly, relationship-based approaches to leadership, such as LMX theory, have become one of the most popular approaches to leadership (for a review see Epitropaki, Martin, & Thomas, 2017). The central tenet of LMX theory is that, through engaging in different types of social exchanges, leaders differentiate in the way that they treat their followers (Dansereau, Graen, & Haga, 1975) leading to different quality relationships between the leader and each follower (ranging from low- to high-quality). Studies show that different quality relationships are consistently associated with followers' work-related reactions and performance (e.g., Dulebohn, Bommer, Liden, Brouer, & Ferris, 2012; Martin, Guillaume, Thomas, Lee, & Epitropaki, 2016). However, considerably less evidence is available on the association between LMX quality and employee well-being, beyond that of job satisfaction (Inceoglu, Thomas, Chu, Plans, & Gerbasi, 2018).

It is surprising that while LMX theory is essentially a theory of leader-follower interaction (involving reciprocal exchanges) that unfold over time (Lord, 2018; Shamir, 2011), the majority of studies employ research designs that are unable to capture this and provide only a 'snapshot' of the relationship. While the dominant between-person research designs (such as cross-sectional and traditional longitudinal designs) can appropriately examine many important research questions, they lack the level of granularity required to capture the interaction between leaders and followers especially daily. Research designs that examine momentary, episodic, event-level, and daily perspectives of the leadership process (Kelemen, Matthews, & Breevaart, 2020), which are referred to as *Experience Sampling Methods* (ESM; Hektner, Schmidt, & Csikszentmihalyi, 2007) are better able to capture the transient fluctuations of leadership across moments and/or days (note that other terms often employed include *diary studies*, Ohly, Sonnentag, Niessen, & Zapf, 2010; and *intensive longitudinal methods*, Bolger

& Laurenceau, 2013). The underlying feature of ESM or similar designs is the use of self-report assessments that require reporting cognitive, affective, behavioral, and situational experiences with recall periods varying from zero minutes (momentary) to 24 hours (daily), and even weekly (for a review see Beal & Gabriel, 2019). Such methods are most appropriate to address within-person effects (see McCormick, Reeves, Downes, & Ilies, 2020) although the methodology can introduce biases (Gochmann, Ohly, & Kotte, 2022).

While the use of diary studies is increasing in the general leadership area (Kelemen et al., 2020), it is noticeable that our literature search revealed relatively few (<10) studies with respect to LMX quality, and even fewer where it was the focal construct (e.g., Ellis, Bauer, Erdogan, & Truxillo, 2019). Despite the prevailing assumption that LMX quality is relatively stable (e.g., Liden, Wayne, & Stilwell, 1993), studies modelling within-person LMX quality have found significant variability (Ellis et al., 2019). Diary studies, especially daily ones, can provide a substantive contribution to our understanding of LMX theory. More specifically, this research design allows the modelling of the dynamic interaction between leaders and followers, as specified in LMX theory (Liao, Liu, Li, & Song, 2019), and in so doing matches the observational units (such as individual perceptions) with the ontological units (such as leadership behaviors) (Fairhurst & Antonakis, 2012). Given the opportunities that diary studies offer for testing hypotheses related to the dynamic aspect of leader-follower relations, this paper contributes to this lacuna by reporting a diary study that focuses on daily perceptions of LMX quality and its consequences for follower well-being. As such our paper makes three important contributions to the literature.

First, well-being has not been extensively examined in LMX research (Dulebohn et al., 2012) despite there being good arguments for leader's behaviors affecting followers' well-being (Nielsen & Taris, 2019). A useful distinction in well-being research has been the one between hedonic (i.e., subjective experience of pleasure and affect e.g., comfort, contentment, satisfaction) and eudaimonia (i.e., subjective vitality and 'aliveness' e.g., fulfilment, personal

growth and sense of meaningfulness) indices of well-being (Grant & McGhee, 2021). A review by Inceoglu and colleagues (2018) found that in leadership research most studies focus on hedonic forms of well-being as a dependent variable and suggest future studies need to examine both aspects, simultaneously, because managerial practices (and behaviors) may create undesirable trade-offs between different aspects of well-being (Grant, Christianson & Price, 2007). As such, we contribute to the leadership literature by not only broadening the criterion space for conceptualizing follower well-being, but also by examining the hedonic and eudaimonic outcomes of LMX quality contemporaneously (Inceoglu et al., 2018; Nielsen, Yarker, Randall, & Munir, 2009).

Second, structural aspects of the leader-follower interaction are a key, yet relatively unexplored, aspect in leadership research (Hofmans, Dóci, Solinger, Choi, & Judge, 2019). To address this, we examine two key aspects of the leader-follower interaction that could determine well-being: first, *interaction characteristics* and second, *interaction quality*. For interaction characteristics we examine interaction frequency, amount of time spent in interaction and percentage of time focusing on work related issues to better capture the interaction properties (e.g., Parent-Rocheleau, Bentein, & Simard, 2020). While for interaction quality, we draw upon the distinction of economic and social LMX exchanges that describe the different exchanges that underpin LMX development (Kuvaas, Buch, Dysvik, & Haerem, 2012). In this study, for the first time, we capture both interaction characteristics and quality at the same time and with a broader range of theoretically determined measures. In doing so, we provide a more complete test of an exchange-based theory of LMX (Liao et al., 2019: Sparrowe & Liden, 2005).

Third, an important limitation of the literature on leadership behavior and well-being is that it is theoretically underdeveloped, especially with respect to mediational processes (Arnold, 2017; Inceoglu et al., 2018). As such, we examine a theoretically relevant mediational process between LMX quality and well-being. We employ self-determination theory (SDT:

Deci & Ryan, 1985, 2000) as a guiding theoretical framework to explore this mediational process because this is better able, than traditional leadership theories, to link leadership processes with well-being (see Hildenbrand, Sacramento, & Binnewies, 2018). Based on this, we explore work engagement as a potential (hitherto unexamined) mediator between daily LMX quality and well-being.

Theoretical Framework and Development of Hypotheses

In a review of within-person studies in the field of Applied Psychology, Podsakoff, Spoelma, Chawla and Gabriel (2019) found that the amount of meaningful within-person variance in a variety of leadership constructs was, on average, .47 (with a range = .35 to .75). Similarly, they found that constructs in the domain of well-being, such as affect and satisfaction, also displayed a large average within-person variability (.53 and .41, respectively). These findings clearly support the need for shifting the study of leadership and well-being to incorporate both the within- and between-person levels of analysis.

It has long been an assumption in LMX theory that LMX quality develops quickly in a relationship and once established, it does not change substantially over time. The few studies that have examined LMX quality over time are often cited to support the stability of LMX quality. However, as noted by Ellis et al. (2019), those same studies can also be interpreted to show variation over time. For example, Liden et al., (1993) found that the correlation between LMX quality measured five days and six months into a new leader-follower relationship varied from .43 to .58 – and while these are statistically significant, they also show there is a considerable amount of variance within the same person over time (see also Nahrgang, Morgesson, & Illes, 2009). One of the few studies to examine daily fluctuations of LMX quality found an ICC of .64 showing that a substantial amount of variance (36%) was at the within-person level (Ellis et al., 2019). This finding suggests that the LMX relationship is more transient than is typically assumed by LMX researchers. Based on this research and the theoretical framing of the LMX relationship as reasonably volatile due to meaningful variation

in daily interactions (ten Brummelheis & Bakker, 2012), we expect LMX quality to fluctuate on a daily basis.

Daily LMX quality and daily well-being. There is initial evidence of a link between LMX quality and well-being (Dose, Desrumaux, Bernaud, & Hellemans, 2019). While this research is based predominantly on cross-sectional research designs, there is an expectation that if LMX quality varies over time, then one would also expect that on days when followers' report high LMX quality, they will also report positive well-being. Our review, however, identified only a small number of empirical papers utilizing diary studies and examining LMX quality, and only a few where this was the focal independent variable. In some studies, LMX quality was modelled only at the person level (Liao et al., 2019; Scott, Colquitt, Paddock & Judge, 2010), measured at the leader level (Richter-Killenberg & Volmer, 2022), as a mediator (Masterson, Sun, Wayne, & Kluemper, 2021), or as a moderator of other relationships that did not focus directly on the leadership (De Vries, Tummers, & Bekkers, 2018; Griep, Vantilborgh, Baillien, & Pepermans, 2016; Kwon, Kim, & Kim, 2019; Tröster & Van Quaquebeke, 2021).

Three studies have examined LMX quality, in a diary study design, as the main independent variable. Ellis et al. (2019) in a five-day daily diary study found, as expected, that daily follower LMX quality predicted two indices of well-being (daily emotional exhaustion and vigor). In addition, they found that LMX variation (as measured by the standard deviation of within-person LMX quality) moderated the mediation between LMX quality and well-being via the satisfaction of relatedness needs – such that it was stronger under low LMX variation. Çetin, Samenova, Türkkan and Karataş (2021) also report a daily diary study with responses collected over five days. They found that daily LMX quality predicted daily affect (positive and negative) and that this was moderated by trait emotional intelligence. Finally, Dimotakis et al. (2022) conducted two diary studies with responses completed every Friday (10 and 8 weeks for studies 1 and 2, respectively). Participants rated their LMX quality with their manager for

the prior week. They found that changes in LMX quality between the weeks, indicating improvements (gains) or deterioration (loses) in their relationships, predicted follower affect (positive and negative).

While informative, all three studies focused on only one aspect of well-being in isolation, either hedonic or eudaimonic. As stated earlier, one of our research objectives is to take a broader conceptualisation of well-being; one that simultaneously takes into consideration indicators of both hedonic and eudaimonic well-being, thereby offering a more encompassing theoretical framework (Inceoglu et al., 2018). In addition, we incorporate two important methodological considerations, not achieved in previous research, that have important theoretical implications. First, our measures were obtained on two time periods in the same day (early morning and end of workday). Controlling for morning outcomes when predicting end-of-workday outcomes, enables a more accurate examination of the effect of our focal variables rather than carryover effects from events that might have occurred out-of-work (over the evening/night). Second, it is noticeable that diary studies examining LMX quality have neither made a distinction between days when the follower interacted with the leader and when they did not nor focused specifically on the nature of such leader-follower interactions. Social Exchange theory posits that LMX quality is to an important extent event-specific (i.e., it depends on leader-follower interactions) and therefore it is crucial to take this into consideration to determine if LMX quality varies because of daily interactions with the leader (Cropanzano & Mitchell, 2005). This is especially important to consider for studies, like ours, that examine the characteristics of leader-follower interactions.

Our rationale for the relationship between daily LMX quality and daily follower well-being is rooted in self-determination theory (SDT: Deci & Ryan, 1985, 2000). There is growing recognition that SDT is a useful framework for understanding the impact of LMX quality on work reactions and behaviors (Dose e al., 2019; Graves & Luciano, 2013). It predicts that when three fundamental psychological needs (autonomy, competence, and

relatedness) are satisfied, then people feel their behavior is self-determined and this enhances work attitudes, well-being, performance, and creativity (Van den Broeck, Howard, Van Vaerenbergh, Leroy, & Gagné, 2021).

One would expect that high quality LMX relations are ones that satisfy all these needs: enhanced autonomy from greater job discretion provided by the leader, greater feelings of competence from increased leader feedback and support on work performance, and better relatedness from a good interpersonal relationship with the leader. Situations that are high in these three factors lead to feelings of empowerment and enhanced self-worth and well-being (see Milyavskaya & Koestner, 2011). This is likely to occur also on a daily within-person level, not only at the between-person level. High LMX quality relationships on a given day provide the follower with appreciation and recognition, information, instrumental and psychosocial support for work tasks (Scandura & Schriesheim, 1994). A relationship of this quality with one's manager can offer, therefore, daily satisfaction to the three fundamental psychological needs. When the need for relatedness is satisfied daily, people are likely to experience more positive feelings (e.g., feeling content, happy in the workplace) and less negative feelings (e.g., feeling gloomy and sad or anxious at work). When daily needs for autonomy and competence are satisfied, people will likely perceive their job as more meaningful, useful, and important. Based on this, we expect daily LMX quality to predict daily well-being. This leads to the following hypothesis:

> *Hypothesis 1: Daily LMX quality will positively predict daily hedonic and eudaimonic well-being.*

Leader-follower interaction and daily well-being. Social exchange theory is typically employed as a theoretical framework to explain how leader-follower relationships develop (although see Scandura & Meuser, 2022, for a critical evaluation). During interactions people exchange different resources between them (such as money, goods, services, status, information, and love) and this determines how relationships develop (Blau, 1968). While the

leader-follower dyad is the unit of analysis in LMX research, it is surprising that relatively little research focuses on the characteristics and content of the interaction (Scandura & Meuser, 2022). A daily diary study design is ideal for examining aspects of the leader-follower interaction and how they predict work outcomes. This allows testing of theoretically relevant variables associated with the interaction that can, in turn, affect LMX quality. Research has mostly examined two aspects of the leader-follower interaction (at the between-person level), namely interaction characteristics and interaction quality.

In terms of *interaction characteristics*, the most frequently analysed concepts are interaction frequency (i.e., the number of times the follower interacts with their manager over a set time period in terms of different modes of interaction such as face-to-face, email, phone etc.). Indeed, many studies show that interaction frequency either directly impacts or moderates work-related outcomes (e.g., Gajendran & Joshi, 2012; Goodwin, Bowler, & Whittington, 2009; Kacmar, Witt, Zivnuska, & Gully, 2003; Parent-Rochleau et al. 2020). In a meta-analysis of a related context, Sin, Nahrgang and Morgeson (2009) report that interaction frequency is a significant moderator of leader-follower LMX agreement. The rationale for interaction frequency affecting outcomes is that it increases exposure to the leader and therefore amplifies the impact the leader has on the follower – i.e., it makes high LMX better and low LMX worse. As Kacmar et al. (2003) state "These divergent patterns [of outcomes] should become increasingly strong as low- and high-LMX subordinates interact more frequently with their supervisor" (p. 765). However, there are issues with interaction frequency in that first, it does not necessarily relate to the amount of interaction time (e.g., many short interaction episodes could be equivalent in time to one longer interaction episode) and second, it does not cover what the interaction contains (e.g., conversations could focus predominantly on non-work issues). To counter this, we examine all three interaction characteristics: frequency, total time spent, and proportion of time spent discussing work-related issues.

The second aspect of leader-follower interactions that has been examined is
interaction quality. Measures of interaction quality tend to examine how close followers and
leaders work (e.g., Pearce & Gregersen, 1991) or the quality of the communication in terms of
shared understanding (e.g., Jian, Shi, & Dalisay, 2014) and these studies show a positive
relationship with LMX quality. However, neither of these measures differentiates between the
types of exchanges that are focal to LMX theory, namely task/economic and social exchanges
(Zhou & Schriesheim, 2009). This is somewhat surprising as LMX theory is a relationship-
building process and what occurs during the leader-follower interaction determines LMX
quality and hence outcomes. Social exchange accounts of LMX propose that low and high
LMX quality relationships develop through engaging in economic and social exchanges
respectively.

Kuvaas et al. (2012) have made a compelling theoretical case to measure and assess
social and economic LMX measures separately and developed scales to do this (see also Shore,
Tetrick, Lynch, & Barksdale, 2006). They define social LMX as "… exchanges between
leaders and followers [that] are ongoing and based on feelings of diffuse obligation, and less in
need of an immediate "pay off. The emphasis is on socio-emotional aspects of exchanges, such
as give and take and being taken care of, and exchange partners trust that the other partner will
reciprocate" (p. 757). While economic LMX relationships are defined as having "… more
marketplace, transactional, and contractual character, and do not imply long-term or open-
ended and diffuse obligations. Rather, the exchanges rest upon downward influence, formal
status differences and discrete agreements and they demand repayment within a particular time
period, involving economic or quasi-economic goods, and are motivated by immediate self-
interest" (p.757). Their research programme finds consistent evidence that social (economic)
LMX exchanges are positively (negatively) related to several outcomes including OCB, work
effort, intrinsic motivation, and affective commitment (see Andersen, Buch, & Kuvaas, 2020).
Moreover, there is evidence that these different types of exchanges differentially predict

motivational variables that might lead to different mediational pathways. For example, Buch (2015) finds social LMX exchanges and economic LMX exchanges had a positive and negative relationship respectively with intrinsic motivation.

In this study we examine both aspects of leader-follower interactions described above (e.g., the two types of exchanges), in addition to interaction characteristics at the within-person level. Social exchange theory's description of LMX development proposes that managers differentiate in the way they interact with followers in terms of different exchanges – if the exchanges are mainly economic then a low LMX will develop but if they are social exchanges a high quality LMX develops (Dansereau et al, 1975). Based on previous research, we predict that the type of exchanges (economic and social) as well as interaction characteristics will be related to daily well-being.

Hypothesis 2: The quality of LMX exchanges (negative for economic and positive for social) as well as the greater interaction characteristics (interaction frequency, time, and proportion of work-related content) will positively predict hedonic and eudaimonic daily well-being.

Mediation between daily LMX quality and daily well-being. SDT proposes that the satisfaction of the three fundamental psychological needs engenders intrinsic forms of motivation that, for being more self-determined, are also associated with greater individual performance and well-being (Van den Broeck et al., 2021). Therefore, the mediating role of intrinsic motivation between situations that satisfy psychological needs and individual outcomes is a core tenet of this theory.

Initial support for this theoretical expectation in LMX research comes from studies that show the mediating role of motivation/work empowerment in the relationship between LMX quality and performance (e.g., Breevart et al., 2014; Garg & Dhar, 2017) as well as indices of well-being (e.g., Dose et al., 2019: Malik, Wan, Ahmed, & Nassem, 2015; Xia, Xie, Hu, Wang, & Meng, 2020). However, all these studies were cross-sectional and based on between-

person designs and showed that people whose LMX quality was high were more motivated and had greater well-being than those whose LMX quality was low. We wish to explicitly examine these relations as a within-person variation and assess whether on days in which an individual's LMX exchanges with their manager are better (i.e., more social than economic) their motivation and well-being are also higher, as compared to days in which their LMX exchanges are of poorer quality.

In this study we examine work engagement, which is an affective-motivational state, as a potential mediator between LMX quality and well-being as this has been shown to be related to intrinsic motivation (Chua & Ayoko, 2021: Gagné, 2014; Putra, Cho, & Liu, 2017). Work engagement refers to a "… positive, fulfilling, work-related state characterized by vigor, dedication, and absorption" (Shaufeli, Salanova, González-Romá, & Bakker, 2002). Our argument is that LMX relationships, which fluctuate on a daily basis, can satisfy daily the three psychological needs, hence increasing followers' daily work engagement. In turn, by feeling more invigorated, energetic and dedicated, employees would also feel better at work – both in terms of hedonic well-being (i.e., experiencing pleasure in relation to their job) and eudaimonic well-being (i.e., feeling good and meaningful about their work).

Bringing these theoretical lines together we predict that daily work engagement will mediate daily LMX quality and daily well-being, and that this relationship will differ for social and economic exchanges. This leads to the following hypothesis.

Hypothesis 3: Work engagement will be a stronger mediator between daily social LMX exchanges and daily hedonic and eudaimonic well-being than for daily economic LMX exchanges.

Method

Participants and Procedure

One hundred and seventy-eight participants were recruited via Prolific and had to meet

three selection criteria (i) work within the UK, (ii) work full-time for 5 days a week (Monday to Friday), and (iii) have a direct manager they interact with at least twice a week (with interaction being either face-to-face or virtual). At the recruitment stage (Friday prior to study commencement), participants completed the selection checks, read the ethical statements, and provided demographic data. For each of next five workdays (Monday to Friday) of the week, participants were sent an internet survey in the morning (between 8 and 10 am) and in the evening (between 4 and 7pm). We employed a longer evening period to cater for people who worked longer hours and to capture people at the end of their workday. By including morning well-being, the analysis of daily LMX on daily (evening) well-being can provide a more accurate estimate of the impact of LMX as occurring during the workday and not due to external factors like variations of affect or sleep fluctuations. The study was approved by the University of Manchester (UK) Ethics Committee (number 2021-12664-20210).

The sample was obtained in two separate weeks, spaced three weeks apart. As there was no effect of data collection week on the results, this is not reported in the analyses. Participants were paid per survey returned to a maximum of £12.50 (approx. 19 USD). To incentivize participants to complete all surveys, we paid them only at the end of the study period, for as many surveys as they had filled in. As our hypotheses require data from complete days, and over time, we selected 159 participants that provided at least two complete days of data (i.e., completed both morning and evening surveys). One participant was deleted due to missing data leaving a final sample of 158 providing ($k = 603$ days of data) representing (2 days, $n = 30$; 3 days, $n = 31$; 4 days, $n = 35$; 5 days, $n = 62$). Data was collected over all days of the week (Monday, $n = 116$; Tuesday, $n = 122$, Wednesday, $n = 122$, Thursday, $n = 130$, Friday, $n = 113$). The sample consisted of 68% females; average age was 31.16 years (SD = 6.91). Participants came from a range of organizations (none shared the same manager) with a range of job titles (including, accountant, town planner, software developer, cleaner, warehouse worker, receptionist, nurse, lawyer, coach driver, IT support).

Measures

General Survey

This was collected at the recruitment stage, the week before the daily data collection commenced. Demographic and control variables included gender, age (months/years), and leader relationship tenure (months/years).

Daily Surveys

Unless otherwise reported, all measures employed a 7-point scale from 'Strongly disagree' (1) to 'Strongly agree' (7).

Morning (8-10am)

 Hedonic Well-being. Job related hedonic well-being was measured using scales developed by Warr (Mullarkey et al., 1999; Warr, 1990). Participants were asked to indicate the extent they had experienced that morning a range of 12 feelings (e.g., Tense, Anxious, Calm, Optimistic, Gloomy, Depressed). Some items were reverse coded so that high scores reflected greater job-related well-being. Responses were made on a 6-point Likert-scale ranging from 'Never' (1) to All of the time' (6). Based on a MCFA approach to estimate reliabilities (Geldhof, Preacher, & Zyphur, 2014), the scale was reliable at both the within- ($a = .86$) and between-levels ($a = .96$).

 Eudaimonic Well-being. This was measured using the 3-item scale developed by (Kożusznik, Peiró & Soriano, 2019). For each item participants were asked to indicate what they thought in relation to the work they had done the day before. An example item is 'I feel the work I did was worthwhile and meaningful'. The scale was reliable at both within- ($a = .83$) and between-levels ($a = .91$).

Evening Survey (4-7pm)

Hedonic and Eudaimonic well-being. The same scales used in the morning were used in the evening, with the only change being the time of reference. All items were introduced by the leading sentence "Today at work …".

LMX quality. Relationship quality was measured using the 7-item LMX-7 (Graen & Uhl-Bien, 1995). Items were contextualized to the working day ("Today at work") and an example item is 'I have known where I stand with my manager. I have known how satisfied s/he is with what I do'. The scale was reliable at both within- (a = .86) and between-levels (a = .97).

Work Engagement. Work engagement was measured with the 3-item short scale Utrecht Work Engagement Scale (Schaufeli et al., 2019) with items covering vigor, dedication, and adsorption. An example item was 'Today at work, I have felt enthusiastic about my job'. This daily version of the UWES was reliable at both within- (a = .83) and between-levels (a = .94).

Leader interaction. Respondents were asked 'Have you interacted with your manager today? (Interactions include phone, email, and face-to-face contact)'. Responses were made on a Yes/ No basis.

For those that indicated they had interacted with their manager, the following additional measures were taken.

Interaction frequency. Respondents indicated how many discrete interaction episodes they had with their manager (irrespective of interaction format) that day.

Interaction time. Respondents indicated how much time in total that day they had engaged in business and informal contact with their manager (regardless of interaction format) in the following categories: less than 15 minutes, 15-30 minutes, 30-45 minutes, 45-60 minutes, over 60 minutes.

Interaction content. Respondents indicated the percentage of time their interaction(s) with their manager, that day, was related to work-related matters. This was recorded on a sliding scale from 0 to 100%.

Social and economic LMX exchanges. The two different types of exchanges were measured using two 4-item scales developed by Kuvass et al. (2012) adapted to the daily diary.

An example item of economic LMX exchanges is 'Today, I have done what my manager demands from me, mainly because he or she is my formal boss' and an example item of social LMX exchanges is 'Today, my relationship with my manager has been based on mutual trust'. For the social LMX scale the reliabilities were within- ($a = .70$) and between-levels ($a = .90$) and for the economic LMX scale they were within- ($a = .65$) and between-levels ($a = .95$).

While economic and social LMX exchanges and LMX quality are conceptually distinct (Andersen et al., 2020), because they focus on leadership behaviors there may be some conceptual overlap between them. To examine this, we conducted multi-level CFA using Mplus 8.3 comparing a model where all items loaded onto their respective constructs (economic and social LMX exchanges and LMX quality) and one where all items loaded onto the same construct. Each of the models was tested using weighted least square mean and variance adjusted estimator (WLSMV). No modification indices, correlations among items' residuals or other constraints were incorporated to improve the model fit. Supporting the distinction between these concepts, the three-factor model had a better fit to the data, for both within- and between-levels, ($\chi 2$ (189) = 331.71, $p < .001$; CFI = .88; RMSEA = .04; SRMR$_w$ = .05 and SRMR$_b$ = .16) than did the one-factor solution ($\chi 2$ (195) = 883.64, $p < .001$; CFI = .44; RMSEA = .09; SRMR$_w$ = .09 and SRMR$_b$ = .60).

Statistical Analyses

In a daily diary design, data are nested within each participant and therefore need to be analysed using multi-level modelling where the level 1 is the day data, and level 2 is the participants. Using restricted maximum likelihood (REML), multi-level analyses were conducted using SPSS 25, as recommended by Bolger and Laurenceau (2013). Specifically, for each participant we partitioned the variance of LMX quality and well-being measures into *within-* (person-centred scores across study days) and *between-person* (average scores for all consecutive days). In examining the relation between daily LMX quality and daily well-being at level 1 we included weekday as a control variable as prior research has shown that measures

of outcomes change over the course of the week (Taylor, 2006), whether they had interacted with their manager that day, and the within-person component of the morning measure of the examined well-being variables. Demographic factors such as gender, age, relationship tenure with the manager, and number of surveys completed did not affect the pattern of results and so are not reported in the analyses. Building on the null (i.e., random-intercept) and control-only models, we tested the fixed effects of the hypothesized predictors. We also included random effects of daily LMX quality (within component only) to capture the individual differences in the estimated slope[1].

The mediational analyses examined work engagement as a mediator between relationship quality variables (LMX quality, LMX economic exchanges and LMX social exchanges) and daily well-being (hedonic and eudaimonic well-being). These analyses were conducted using MLmed (Hayes & Rockwood, 2020: Rockwood, 2017), which is a multi-level analysis, that separates within- and between-group effects and provides Monte Carlo confidence intervals for indirect effects (Koopman, Howe, Hollenbeck, & Sin, 2015). Mediational models were tested separately for each relationship quality variable. Following the main multilevel models, we used REML to test our hypothesized mediation modes. In these analyses we included the following covariates at Level 1: day of week, the within-person component of the outcome measured in the morning and, for LMX quality that employed the general sample, if they had interacted with their manager.

The syntax for each of these analyses are contained in the supplementary materials XXXXXXXX.

Results

We calculated the intra-class correlations (ICCs) on our two dependent variables. For hedonic and eudemonic well-being, the values were .69 and .61 respectively. These results revealed substantial non-independence of the data reported by the same person that needs to be considered by partitioning the variance at the within- and between-levels.

Descriptive and zero-order correlations for the study variables are shown in Table 1. As anticipated the correlations show a significant positive association between LMX quality and social LMX exchanges with both well-being outcomes. Economic LMX exchanges, by contrast, showed a negative association with hedonic well-being but not eudemonic well-being. Social and economic LMX exchanges were negatively associated at the within-level ($r = -.12$, $p < .05$). Of note, in terms of subsequent analyses, LMX quality and social LMX exchanges were positively associated ($r = .39$ and $r = .42$, both $p < .001$) and economic LMX exchanges negatively associated ($r = -.12$, $p < .05$) with work engagement.

<Table 1 about here>

LMX quality stability

As stated in the introduction, we anticipated that daily LMX quality would significantly vary over the 5-day period. This expectation was supported as 28% of variance in daily LMX was due to within-person fluctuations (and measurement errors), ICC = .72 ($\sigma^2 = 1.04$; $\tau_{00} = .60$), showing the dynamic nature of LMX quality.

Effect of leader interaction

Participants indicated that they had had an interaction with their manager on 400 days and had not interacted with their manager on 203 days. There was no difference in morning and evening hedonic well-being, and morning eudaimonic well-being between leader interaction and non-interaction days ($M = 3.59$ and $M = 3.44$, $\gamma = 003.$, $t = 0.14$, 95% CI [-.04, .05], $M = 3.68$ and $M = 3.45$, $\gamma = 0.04$, $t = 1.63$, 95% CI [-.008, .08]; $M = 5.01$ and $M = 4.71$, $\gamma = 0.008$, $t = 0.20$, 95% CI [-.07, .08] respectively). However, there was greater reported LMX quality and evening eudaimonic well-being on days they interacted with their manager ($M = 5.37$ and $M = 4.65$, $\gamma = 0.19$, $t = 5.84$, $p < 0.001$, 95% CI [.13, .26] and $M = 5.09$ and $M = 4.64$, $\gamma = 0.13$, $t = 2.84$, $p < 0.01$, 95% CI [.04, .22].

Direct effect of daily LMX, interaction quality, and interaction characteristics with daily

well-being

Hypothesis 1 predicted that daily LMX would significantly predict daily outcomes. The

results of these analyses are shown in Table 2.

<Table 2 about here>

Overall, day of the week or if they had an interaction with their manager did not predict

the dependent measures. Morning well-being strongly predicted evening well-being for

hedonic well-being ($\gamma = 0.39$, $t = 8.98$, $p < 0.001$, 95% CI [.30, .47]) but not for eudaimonic

well-being ($\gamma = 0.04$, $t = 0.79$, 95% CI [-.06, .15]).

Consistent with Hypothesis 1, and while controlling for the respective morning

outcome, daily LMX quality positively predicted hedonic ($\gamma = 0.18$, $t = 5.32$, $p < 0.001$, 95%

CI [.11, .25]) and eudemonic well-being ($\gamma = 0.42$, $t = 5.19$, $p < 0.001$, 95% CI [.26, .58]). On a

daily basis, participants' report of their relationship quality with their manager was

significantly associated with greater well-being even after controlling for morning well-being.

This shows that daily quality of LMX can explain changes in well-being during the day.

Hypothesis 2 predicted that the type of interaction quality (positive for social LMX and

negative for economic LMX exchanges) and the interaction characteristics would predict daily

well-being. These analyses were conducted only on days when the respondents reported that

they had interacted with their manager ($n = 147$, $k = 400$, 66.3%) and are shown in Table 2. As

expected, the extent the leader engaged in social LMX exchanges did positively predict both

hedonic ($\gamma = 0.09$, $t = 2.25$, $p < 0.05$, 95% CI [.01, .18]) and eudemonic well-being ($\gamma = 0.25$, t

$= 2.88$, $p < 0.01$, 95% CI [.08, .43]). However, no significant effects were found in relation to

economic LMX exchanges. In relation to the interaction characteristics (frequency, time,

proportion of work-content), only two significant associations were found: greater interaction

content that was work-related predicted greater hedonic well-being ($\gamma = 0.002$, $t = 2.32$, $p <$

0.05, 95% CI [.0004, .004]) and greater frequency of interaction episodes during the day predicted greater eudaimonic well-being ($\gamma = 0.03$, $t = 1.98$, $p < 0.05$, 95% CI [.0001, .07]).

Mediating role of work engagement

Hypothesis 3 predicted that work engagement would mediate the relationship between LMX quality and well-being. Furthermore, the mediation would be stronger for social LMX than for economic LMX exchanges. The results of these analyses are shown in Table 3.

<center><Table 3 about here></center>

Firstly, work engagement was a significant mediator between LMX quality at the within-person (daily) level and both hedonic well-being ($\gamma = 0.10$, $z = 6.26$, $p < 0.001$, 95% CI [.07, .14]) and eudaimonic well-being ($\gamma = 0.19$, $z = 5.85$, $p < 0.001$, 95% CI [.13, .26]). Turning then to examine the potential mediating role of work engagement with respect to social LMX and economic LMX exchanges (for those that had interacted with their manager that day), the results support Hypothesis 3 and show significant mediation for both dependent measures for social LMX exchanges: hedonic ($\gamma = 0.11$, $z = 4.79$, $p < 0.001$, 95% CI [.07, .15]) and eudaimonic well-being ($\gamma = 0.19$, $z = 4.47$, $p < 0.001$, 95% CI [.12, .29]). However, neither of the mediational analyses were significant for economic LMX exchanges. Finally, there was significant mediation for work engagement for both LMX quality and social LMX exchanges when measured at the between-level (i.e., mean across all days) for both dependent variables. Therefore, not only on days in which people had greater LMX quality and social LMX exchanges their well-being was higher via their increased work engagement; but also, individuals with higher average LMX quality and more social exchanges were more engaged than individuals with lower average LMX quality and social exchanges and for this reason showed greater well-being.

<center>**Discussion**</center>

Leadership is fundamentally a relationship between two individuals and how it develops and is maintained is important in shaping followers' well-being (Bauer & Erdogan,

2015). While the emphasis of LMX theory is on relationship development, via reciprocal exchanges between leaders and followers, it is noteworthy that the majority of research uses research methods that do not capture this essential aspect of the theory. Instead, diary designs offer a better opportunity to examine the dynamics and fluctuations of leader-follower relationships and its impact on well-being, which most likely occur daily (Ohly & Gochmann, 2017). In this respect, diary studies can address theoretical hypotheses that cannot be examined in more traditional research designs. By making this methodological choice upfront, we set out to investigate whether LMX quality does vary daily and does predict daily measures of both hedonic and eudaimonic well-being while controlling for previous levels of well-being. We also focus on the leader-follower interaction itself by exploring the role of interaction characteristics and exchanges related to well-being. Moreover, we aimed to investigate whether this relationship is mediated by work engagement consistent with SDT (Deci & Ryan, 1985; 2000).

In terms of LMX quality stability, the results show that LMX quality does vary daily for most individuals. This is an important finding as it confirms that, once established, the leader-follower relationship is far from static, as many have implied, but is dynamic and this has substantive implications for followers' daily well-being. Most importantly, daily LMX quality impacts not only perceptions of pleasantness associated with the job (hedonic well-being) but also positive feelings at work and the perceived meaningfulness and expression of self (eudaimonic well-being). This shows the immediacy of leaders' behaviors in impacting followers' well-being and supports the need to examine, more closely, what behaviors leaders engage in that can support both experiences of pleasantness and the feeling of meaningfulness at work (Van Quaquebeke & Felps, 2018). The fact that *both* hedonic and eudaimonic daily well-being are positively impacted by daily LMX relationship quality is important because it shows that no trade-offs will be required of managers who invest in caring for the daily relationships (Grant et al., 2007). By cultivating the quality of the LMX relationship daily,

managers can attend to and increase the followers' subjective experience at work as well as their level of functioning and full expression of their human potential.

The study, for the first time, examined the effect of interacting with the leader. Importantly, there was no difference in either morning well-being measures, and thus peoples' well-being did not affect the initiation or avoidance of leader-follower interaction. However, LMX quality was significantly higher on days when they interacted with their manager (and further attests to the face validity of the data, because simply asking about LMX daily did not increase/decrease their reported level, consistent with Gochmann et al., 2022). In the absence of further data, it is difficult to interpret why leader interaction was beneficial to their relationship quality. However, interacting with the manager did not affect the relationship between LMX quality and well-being outcomes (i.e., daily LMX quality predicted daily well-being even when the respondents had not interacted with the manager). One suggestion might be a carryover effect from the previous day's interaction. Supplementary analyses, however, cast doubt on this as an explanation. For those that did not interact with their manager, it was the same-day LMX quality that predicted same-day well-being and not the *previous* day's LMX quality. In this respect, we need to recognise that while LMX quality is predominantly determined by interactions with the manager, it is also determined by other factors (such as conversations with colleagues, other managers), the manager's relationship with other team members, and by delayed actions initiated by the manager (e.g., positive or negative requests received on previous days). This suggests a wider appreciation of the causes of LMX quality is needed.

One of the main theoretical advantages of this study is that we were able to distinguish between two major forms of exchanges, namely social and economic LMX exchanges. LMX theory suggests that it is the development of daily social LMX exchanges (that involve supporting, encouraging, and developing followers) that enhances LMX quality and leads to positive benefits compared to economic LMX exchanges (that are mainly based on task issues

and immediate payoffs). As expected, daily social LMX exchanges predicted both well-being measures, even when controlling for daily LMX quality, while daily economic LMX exchanges did not. This shows the importance of leaders engaging in exchanges that go beyond task issues, to promote followers' sense of worth, value and belonging that enhance their well-being. These results show the efficacy of distinguishing between LMX quality and social and economic LMX exchanges. Finally, except for two findings, the interaction characteristics were not significant predictors of daily well-being. It would be premature to conclude, based on these results, that relationship quality and exchanges are a better predictor of well-being than interaction characteristics because the former are shaped by many factors other than direct daily interaction with one's manager (as noted above) while interaction characteristics pertained to the daily experience. Moreover, relationship quality itself might be a causal reason (initiator or inhibitor) for leader interactions. More research is needed to elucidate this important question.

The present study extends both the LMX quality and well-being literatures by revealing a theoretically based mechanism that mediates the daily LMX quality-well-being relationship (Kaluza, Boer, Buengeler, & van Dick, 2020). As predicted by SDT, we found that work engagement (which is a consequence of intrinsic motivation), mediated the relationship between daily LMX quality and well-being. Daily leader's encouragement and support to followers' fuels daily perceived efficacy, empowerment, and engagement and this, in turn, enhances individuals' well-being – conceptualized as both feelings of pleasantness at work and job meaningfulness. This finding supports the growing trend to examine the role of SDT in LMX theory (Dose e al., 2019; Ellis et al., 2019). Of note, while the same mechanism appears to mediate the effect of daily social LMX exchange and LMX quality on both indices of well-being, the mediation appears stronger for eudaimonic than hedonic well-being (cf. the confidence intervals for the two indices hardly overlap and show greater values for eudaimonic

well-being). This leaves room for the investigation of additional mediating processes that may be more specific to each dimension of well-being.

As predicted, work engagement was a significant mediator to well-being only for social LMX exchanges, and not economic LMX exchanges. Leaders that rely mainly on economic exchanges that are based on transactional agreements and immediate payoff of exchanging resources, do not impact followers' daily feeling of engagement in their work nor their well-being.

Research strengths, potential limitations, and future research

The main strength of this study is the research design that allows a close examination of the dynamic relation between leaders' behaviors and their impact on followers' reactions (Kelemen et al., 2020). Focusing on the effects of LMX quality on a daily level allows the examination of a range of within-person hypotheses that cannot be captured by research designs that are cross-sectional or two-wave longitudinal in nature. A particular strength of the research design is that measures of well-being were taken in the morning as well as at the end of the workday. This allowed the examination of the effects of LMX quality on changes in well-being that occurred during the workday. This is an important methodological feature because well-being could be determined by many factors, other than the workday experiences, such as overnight events, sleep experiences or other external work events. This design therefore allows one to be more specific in linking the effects of leadership constructs, in this case LMX quality, on followers' well-being. Another strength of the study is that we were able to examine different types of LMX exchanges within a diary design.

In terms of future research, we identify some useful avenues. To start, future research could address some of the potential limitations of this study, notably the use of single-source data and manifest variables in the analyses. Multi-source diary data would be especially worth collecting to explore in detail leadership behaviors, including the social and economic exchange behaviors, hence capturing the leaders' perspective. The analyses focused on

manifest variables (acknowledging that this could have potential measurement error issues) while future research could benefit examining latent variables using structural equation modelling to assess multilevel mediation (Preacher, Zyphur, & Zhang, 2010 (in our case, statistical power considerations in terms of cluster size prevented us from adopting this method, McNeish, 2017).Going further, we would recommend recent developments in Dynamic SEM techniques for intensive longitudinal designs (McNeish & MacKinnon, in press). DSEM could allow the examination of mediation across individuals and days and lead to testing interesting theoretical hypotheses (e.g., does work engagement mediate between LMX quality and well-being on - certain days of the week?, when the manager has given positive feedback?). To facilitate this type of analysis, future research requires many more longitudinal data points (at least 10, Schultzberg, & Muthén, 2018).

Additionally, research should examine, in more detail, the relationship between social and economic LMX exchanges and a wider range of follower outcomes (Epitropaki & Martin, 2016). The results, especially concerning the direction of effect, suggest that the different types of exchanges (social and economic) might have different impacts on followers and leaders over time and may even work in a cyclical way. This could be examined with a daily diary design that collected data over many days, to examine longer-term trajectories of LMX exchanges, to chart how variations in the different types of exchanges, over time, relate to leaders' behaviors and followers' reactions.

In addition, while our study examined the type of exchanges (social vs. economic), future research could examine the level of exchanges. For example, Liao et al. (2019) examined 'resource contribution surplus' which occurs when followers gain more than they have contributed to the leader. Consistent with equity norms, resource contribution surplus was associated with increased follower's obligation to reciprocate resources to the leader. Future research could examine not only the types of exchanges (social vs. economic) but the level of resource contribution (surplus vs. deficit). One tentative hypothesis might be that contribution

surplus of daily social LMX enhances outcomes (getting more of what we value) but hinders outcomes with daily economic LMX (getting more of what we don't want).

Another potential research direction would be to explore processes on days when the follower does *not* interact with the leader. While we focused on days when there had been an interaction with their leader, it is possible that LMX quality can be affected by non-leader interactions e.g., by observing how the leader treats other members of the work team, co-worker exchanges (Martin, Thomas, Legood, & Dello Russo, 2018: Sherony & Green, 2002). We would encourage future studies to explore in more detail the characteristics of the leader-follower interaction, either person-, leader- or context-related, that may intervene in the relation between daily LMX quality and daily well-being.

Finally, research could focus more on specific leader behaviors such as leader transgressions on followers' well-being (Epitropaki, Radulovic, Ete, Thomas, & Martin, 2020). Future research could examine this in several useful ways. First, research could distinguish between different foci of the transgression e.g., task-focused (such as, production deviance), personal-focused (such as, aggression), and ethics-focused (such as, property deviance) that are likely to have different impacts on LMX quality Second, research could examine the frequency and intensity of transgressions and explore the cumulative effect of leaders' daily behaviors over time (e.g., leading to withdrawal or turnover). Third, research could focus on the different relationship-repair strategies that leaders could employ, e.g., apologies, excuses, or reframing (Lewicki & Brinsfield, 2017), and how effective these may be in restoring high LMX quality.

Practical implications

Our study has implications for managers and organizations alike. Managers should be aware of the value that their interpersonal relationships with members generate. Having good quality relationships is not only beneficial for employees' performance (Martin et al., 2016) but also for their well-being. Furthermore, as our findings show, it is important that they put an effort into taking care of these exchanges daily, as this will enhance the followers' (hedonic

and eudaimonic) daily well-being and work experiences. This implies paying attention to the small and mundane interactions occurring at work rather than just to specific but occasional events that need to be well handled (e.g., end-of-year performance evaluation feedback; Sparr & Sonnentag, 2008).

One noteworthy element of caution for managers, is refraining from negative interactions and transgressions even if they may seem minor. As research shows negative events are more salient, processed more deeply, and have a greater impact on emotions than do positive events (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). Employees' well-being, both in terms of positive experience of the workplace and their full expression as individuals are important goals to pursue and part of a sustainable HRM strategy (Ehnert, 2009). Therefore, organizations should be sensitized to the critical role of leaders' behaviors and interactions with their followers and offer training programs for managers to develop their social and interpersonal skills. We would go a step further and suggest that the management of well-being does not flow only from the leader to the follower but also the other way and training could focus on the role followers can play in better managing their own and their leader's well-being (St-Hilaire, Gilbert, & Brun, 2019).

Conclusion

This study shows the utility of drawing on an exchange-based framework, rooted in an integration of social exchange and self-determination theories, to examine how leaders' behaviors impact followers' well-being. The research design is uniquely suited to investigating the dynamics of the leader-follower relationship and reveals that LMX quality is volatile and susceptible to leaders' daily behaviors; in turn it has powerful effects on followers' psychological processes and ultimately their well-being. We hope that this paper will encourage others in the area to adopt diary designs to examine, more closely, theoretically important within-person processes that operate between leaders and followers.

Footnote

[1] By including the lagged dependent variable (outcome measured in the morning), the research design controls for the autoregressive effect. However, as some diary studies explicitly account the proximity of measurements, we repeated the analyses and included an autocorrelated residual process to our tested multilevel models. The pattern of results was almost identical with same reliable effects as those reported in the paper.

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Table 1. Means, Standard Deviations, and Intercorrelation Among Main Study Variables

		M	SD	1	2	3	4	5	6	7	8	9	10	11
1	LMX Quality	5.12	1.29		-21*	.85***	.34***	.42***	.41***	.46***	.43***	.04	.00	.38***
2	Economic LMX	4.77	1.25	-.19***		-.15	-.23**	-.19*	-.05	-.06	-.17*	-.02	.14	-.06
3	Social LMX	5.03	1.14	.82***	-.11*		.29***	.36***	.42***	.45***	.41***	.04	-.01	.22***
4	Hedonic Well-being (AM)	3.54	0.78	.29***	-.19***	.28***		.90***	.47***	.49***	.65***	.11	-.07	.25***
5	Hedonic Well-being (PM)	3.60	0.78	.41***	-.14**	.38***	.78***		.49***	.58***	.76***	.10	-.07	.28***
6	Eudaimonic Well-being (AM)	4.91	1.28	.34***	-.08	.33***	.41***	.41***		.88***	.64***	.29***	.04	.23***
7	Eudaimonic Well-being (PM)	4.94	1.37	.42***	-.07	.45***	.38***	.52***	.68***		.75***	.27**	.00	.25**
8	Work Engagement	4.15	1.42	.39***	-.12*	.42***	.51***	.68***	.47***	.66***		.15	-.06	.30***
9	Age	31.60	7.01	-.06	-.04	-.05	.09	.07	.27***	.23***	.11**		-.11	.09
10	Gender	1.70	0.46	-.00	.12*	.00	-.05	-.05	.03	.00	-.05	-.11**		-.03
11	Leader Interaction	0.33	0.95	.26***			.09	.14**	.11**	.16***	.18***	.04	-.04	

*$p < .05$, **$p < .01$, ***$p < .001$ Correlations below diagonal are day-level ($n = 158$, $k = 603$), except with social and economic LMX ($n = 147$, $k = 400$): Correlations above the diagonal are person-level. Gender coded 1 = Male, 2 = Female. Leader interaction coded -1 = No, 1 = Yes.

Table 2: Results of Random Coefficient Regression Models

	Hedonic Well-being						Eudaimonic Well-being					
	Est.	SE	t	Est.	SE	t	Est.	SE	t	Est	SE	t
Within												
Day	-.004	.01	-.31	-.009	.01	-.65	.04	.03	1.40	.03	.03	.95
Leader Interaction	.002	.02	.10				.06	.04	1.39			
Morning Outcome	.39	.04	8.98***	.39	.06	7.09***	.04	.05	.79	.008	.07	.13
LMX Quality	.18	.03	5.32***	.19	.06	2.96**	.42	.08	5.19***	.33	.12	2.74**
Between												
Intercept	2.25	.24	9.60***	2.46	.38	6.55***	2.47	.38	6.45***	2.38	.61	3.93***
LMX Quality	.26	.04	5.90***	.20	.09	2.32*	.45	.07	6.31***	-.20	.14	-1.49
Within												
Interaction Frequency				.008	.009	.85				.03	.02	1.99*
Interaction Time				-.03	.02	-1.39				-.04	.04	-.99
Interaction Content				.002	.001	2.32*				.003	.002	1.32
Economic Exchanges				-.007	.04	-.19				-.04	.07	-.54
Social Exchanges				.09	.04	2.25*				.25	.09	2.88**
Between												
Economic Exchanges				-.05	.05	-1.14				-.02	.07	-.34
Social Exchanges				.04	.09	.45				.72	.15	4.77***

*$p < .05$, **$p < .01$, ***$p < .001$: $n = 158$ ($k = 603$) except when including interaction measures $n = 147$ ($k = 400$): Morning Outcome refers to the morning measure of the well-being construct

Table 3: Mediation Analyses of Work Engagement to Well-being

	Hedonic Well-being						Eudaimonic Well-being					
	IV → Work Engagement			Work Engagement → Outcome			IV → Work Engagement			Work Engagement → Outcome		
	Est.	SE	t	Est.	SE	t/Z	Est.	SE	t	Est.	SE	t/Z
LMQ Quality												
Within												
Leader Interaction	.04	.05	.80	-.02	.02	-.89	.04	.06	.65	.04	.04	.93
Day	.04	.03	1.19	-.01	.01	-1.14	.07	.03	2.15*	.02	.02	.80
Morning Outcome	.51	.10	4.94***	.28	.04	7.08***	.08	.06	1.31	.07	.05	1.45
LMX Quality	.52	.07	7.52***	.08	.03	2.78**	.51	.07	7.23***	.17	.06	2.86**
Work Engagement				.20	.02	11.41***				.38	.04	10.05***
Between												
Leader Interaction	.18	.12	1.49	-.02	.04	-.45	.23	.13	1.79	-.04	.07	-.64
Day	.16	.14	1.14	-.03	.04	-.68	.04	.14	.32	-.04	.08	-.48
Morning Outcome	.93	.10	8.95***	.71	.04	18.09***	.57	.07	8.51***	.71	.04	16.75***
LMX Quality	.19	.07	3.06**	.04	.02	2.15*	.16	.07	2.34*	.05	.04	1.46
Work Engagement				.16	.03	6.51***				.28	.04	6.65***
Random Effects												
Work Engagement				.45	.08	5.47***				.45	.09	5.27***
Outcome				.03	.01	3.98***				.04	.02	1.61
Economic Quality												
Within												
Day	.003	.04	.07	-.006	.01	-.41	.04	.04	.85	.01	.03	.48
Morning Outcome	.77	.15	5.05***	.25	.05	4.70***	.04	.09	.41	.09	.07	1.37
Economic LMX	-.05	.09	-.59	.003	.03	.11	-.03	.09	-.33	-.04	.07	-.64
Work Engagement				.21	.02	9.82***				.39	.05	8.42***

	Est.	SE	z	Est.	SE	z	Est.	SE	z	Est.	SE	z
Between												
Day	.24	.09	2.59*	-.09	.03	-2.87**	.23	.09	2.44*	-.01	.06	-.22
Morning Outcome	1.08	.11	9.56***	.72	.05	15.36***	.61	.07	9.17***	.66	.05	13.59***
Economic LMX	.004	.06	.06	.02	.02	1.07	-.09	.06	-1.45	.04	.03	.81
Work Engagement				.17	.03	6.51***				.66	.05	13.59***
Random Effects												
Work Engagement				.35	.09	3.68***				.32	.09	3.19**
Outcome				.03	.01	3.57***				.03	.03	.98
Within												
Day	-.01	.04	-.27	-.007	.01	-.50	.02	.04	.53	.01	.03	.35
Morning Outcome	.73	.14	5.14***	.26	.05	4.85***	.09	.09	1.02	.11	.07	1.65
Social LMX	.53	.09	5.79***	.06	.03	1.66	.56	.09	5.74***	.18	.08	2.22*
Work Engagement				.19	.02	8.67***				.36	.05	7.21***
Between												
Day	.23	.09	2.63**	-.09	.03	-2.89**	.23	.09	2.56*	-.009	.06	-.17
Morning Outcome	.92	.11	8.49***	.71	.05	15.38***	.51	.07	7.19***	.64	.05	13.00***
Social LMX	.29	.07	4.35***	.03	.03	1.09	.26	.08	3.40***	.09	.05	2.12*
Work Engagement				.16	.03	5.78***				.29	.05	5.99***
Random Effects												
Work Engagement				.30	.08	3.65***				.33	.09	3.50***
Outcome				.03	.01	3.56***				.03	.03	.86

Indirect Effects						
Within	Est.	SE	z	Est.	SE	z
LMX Quality → Work Engagement → Outcome	.10	.02	6.27***	.19	.03	5.85***
Economic LMX → Work Engagement → Outcome	-.01	.02	-.59	-.01	.04	-.33
Social Quality → Work Engagement → Outcome	.11	.02	4.79***	.19	.04	4.47***

Between

LMX Quality → Work Engagement → Outcome	.03	.01	2.74**	.05	.02	2.19*
Economic Quality → Work Engagement → Outcome	.0007	.01	.06	-.03	.02	-1.40
Social Quality → Work Engagement → Outcome	.05	.01	3.44**	.07	.03	2.93**

*$p < .05$, **$p < .01$, ***$p < .001$: $n = 158$ ($k = 603$), with social/economic LMX $n = 147$ ($k = 400$): For random effect test statistics is Wald Z