

## The Interactive Effect of Leader-Member Exchange and Psychological Climate for Overwork on Subordinate Workaholism and Job Strain

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The proportion of workers putting long hours into work is on the increase, which paves the way for workaholism, a syndrome that combines long hours and obsessive thoughts about work and is known to harm employee health. This study explores the role of the context in the emergence of workaholism and job strain, a stance that has rarely been taken in the field. We specifically examined the combined effects of leader-member exchange (LMX) and psychological climate for overwork on employee workaholism and job strain. Drawing upon social exchange and situational strength theories, we posited that when overwork is perceived to be valued in the organization, LMX may foster subordinate workaholism and indirectly lead to increased job strain. Through a three-wave study and the use of structural equations modeling analyses with full information maximum likelihood estimation on a diversified sample of employees ( $N = 449$ ), we found LMX to be positively related (vs. unrelated) to subsequent workaholism when psychological climate for overwork was high (vs. low). Additionally, change in workaholism mediated the interactive effect of LMX and psychological climate for overwork on change in subordinate job strain. We discuss the implications of these findings for research on LMX and workaholism.

**Keywords:** leader-member exchange; psychological climate for overwork; workaholism; job strain

Though the estimates of the prevalence of workaholism vary across sources (Andreassen et al., 2014; Quinones & Griffiths, 2015), ranging from 5% to 25% (Andreassen et al., 2014), its pervasiveness is not negligible. As the proportion of employees working long hours is on the rise (Messenger, 2018), it is likely that workaholism, an addiction to work which manifests with a compulsive and uncontrollable need to work (Mazzetti, Schaufeli, & Guglielmi, 2014; Oates, 1971; Schaufeli, Taris, & Bakker, 2008), is also affecting an increasing number of workers. Because workaholism has deleterious effects on psychological health (e.g., burnout, mental distress, emotional exhaustion, job stress, and job and life satisfaction), physical health (e.g., systolic blood pressure, musculoskeletal complaints, and work-related incidents), and organizational outcomes (e.g., business growth) (e.g., Andreassen et al., 2018; Balducci et al., 2020; Balducci, Avanzi, & Fraccaroli, 2018; Clark, Michel, Zhdanova, Pui, & Baltes, 2016; Clark, Smith, & Haynes, 2020; Engelbrecht, de Beer, & Schaufeli, 2020; Gorgievski, Moriano, & Bakker, 2014; Sandrin et al., 2019; Schaufeli, Bakker, van der Heijden, & Prins, 2009), understanding how this syndrome develops is a timely endeavor that is essential to limit its spread and adverse effects.

The question raised by Mazzetti et al. (2014), “Are workaholics born or made?” (p. 227), reveals a growing shift in the literature on workaholism. To date, much research on the antecedents of workaholism has focused on dispositional factors (Balducci et al., 2018; Keller, Spurk, Baumeler, & Hirshi, 2016). However, recent conceptual reviews suggested that workaholism may result from the combination of dispositional and situational factors (Kanai, 2006; Liang & Chu 2009; Ng, Sorensen, & Feldman, 2006). Yet, empirical research exploring the role of contextual factors remains scarce (e.g., Balducci et al., 2018; Gillet, Morin, Cougot, & Gagné, 2017). Filling this gap is important because while organizations can do little about their

employees' traits, they can promote work environments that protect employees from workaholism (Loscalzo & Giannini, 2017; Mazzetti et al., 2014).

One area in which research is particularly warranted is “the intersection of workaholism and leadership” (Clark, Stevens, Michel, & Zimmerman, 2016, p. 3). Leadership practices count among contextual factors that most influence employees' work behavior and well-being (Bass & Bass, 2008; Harms, Credé, Tynan, Leon, & Jeung, 2017). Therefore, one may expect workaholism to be influenced by the leadership context (e.g., Andreassen, Nielsen, Pallesen, Gjerstad, 2019). Examining how leadership relates to subordinates' workaholism is an endeavor that needs to be pursued to enrich our understanding of the factors that may induce workaholism and point to novel and potentially powerful prevention strategies.

In parallel, within the leadership literature, a nascent stream of research suggests that high-quality relationships between leaders and subordinates (Dienesch & Liden, 1986), as conceptualized by leader-member exchange (LMX) theory (Dansereau, Graen, & Haga, 1975; Dienesch & Liden, 1986), may cause subordinates to experience job strain (e.g., Brouer & Harris, 2007; Hesselgreaves & Scholarios, 2014; Hochwarter & Byrne, 2005; Jiang, Law, & Sun, 2014). Job strain is a general indicator of employees' well-being (Darr & Johns, 2008; Strauss, Parker, & O'Shea, 2017) that encompasses various notions such as work anxiety, work tension, or work stress (Podsakoff, LePine, & LePine, 2007). Its significant association with various negative physical and mental outcomes (Strauss et al., 2017), including burnout and depression (Ahola & Hakanen, 2007; Hurrell, Nielsen, & Simmons, 1998), makes it a construct that warrants attention.

The central tenet of LMX theory is that leaders develop relationships of varying quality with their subordinates (Dansereau et al., 1975; Martin, Thomas, Legood, & Dello Russo, 2018).

Typically, high-quality LMX relationships are two-way relationships that, while hierarchical in nature, involve liking, professional respect, loyalty, and high levels of efforts toward mutual goals (Liden & Maslyn, 1998; Martin et al., 2018). The idea that these high-quality LMX relationships may increase subordinates' strain is thus counterintuitive because subordinates in high-quality LMX tend to receive more support and resources than their low-LMX counterparts, which usually results in reduced levels of job strain (Dulebohn, Bommer, Liden, Brouer, & Ferris, 2011; Harms et al., 2017). Recent evidence suggests that high LMX may actually be conducive to more job strain only under specific conditions, such as a lack of interaction with the leader (Brouer & Harris, 2007), or specific personality traits of followers (e.g., negative affectivity; Brouer & Harris, 2007) or leaders (e.g., lack of moral integrity; Jiang et al., 2014). Yet, the mechanisms and boundaries associated with a positive relationship between LMX and job strain remain poorly understood (Sonnetag & Pundt, 2015). Given the prominence of LMX theory in the leadership literature and the counter-intuitiveness of the idea that LMX may increase subordinates' job strain, this gap prompts further investigation.

Empirical studies linking LMX quality to employees' hard work (e.g., Lawrence & Kacmar, 2012; Lu & Sun, 2017) indicate that "LMX quality may motivate the employee to the detriment of his or her well-being" (Erdogan & Bauer, 2015; p. 449), which points to workaholism as a potential mediator in the LMX-job strain relationship. Indeed, the sense of obligation to repay the supervisor that employees experience in high LMX relationships (Lee, Gerbasi, Schwarz, & Newman, 2018) may, under specific conditions, lead to excessive and compulsive work. One boundary condition of this relationship may be whether employees perceive they are being exposed to a climate that encourages overwork. A psychological climate for overwork refers to the extent to which individuals perceive their work environment as encouraging employees to work long hours, do

overtime, take work home, or work during weekends or holidays (Mazzetti et al., 2014). Such psychological climate for overwork has been found to act as an organizational “enabler” (Holland, 2008) of workaholism (Mazzetti et al., 2014). However, empirical studies are needed to substantiate this view (Loscalzo & Giannini, 2017; Mazzetti et al., 2014).

To address the above gaps, the present study examines the role of LMX in subordinates’ workaholism and subsequent job strain. Drawing from social exchange theory (Blau, 1964; Gouldner, 1960) and the theory of situational strength (Mischel, 1973, 1977), we argue that when employees perceive that a psychological climate for overwork pervades the workplace, those involved in high LMX relationships may be cued to use excessive and compulsive work as a social exchange currency to repay their supervisor for being favorably treated. Thus, under conditions of a strong psychological climate for overwork, LMX may lead to workaholism and, indirectly, increased job strain. To provide compelling evidence for the directional nature of the relationships specified in our hypotheses, we tested our moderated mediation model (Figure 1) with a rigorous three-wave longitudinal study in which the autoregressive effects of the mediator (workaholism) and outcome (job strain) were included. This allowed testing the effects of Time 1 LMX on change in workaholism and job strain over time.

Our study makes the following contributions. First, it provides insights into a contextualized approach to workaholism. In doing so, this research departs from the traditional approach that focused on individual dispositions as antecedents to workaholism by contributing to a neglected area of this literature—how leaders may play a role in its development. Moreover, by highlighting that a psychological climate for overwork provides situational cues that may foster a willingness to respond to LMX relationships through workaholism, this study offers a novel approach to workaholism research. Second, our study adds to recent work on the

drawbacks of high LMX relationships (Erdogan & Bauer, 2015; Greenbaum, Mawritz, Bonner, Webster, & Kim, 2017; Matta & Van Dyne, 2015). While LMX has been associated with a host of positive outcomes for subordinates (Dulebohn et al., 2012; Gerstner & Day, 1997), including reduced stress and burnout (Harms et al., 2017), some studies identified boundary conditions where LMX's effects may lead to stress-related outcomes (e.g., Brouer & Harris, 2007; Hochwarter & Byrne, 2005; Jiang et al., 2014). This study adds to this burgeoning literature by unveiling a mediating variable (i.e., workaholism) and a boundary condition (i.e., psychological climate for overwork) through which LMX can induce workaholism and job strain.

Third, from an empirical perspective, the present study counts among the few studies that have used a longitudinal approach to explore the relationship between workaholism and job strain (Balducci et al., 2018; Clark, Michel et al., 2016) and how change in these psychological states is driven by the combination of leadership- and climate-related factors. As workaholism and job strain are processes that unfold over time, exploring how our predictor (i.e., LMX) and moderator (i.e., psychological climate for overwork) drive these processes has the potential to increase our understanding of the temporal dynamics of workaholism and job strain. Our results lend support to a resource-based perspective (Geurts & Sonnentag, 2006; Hobfoll, 1989) that suggests that workaholics experience job strain as a result of their inability to recover from the excessive amount of resources they put into working hard and obsessively.

### **Workaholism: Definition and Development**

The term “workaholism” has been coined to designate those workers literally addicted to work (Oates, 1971). Though the definition of workaholism remains an issue in the literature, a consensus has emerged around two key defining features: working excessively and working compulsively (Clark, Michel et al., 2016; Schaufeli et al., 2008). Working excessively is a

behavioral manifestation of workaholism exemplified by spending long hours frantically working with too little time left for non-work activities. Working compulsively is a cognitive manifestation of workaholism characterized by obsessive and uncontrollable thoughts about work. In sum, workaholism is the “tendency to work excessively hard and being obsessed with work, which manifests itself in working compulsively” (Schaufeli, Shimazu, & Taris, 2009). As such, it is different from work effort or hard work which are behavioral in nature.

Research has established that individual dispositions (e.g., perfectionism, trait negative affect, type A personality; Clark, Michel et al., 2016) are important sources of workaholism (Keller et al., 2016; Mazzetti et al., 2014). However, the view that workaholism is exclusively explainable by individual differences has been challenged by researchers from the clinical field (e.g., Griffiths & Karanika-Murray, 2012; Loscalzo & Giannini, 2017) and the management arena (e.g., Balducci et al., 2018; Kanai, 2006; Liang & Chu 2009; Mazzetti et al., 2014; Ng et al., 2006). For example, Ng et al. (2006) suggested that the sources of workaholism fall into three categories: individual traits (e.g., self-esteem), socio-cultural experiences (e.g., peer competition at work), and behavioral reinforcements (e.g., rewards associated with hard work). More recently, Loscalzo and Giannini (2017) developed a comprehensive model of workaholism that includes situational antecedents, particularly work-related climates that convey expectations regarding the number of hours spent working.

Recent studies indeed suggest that situational factors such as job demands (e.g., Andreassen et al., 2019; Andreassen, Pallesen, & Torsheim, 2018; Gillet et al., 2017; Johnstone & Johnston, 2005), perceived organizational climate (Johnstone & Johnston, 2005; Mazzetti et al., 2014; Schaufeli, 2016), and laissez-faire leadership (Andreassen et al., 2019) may contribute to workaholism. However, this line of research is still nascent and has produced little

longitudinal evidence for these effects (Balducci et al., 2018). One plausible underlying mechanism is that workaholism constitutes a response that helps employees face the excessive demands of their work environment (Balducci et al., 2018; Molino, Bakker, & Ghislieri, 2015). It is also likely that workaholism develops as a response to reinforcements from the environment (Ng et al., 2006), such as when employees perceive that hard work is valued and rewarded by the supervisor or the organization (Mazzetti et al., 2014). The next sections further develop these arguments.

### **LMX and Workaholism: A Social Exchange View**

LMX theory is a relational approach to leadership that places the quality of the dyadic relationship between a leader and a subordinate at the core of the leadership process (Northouse, 2010). According to the LMX theory, leaders develop relationships of differing quality with their subordinates (Dansereau et al., 1975; Martin, Thomas, Legood, & Dello Russo, 2018). Thus, any leader may have relationships that range from low to high quality with their various subordinates (Martin et al., 2018). Low-quality LMX relationships are restrained to the explicit requirements of the employment contract. In contrast, high-quality LMX relationships involve generalized reciprocity (i.e., benefits provided by one party are to be returned, but the form and timing of the return are undefined; Sparrowe & Liden, 1997), and mutual support and trust within the dyad (Dienesch & Liden, 1986).

High levels of LMX are generally thought to protect subordinate emotional health (Harms et al., 2017). This protective effect occurs because in high LMX relationships subordinates receive material and emotional support from supervisors that help reduce stress and burnout (Bass & Bass, 2008; Harms et al., 2017). For example, subordinates in high LMX relationships report less role ambiguity and role conflict (Dulebohn et al., 2012) because they presumably



receive supervisory guidance that helps clarify role expectations. Additionally, the resources and emotional support associated with high-quality LMX relationships may help subordinates cope with job demands (Harms et al., 2017).

Social exchange theory (Blau, 1964) and the norm of reciprocity (Gouldner, 1960) state that subordinates involved in high LMX relationships receive benefits (e.g., support, resources, and rewards; Wayne, Shore, & Liden, 1997) that they feel compelled to reciprocate. Although the terms of social exchange are left unspecified (Blau, 1964), LMX research has generally considered superior task and contextual performance (Martin, Guillaume, Thomas, Lee, & Epitropaki, 2016; Wilson, Sin, & Conlon, 2010) as currencies of exchange that subordinates use to reciprocate resources received from supervisors (Liden, Sparrowe, & Wayne, 1997). Meta-analytic reviews have indeed reported LMX to be positively related to task and citizenship performance (Dulebohn et al., 2012; Gerstner & Day, 1997; Martin et al., 2016). Moreover, LMX has been found to be positively associated with supervisor-directed citizenship behaviors (Cropanzano, Prehar, & Chen, 2002), suggesting that high LMX situations encourage subordinates to engage in actions that benefit the supervisor.

The dedication to delivering superior performance may push high LMX subordinates to work long hours. Indeed, working long hours may constitute a relevant currency of exchange because it is a visible behavior that serves as a proxy for performance and job dedication (Brett & Stroh, 2003; Sheridan, 2004). Therefore, a subordinate may want to work hard to express his or her willingness to serve the supervisor's interests. This rationale suggests that, as LMX quality increases, the growing feeling of obligation to repay the supervisor (Lee et al., 2018) may lead subordinates to work excessively and enact behaviors that are typical of workaholics (i.e., the behavioral facet of workaholism). Compulsive work (i.e., the cognitive facet of workaholism)

may also develop because delivering superior performance goes along with a number of challenges (e.g., solving complex tasks, having difficulties completing tasks on time) that plausibly engender ruminations and obsessive thoughts about work (Balducci et al., 2018).

However, as discussed above, social exchange theory suggests that the currency of social exchange remains open and unspecified (Blau, 1964). That is, while subordinates in high LMX situations are likely to put extra efforts into their work, these endeavors will not necessarily become disproportionate and entail the development of workaholism. Therefore, one may wonder what circumstances would encourage subordinates to use excessive and compulsive work (i.e., workaholism) as a means of reciprocation in high LMX relationships. In the next section, we suggest that psychological climate for overwork is a central element of the context that will guide employees' reactions to the exchange relationship with the supervisor.

### **The Role of Psychological Climate for Overwork**

Leadership does not operate in a vacuum (Liden & Antonakis, 2009). LMX is no exception and various scholars have emphasized the need to account for contextual variables in studying the effects of LMX (Cogliser & Schriesheim, 2000; Tordera, González-Romá, & Peiró, 2008). Using this contingent perspective and drawing upon the theory of situational strength (Mischel, 1973, 1977), we suggest that a high level of psychological climate for overwork serves as a catalyst for workaholism in high LMX relationships. The theory of situational strength (Mischel, 1973, 1977) emphasizes the role of situations in directing behaviors. Situation strength can be broadly defined as the extent to which situations constrain behaviors (Judge & Zappata, 2015). Strong situations provide clear cues on the kind of behaviors that are expected and rewarded (Meyer, Dalal, & Hermida, 2010; Mischel, 1977). In strong situations, individuals have a clear perception of the limited set of behaviors that are deemed appropriate in their environment and

of the negative consequences that would be associated with a failure to display these behaviors (Meyer et al., 2010). In contrast, weak situations provide less guidance as to how to behave. In such ambiguous contexts, there are no clear cues that dictate what appropriate behaviors are, which results in more behavioral latitude for individuals (Mischel, 1973).

Following these lines, we argue that a psychological climate for overwork offers clear guidelines as to how subordinates should respond to social exchange relationships with their supervisor. A psychological climate is the subjective perception of employees regarding features of the work environment (Parker et al., 2003). Such climate refers to how employees, individually, make sense of the behaviors that are expected in the organization (Jones & James, 1979; Parker et al., 2003). Therefore, psychological climates lay the ground for strong situations if they unequivocally point towards specific behavioral expectations. That is, even though a psychological climate is a subjective interpretation of the environment (James, Hater, Gent, & Bruni, 1978), it can materialize the inducements of a strong situation for the individual to the extent that it conveys the message that certain behaviors are expected and rewarded.

As an individual attribute, the construct of psychological climate does not perfectly fit Mischel's (1973) notion of strong situations, defined as those situations that "lead all persons to construe the particular events the same way" (p. 276). Such uniformity has been traditionally captured by climate strength, which refers to the degree of consensus in individual climate perceptions (Schneider, González-Romá, Ostroff, & West, 2017). However, following the idea that "perception is reality", we argue that a psychological climate that provides clear behavioral expectations may act as a strong situation as it can "result in psychological pressure on the individual to engage in and/or refrain from particular courses of action" (Meyer et al., 2010, p. 122). That is, an employee who believes that certain behaviors are particularly encouraged

within the organization will likely feel constrained to perform these behaviors, regardless of the degree of variability in individual climate perceptions within the organization. Such contention is consistent with the idea that climate “remains a property of the individuals regardless of the agreement or disagreement among individuals’ perceptions” (James et al., 2008, p. 20). In support for the idea that a psychological climate can act as a strong situation that constrains behaviors, meta-analytic reviews found that individual climate perceptions are more proximal antecedents to employee behavior than organizational measures of climate because they mediate the relationship between work environment and employees’ responses (e.g., Carr, Schmidt, Ford, & DeShon, 2003; James et al., 2008).

A psychological climate for overwork (Mazzetti et al., 2014) reflects the perception that the work environment “requires and expects employees to perform overwork” (Mazzetti, Schaufeli, Guglielmi, & Depolo, 2016, p. 884). A high level of such a climate would induce the feeling that working long hours and working over the weekend or during evenings to finish tasks that were not completed during regular hours would be behaviors that are valued in the organization (Mazzetti et al., 2014) and a prerequisite for career success (Mazzetti et al., 2014; Schaufeli, 2016). Such climate would convey expectations regarding time spent working and signal that those who do not meet these expectations may be penalized (e.g., via slower career progression or poor performance evaluations). As such, a psychological climate for overwork may serve as a strong situation that constrains employees’ work hours behaviors.

We argue that a psychological climate for overwork acts as a strong situation that makes workaholism, a construct otherwise rooted in personality influences, a likely response to the LMX context. Such climate would encourage employees to use excessive work as a response to high LMX situations. That is, indebted subordinates (i.e., experiencing high LMX) would feel

obligated to engage in excessive work because they may think that working long hours is the most appropriate way to reciprocate the favorable treatment received from the supervisor. As LMX quality increases, subordinates will feel increasingly indebted toward their supervisor (Lee et al., 2018). As a result, subordinates in higher LMX situations will likely be caught in an endless feeling of obligation to be working, hence enacting the behavioral component of workaholism (i.e., working excessively long hours). Obsessive thoughts towards work (i.e., cognitive component of workaholism) will also likely arise because, as social exchange relationships do not specify the limits of reciprocation (Blau, 1964), high LMX subordinates will “never be done” with work. The belief that one has not done enough has indeed been found to be a central feature of the compulsive facet of workaholism (e.g., van Wijhe, Peeters, & Schaufeli, 2011, 2014). Moreover, working excessively long hours may foster obsessive thoughts about work because long work hours increase the salience of work activities (Ng & Feldman, 2008).

A low psychological climate for overwork would instead indicate a weak situation as overwork would not be signaled as an expected behavior in the organization. In such context, high LMX subordinates would have more latitude in determining how they reciprocate their supervisor’s favorable treatment. They may perceive that working excessively and obsessively is not a mandatory means through which supervisors should be repaid and that alternative behaviors (e.g., cooperation with coworkers, creative thinking, etc.) would be viable options. Thus, in a context of low psychological climate for overwork, LMX is not expected to be (positively) related to workaholism. To summarize, the above rationale suggests that the psychological climate for overwork acts as a boundary condition in the relationship between LMX and workaholism. This leads to the following hypothesis.

*Hypothesis 1.* Psychological climate for overwork moderates the relationship between Time 1 LMX and change (i.e., from Time 1 to Time 2) in subordinate workaholism such that Time 1 LMX will be more strongly (and positively) (vs. more weakly) related to change in workaholism when the psychological climate for overwork is high (vs. low).

Available evidence suggests that workaholism negatively relates to workers' mental health (Clark, Michel et al., 2016). This negative relationship occurs because, as proposed by recovery (Geurts & Sonnentag, 2006) and conservation of resources (COR; Hobfoll, 1989) theories, workaholics are not able to recover from the loss of resources caused by their constant mental and behavioral absorption by work (Balducci et al., 2018). Moreover, although some studies have found evidence for a positive relationship between LMX and stress-related constructs under certain conditions (e.g., Brouer & Harris, 2007), the boundary conditions associated with this relationship remain unclear. One such condition may be a psychological climate for overwork. As argued above, LMX may increase workaholism in the context of a psychological climate for overwork because this climate promotes hard work as a convenient way to reciprocate positive social exchange relationships. As workaholism is expected in turn to increase job strain, the indirect relationship between LMX and job strain through workaholism should be stronger and positive when the psychological climate for overwork is strong. In contrast, a weak psychological climate for overwork should not encourage employees to reciprocate high LMX through strong investment in work activities, which should be followed by little effect on job strain. Thus, the following hypothesis is proposed.

*Hypothesis 2.* Psychological climate for overwork moderates the indirect relationship between Time 1 LMX and change (i.e., from Time 2 to Time 3) in job strain through change (i.e., from Time 1 to Time 2) in workaholism such that this indirect relationship

will be stronger (vs. lower) and positive when the psychological climate for overwork is high (vs. low).

## **Method**

### **Sample and Procedure**

We tested our hypotheses using a three-wave longitudinal study among alumni from a French business school. Prospective participants were contacted through email and invited to respond to three surveys spaced by a four-month interval, a time span that allows for change in workaholism and job strain to occur while limiting respondent attrition due to organization or supervisor change. To encourage participation, we offered respondents the opportunity to make a \$5 gift to the Charity of their choice among six options. Participants were to have salaried employment and an identifiable supervisor. They were informed of the study objectives and assured of the confidentiality of their responses. Questionnaires were completed in French or English. LMX was assessed at Time 1, workaholism was assessed at Time 1 and Time 2, psychological climate for overwork was measured at Time 2, and job strain was assessed at Time 2 and Time 3. These data allowed testing our hypotheses using an autoregressive approach (Maxwell & Cole, 2007). Specifically, the baseline levels of workaholism (i.e., Time 1) and of job strain (i.e., Time 2) were controlled for while testing the relationships among Time 1 LMX, Time 2 psychological climate for overwork and workaholism, and Time 3 job strain.

We obtained 540 responses at Time 1, 264 at Time 2, and 178 at Time 3, for a 33% overall response rate from Time 1 to Time 3. Of the Time 1 respondents, 91 were excluded because they changed organizations or supervisors between Time 1 and Time 3, leaving 449 usable responses at Time 1 for analysis. We conducted attrition analyses to determine whether respondent attrition across time occurred randomly (Goodman & Blum, 1996). The results of a logistic regression

analysis revealed that none of the Time 1 variables (i.e., age, gender, organizational tenure, dyadic tenure, LMX, and workaholism) did predict the probability (i.e., 0 vs. 1) of remaining in the sample at Time 3 ( $\chi^2[6] = 3.73, ns$ ). Therefore, the data appeared to be missing completely at random (MCAR; Enders & Bandalos, 2001; Ployhart & Vandenberg, 2010) across time. This justified testing hypotheses through full information maximum likelihood (FIML) estimation with robust standard errors (i.e., MLR) in Mplus 7.4 (Muthén & Muthén, 2010). Contrary to other approaches (e.g., listwise or pairwise deletion, data imputation), the FIML method does not delete or replace missing data. Rather, it uses all the information available in the covariance matrix ( $N = 449$ ) to estimate model parameters. FIML is the recommended approach in longitudinal studies (e.g., Enders, 2010; Enders & Bandalos, 2001), particularly when the data are MCAR (Ployhart & Vandenberg, 2010). Moreover, the FIML method has been shown to produce unbiased estimates and to display high power to detect interactions in latent moderated structural equations models (Cham, Reshetnyak, Rosenfeld, & Breitbart, 2016), making it particularly suitable in our study.

In our sample of 449 Time 1 respondents, 47% were men, average age was 37.67 years ( $SD = 9.00$ ), average organizational tenure was 6.07 years ( $SD = 5.67$ ), and average tenure with the supervisor was 2.95 years ( $SD = 2.28$ ). Nearly all (96%) of the participants worked full-time, and 62% held a managerial position. Most of them (97.6%) completed the French version of the survey questionnaires. More than half of the respondents (59%) worked for large companies (> 1,000 employees), 22% worked for mid-sized companies (100-1000 employees), and 19% worked for small companies (< 100 employees). Respondents were affiliated with various industries including banking and insurance (16%), professional, scientific and technical services



(11%), manufacturing (9%), trade (8%), health care and social services (5%), information and cultural industries (4%), construction (3%), and public administration (2%).

### Measures

A translation-back-translation procedure was used to create French versions of English scales (Schaffer & Riordan, 2003). Except for workaholism items, a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) was used for all items.

**LMX** was assessed at Time 1 using Liden and Maslyn's (1998) 12-item multidimensional measure of LMX (LMX-MDM). Though it has been developed to reflect the multidimensional nature of LMX, the LMX-MDM scale has been shown to be a valid instrument for assessing LMX as a global construct (Liden & Maslyn, 1998). The 12 items capture four facets within LMX: affect (e.g., "I like my supervisor very much as a person"), professional respect (e.g., "I respect my supervisor's knowledge of and competence on the job"), loyalty (e.g., "My supervisor would come to my defense if I were "attacked" by others"), and contribution (e.g., "I do work for my supervisor that goes beyond what is specified in my job description"). The internal consistency of the 12-item LMX scale was .92.

**Workaholism** was measured at Time 1 ( $\alpha = .85$ ) and Time 2 ( $\alpha = .82$ ) using the 10-item Dutch Work Addiction Scale (DUWAS; Schaufeli et al., 2009). The scale captures excessive (e.g., "I find myself continuing to work after my co-workers have called it quits") and compulsive (e.g., "I feel guilty when I take time off work") work. Participants reported how often they engaged in the described behaviors during the past few months using a 5-point frequency scale ranging from 1 (*never*) to 5 (*often, nearly every day*). The DUWAS has demonstrated strong psychometric properties (Balducci et al., 2018) and is well suited to assessing workaholism as a single general construct (Gillet, Morin, Sandrin, & Houle, 2018).

Furthermore, the strong correlation found in our study between the excessive and compulsive facets of workaholism ( $r = .64$  at Time 1 and  $.58$  at Time 2,  $p < .001$ ) aligns with previous recommendations to treat workaholism as a single overarching construct (e.g., Balducci et al., 2018; Clark, Michel et al., 2016).

**Job strain** was assessed at Time 2 ( $\alpha = .93$ ) and Time 3 ( $\alpha = .91$ ) using a 3-item scale developed by Marchand and Vandenberghe (2015; e.g., “My quality of life has been reduced by my work”).

**Psychological climate for overwork** was measured at Time 2<sup>1</sup> using the 8-item scale developed by Mazzetti et al. (2016), which has proven to have good psychometric properties (e.g., Mazzetti et al., 2016). A sample item is “In my organization, it is considered normal to work on weekends.” Cronbach’s alpha for this scale was .88.

**Control variables.** Our analyses controlled for the autoregressive effects of workaholism and job strain, rendering the control of stable variables such as demographics and personality traits unnecessary (Zapf, Dormann, & Frese, 1996). However, as role overload has been shown to relate to both workaholism (Clark, Michel et al., 2016) and psychological strain (e.g., Shultz, Wang, & Olson, 2010), we initially controlled for its effect. Schaubroeck, Cotton, and Jennings’s (1989) 3-item scale was used ( $\alpha = .92$ ). As role overload did not affect the findings, we report the results of analyses without controlling for this variable, which is in line with recommendations regarding the proper use of control variables (e.g., Becker et al., 2016).

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<sup>1</sup> To maintain questionnaire length within reasonable limits, we measured psychological climate for overwork at Time 2 instead of Time 1. This decision was also based on the large consensus among researchers that climate perceptions are reasonably stable over time (e.g., Dawson, González-Roma, Davis, & West, 2008; Koys & DeCotiis, 1991; Naylor, Pritchard, & Ilgen, 1980). As stable characteristics only need to be measured once in panel designs (Boswell, Boudreau, & Tichy, 2005), we made the choice to assess climate perceptions at Time 2 to limit respondents’ fatigue at Time 1.

## Results

### Measurement Invariance

We first conducted invariance tests to examine whether the meaning of workaholism and job strain was stable across time (Little, Preacher, Selig, & Card, 2007) since we included their autoregressive effects in our model. We followed a sequential approach (Millsap 2011; Vandenberg & Lance, 2000) and added increasingly stringent constraints to each successive model. Results are presented in Table 1. First, the invariance of the factor structure (i.e., configural invariance) was supported for both workaholism,  $\chi^2[15] = 33.77$ , comparative fit index (CFI) = .98, Tucker-Lewis index (TLI) = .96, root-mean-square error of approximation (RMSEA) = .05, and job strain,  $\chi^2[5] = 7.38$ , CFI = .99, TLI = .99, RMSEA = .05. Next, metric invariance was established by constraining factor loadings to be equal across waves. Then, strong and strict invariances were established by constraining all intercepts (i.e., strong invariance) and then all residuals (i.e., strict invariance) to be equal across time. At each step, the addition of invariance constraints resulted in non-significant decrease in model fit, indicating stability of psychometric properties across time and suitability for longitudinal analysis (Cheung & Lau, 2012). Therefore, for both scales, we tested our hypotheses based on the most parsimonious model with strict invariance measurement specifications (e.g., invariance of factor structure, loadings, intercepts, and residuals).

### Confirmatory Factor Analyses

To examine the distinctiveness of our variables, we conducted a series of confirmatory factor analyses through Mplus 7.4 and compared the fit of our four-factor model including Time 1 LMX, Time 2 psychological climate for overwork, Time 2 workaholism, and Time 3 job strain to more parsimonious models. We used the Satorra-Bentler scaled  $\chi^2$  difference test with the

MLR estimator to compare our model to other, nested models (Satorra & Bentler, 2001). LMX was modeled as a second-order factor comprising affect, loyalty, contribution, and respect (Liden & Maslyn, 1998) as first-order factors. In addition, the errors of two items of the contribution dimension (“I do work for my supervisor that goes beyond what is specified in my job description,” and “I am willing to apply extra efforts, beyond those normally required, to meet my supervisor’s work goals”) were allowed to correlate because of overlap in their content. To reduce model complexity (Little, Rhemtulla, Gibson, & Schoemann, 2013), workaholism was modeled through the partial disaggregation approach (Bagozzi & Edwards, 1998) by randomly assigning items to four parcels, among which two pertained to the working excessively dimension and two others to the working compulsively dimension. Job strain and psychological climate for overwork were defined by their individual items. Results are presented in Table 2. The four-factor model yielded a good fit ( $\chi^2[313] = 540.13$ , CFI = .95, TLI = .95, RMSEA = .04). This model outperformed a three-factor model that combined workaholism and job strain ( $\chi^2[3] = 140.03$ ,  $p < .001$ ), a three-factor model that combined workaholism and psychological climate for overwork ( $\chi^2[3] = 191.18$ ,  $p < .001$ ), a three-factor model that merged job strain and psychological climate for overwork ( $\chi^2[3] = 155.47$ ,  $p < .001$ ), a two-factor model that merged workaholism, job strain, and psychological climate for overwork ( $\chi^2[5] = 320.51$ ,  $p < .001$ ), and a one-factor model ( $\chi^2[6] = 376.68$ ,  $p < .001$ ). These results support the distinctiveness of our variables.

### **Descriptive Statistics and Correlations**

Descriptive statistics and correlations are reported in Table 3. Noticeably, Time 1 LMX was negatively correlated with both Time 2 ( $r = -.33$ ,  $p < .01$ ) and Time 3 ( $r = -.19$ ,  $p < .05$ ) job strain but, as expected, was unrelated to Time 1 ( $r = .07$ , *ns*) and Time 2 ( $r = .12$ , *ns*)

workaholism. Time 2 workaholism was positively related to Time 3 job strain ( $r = .43, p < .01$ ). Time 2 psychological climate for overwork was unrelated to Time 1 LMX ( $r = -.02, ns$ ) but was positively related to Time 2 workaholism ( $r = .22, p < .01$ ) and Time 3 job strain ( $r = .19, p < .05$ ).

### **Hypotheses Testing**

We tested our hypotheses using the Latent Moderated Structural Equations (LMS) approach (Klein & Moosbrugger, 2000) with the Mplus XWITH command in Mplus 7.4 (Muthén & Muthén, 2010). The LMS approach generates more reliable estimates and standard errors and has more power than other methods (e.g., linear regression) to detect interaction effects. It is the recommended approach to test moderating effects using latent variables (Cheung & Lau, 2017; Sardeshmukh & Vandenberg, 2016). We followed a two-step approach to examine our moderation and moderated mediation hypotheses (Maslowsky, Jager, & Hemken, 2015; Sardeshmukh & Vandenberg, 2016). To examine Hypothesis 1, we first specified a baseline model that contained only the main effects of LMX and psychological climate for overwork on workaholism. We then added the latent interaction term to the baseline model. We compared the fit of these models using a log-likelihood ratio difference test (D; Maslowsky et al., 2015). A significant D would indicate that the moderated model adds variance over the baseline model and should be retained (Maslowsky et al., 2015). Furthermore, a smaller value for the Akaike Information Criterion (AIC) would indicate that there is no loss of information relative to the baseline model (Sardeshmukh & Vandenberg, 2016) and would suggest a better fitting model. Finally, we examined the latent moderated mediation model where job strain was added as the outcome. To examine the moderated mediation effect specified in Hypothesis 2, we used bootstrapping and its associated bias-corrected 95% confidence interval (CI) for conditional

indirect effects using maximum likelihood estimation (ML) in Mplus (Lau & Cheung, 2012; MacKinnon, Lockwood, & Williams, 2004) with 5,000 data resamples.

**Hypothesis 1.** To test hypothesis 1, we specified a baseline model that included the direct effects of Time 1 LMX and Time 2 psychological climate for overwork on Time 2 workaholism while controlling for the autoregressive effect of workaholism (i.e., Time 1). This model showed an adequate fit ( $\chi^2[345] = 656.16$ , CFI = .94, TLI = .94, RMSEA = .05). However, the latent interaction model proved superior to the baseline model ( $D(1) = 7.33$ ,  $p < .01$ ). Moreover, the interaction model yielded a smaller AIC value than the baseline model (22509.76 vs. 22515.09). Thus, we retained this model. The interaction between LMX and psychological climate for overwork was significant ( $B = .23$ ,  $SE = .09$ ,  $p < .05$ ; Table 4). The interaction (see Figure 2) indicates that LMX was positively related to workaholism when psychological climate for overwork was high (1 *SD* above the mean) ( $B = .28$ ,  $SE = .11$ ,  $p < .01$ ; Table 4) but unrelated to it when psychological climate for overwork was low (1 *SD* below the mean) ( $B = -.09$ ,  $SE = .10$ , *ns*; Table 4). The difference between these two relationships was significant ( $B = .37$ ,  $SE = .15$ ,  $p < .05$ ; Table 4). Hypothesis 1 is thus supported.

**Hypothesis 2.** To test Hypothesis 2, we first specified a baseline mediation model that included the main effects of Time 1 LMX and Time 2 psychological climate for overwork on Time 2 workaholism and Time 3 job strain, controlling for the autoregressive effects of workaholism (i.e., Time 1) and job strain (i.e., Time 2). The lagged paths from Time 1 variables to Time 2 job strain and the covariances among the exogenous variables at Time 1 and among the residuals of the endogenous variables at Time 2 were also estimated (MacKinnon, 2008). This baseline model showed an adequate fit ( $\chi^2[520] = 886.36$ , CFI = .94, TLI = .94, RMSEA = .04). However, the moderated mediation model proved superior to the baseline model ( $D(1) =$

9,10,  $p < .01$ ). Furthermore, the value of the AIC was smaller for the moderated mediation model (24775.00 vs. 24782.10). Thus, we retained this model. Bootstrapping analyses revealed a significant indirect effect of LMX on job strain through workaholism at high (1 *SD* above the mean) ( $B = .08$ ,  $SE = .04$ , 95% CI [.014, .207]; Table 4) but not at low (1 *SD* below the mean) values of psychological climate for overwork ( $B = -.03$ ,  $SE = .03$ , 95% CI [-.012, .016]; Table 4). Moreover, the difference between these two effects was significant ( $B = .12$ ,  $SE = .05$ , 95% CI [.023, .293]; Table 4). Hypothesis 2 is thus supported. Standardized parameters for the moderated mediation model are reported in Figure 3.

### Discussion

Using a three-wave longitudinal design, this study investigated the interactive effects of LMX and psychological climate for overwork on subordinate workaholism and job strain over time. In line with our hypotheses, the results showed that LMX increased subordinate workaholism in the context of a strong psychological climate for overwork. We further found that change in subordinate workaholism mediated the joint effects of LMX and psychological climate for overwork on subordinate job strain over time. That is, subordinates who reported having a high-quality relationship with their supervisor and who perceived the organizational climate as encouraging overwork were more likely to report high job strain eight months later, in part because of an increased level of workaholism.

### Theoretical Implications

This research makes several contributions to the literatures on workaholism and LMX. First, our study adds to the workaholism literature by examining the emergence of this phenomenon through the lens of contextual influences. As such, it adds to a recent line of research that has shown that the work context may foster workaholism (e.g., Balducci et al.,

2018; Gillet et al., 2018; Mazzetti et al., 2014; Molino et al., 2015). More precisely, the combined influence of LMX relationships and psychological climate for overwork acted as a driver of excessive and compulsive work. This finding is consistent with a situational strength account (Mischel, 1973) by indicating that high LMX relationships may encourage employees to engage in workaholism, a phenomenon that has at least partly a dispositional basis (Balducci et al., 2018; Keller et al., 2016). Our results also show that when the psychological climate for overwork is low (i.e., a weak situation), LMX is unrelated to workaholism. Although untested in our study, it might be that in such “weak” contexts, personality traits would outweigh LMX as predictors of workaholism. Future research is however needed to explore this possibility.

Second, this study indicates that leadership can play a role in creating workaholism, an area of study that has been neglected so far. In line with Ng et al.’s (2006) assumption that workaholism can be attributed to environmental reinforcers, our results may indicate that the reward associated with work addiction (e.g., a sense of accomplishment resulting from behaviors that serve the supervisor’s interests) feed workaholism. Future research could further examine this assumption. It is worth noting however that in contrast to previous research (Mazzetti et al., 2014), we found no main effect of psychological climate for overwork on workaholism. Thus, although the work climate may encourage workers to work hard, other factors such as tacit obligations to the supervisor must be simultaneously salient for employees to engage in excessive and compulsive attention to work.

Third, our study indicates that LMX has potentially a dark side (Erdogan & Bauer, 2015; Greenbaum et al., 2017; Matta & Van Dyne, 2015). While some studies have indicated that LMX may induce job strain, the mechanisms by which this may happen and the circumstances that can moderate such influence remained largely unknown (Sonnentag & Pundt, 2015). The



present study is one of the first attempts to examine longitudinally *when* (i.e., a high psychological climate of overwork) and *how* (i.e., through workaholism) LMX can induce employee job strain. Our findings suggest that while high LMX subordinates may enjoy well-being owing to a good relationship with the supervisor, this well-being may come along with sacrifices in terms of overwork and, ultimately, job strain (Inceoglu, Thomas, Chu, Plans, & Gerbasi, 2018; Lawrence & Kacmar, 2012). Plausibly, different processes mediate the effect of LMX on subordinate well-being, resulting in a positive or a negative indirect relationship depending on which process dominates (Inceoglu et al., 2018). Our study suggests that workaholism is one mediating variable that underlies the positive association between LMX and subordinate job strain and that a psychological climate for overwork is an important catalyst of this relationship.

Fourth, this study adds to what we know of social exchange processes within LMX relationships. As reasoned, a strong psychological climate for overwork acted as an important contextual factor that cued subordinates to engage in workaholism as a way to reciprocate the favorable treatment they received from supervisors. This is consistent with a study by Hofmann, Morgeson, and Gerras (2003) who also found that a strong organizational climate for safety strengthened the relationship between LMX and employees adopting safety-oriented citizenship behaviors, suggesting that our results focusing on psychological climate for overwork (i.e., individual measure) may generalize to the organizational level (i.e., group-level or organizational-level measures). Overall, these findings illustrate the importance of specific climates as boundary conditions in the relationship between LMX and employee outcomes (Dienesch & Liden, 1986).

Fifth, our study provides evidence for the longitudinal effect of workaholism on job strain. Although the association between workaholism and strain-related constructs has been widely studied (see Clark, Michel et al., 2016), almost all previous studies used cross-sectional designs (see Balducci et al., 2018, for an exception). The present study overcomes the limitations of cross-sectional designs in which the directional relationships among the constructs cannot be established. For example, the association between workaholism and job strain could be explained by confounding factors (e.g., negative affect or role overload). This study controlled for the baseline level of job strain and examined the potential effect of role overload as a confounding factor in the relationship between workaholism and job strain, thereby providing strong evidence for the idea that workaholism drives job strain. Though these results do not rule out a reciprocal relationship whereby job strain would increase workaholism, they support the idea that workaholism may contribute to deplete subordinates' resources over time, leading to job strain.

### **Practical Implications**

The present study shows that workaholism can result from the influence of environmental factors such as the psychological climate in the workplace and the quality of the exchange relationships with supervisors. This finding is important because it sheds light on what organizations can do to reduce workaholism and promote well-being among their employees (Loscalzo & Giannini, 2017). For example, organizations may want to refrain from conveying cues and communicating information indicating that overwork is necessary to meet performance expectations. Second, they may train managers to recognize workaholism among their subordinates and make them aware of their influence on such habits. Supervisors should also be advised of the potential downside of high LMX, as it may foster employees' willingness to reciprocate through long work hours, particularly if the work climate magnifies overwork.

Managers should encourage employees to work smarter rather than harder, thereby limiting the negative impact of a high LMX combined with a strong psychological climate for overwork.

Finally, as our findings indicate that workaholism harms employees' well-being, organizations should question the value of having employees who work excessively hard as this may be a visible manifestation of workaholism.

### **Limitations and Future Research Directions**

This research employed a rigorous approach to assessing the temporal relationships between predictor, mediator, and outcome variables, a much-needed endeavor in research on the downsides of LMX and workaholism (Balducci et al., 2018; Sonnentag & Pundt, 2015). Our three-wave design assessed LMX, workaholism, and job strain at separate times and controlled for the baseline levels of workaholism and job strain, thereby providing a strong test of how our predictor related to changes in mediator and outcome variables. Despite these strengths, this study has limitations. First, data were obtained from a single source, which may inflate the associations between constructs due to common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012). To reduce this bias, we used procedural remedies (i.e., temporal separation between the predictors and criterion) (Podsakoff et al., 2012) and controlled for autoregressive effects (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), thereby removing much endogeneity in the data. Furthermore, findings related to interaction effects are unlikely to be affected by common method variance (Siemsen, Roth, & Oliveira, 2010). However, future research should consider using multisource data. A multisource assessment of subordinate workaholism would be particularly warranted because some research has suggested that employees themselves may be biased in their judgment of overwork habits (Mazzetti, Schaufeli, & Guglielmi, 2018).

Second, in line with the literature on psychological climate (e.g., Glick, 1985; James et al., 2008; Parker et al., 2003), we operationalized psychological climate for overwork at the individual level. Psychological climates, as opposed to organizational climates, pertain to the individual level (James & Jones, 1974; Schneider et al., 2017). Because this research focused on individual-level outcomes (i.e., workaholism and job strain), we followed recommendations to focus on an individual-level conceptualization and measurement of climate (Glick, 1985; Parker et al., 2003). However, we acknowledge that this approach has limitations. First, as individual perceptions do not necessarily accurately reflect the work environment, the measure of climate as an individual attribute does not allow us to draw conclusions about the potential effects of an organizational climate for overwork (Schneider et al., 2017). Yet, an organizational-level climate or an aggregate climate measure based on individual-level data have been shown to explain incremental variance in individual outcomes beyond individual perceptions (Schneider et al., 2017). The nature of our sample (e.g., employees from various companies) did not allow us to examine the effect of an aggregated climate construct. Future research should therefore examine whether the perceived climate for overwork can be aggregated to the team or organization level and whether a cross-level moderating effect can be found between such climate and individual LMX. This would help determine if our results can be replicated using a measure of organizational climate for overwork. Second, an investigation of the effect of climate strength (i.e., degree of agreement among the perceptions of team members) as a more direct measure of situational strength would also be warranted. An interesting avenue would be to examine a potential three-way interaction in which climate strength would moderate the interaction between psychological climate for overwork and LMX. Research has indeed suggested that climate strength may bolster the effect of psychological climate on individual-level outcomes (Whitman,

Caleo, Carpenter, Horner, & Bernerth, 2012). Finally, our sample was composed of highly educated professionals, most of whom occupied a managerial position. Such a sample may be predisposed to engage in workaholism (Clark, Michel et al., 2016). Future studies should attempt to replicate the present findings with more diversified samples of employees.

In addition to the avenues outlined above, further empirical investigation on social exchange processes in LMX relationships is needed to substantiate our hypothesis that workaholism is used as a currency of exchange in the context of a psychological climate for overwork. Future research could seek to replicate our findings using measures of LMX that more explicitly capture the dynamics of exchange within the dyad, such as the leader-member social exchange scale (LMSX; Bernerth, Armenakis, Feild, Giles, & Walker, 2007). While highly correlated with the LMX-MDM scale used in the present study ( $r = .79, p < .01$ ), the LMSX scale assesses reciprocity more directly (e.g., “My relationship with my manager is composed of comparable exchanges of giving and taking”). Examining the potential mediating role of a felt obligation to reciprocate between LMX and workaholism would also be warranted. Researchers could also seek to identify the motives underlying this relationship. Scholars often portray reciprocation in the context of high LMX relationships as being driven by prosocial goals (i.e., desire to benefit the supervisor; see Bowler, Paul, & Halbesleben, 2017). However, it is possible that reciprocation is used by subordinates to serve their own interests (Lee, Thomas, Martin, Guillaume, & Marstand, 2019), such as to maintain their privileged position. For example, engagement in workaholism may be driven by the fear of losing one’s privileges (as opposed to the desire to serve the supervisor’s interests), which would be consistent with the finding that workaholics are motivated by avoiding loss rather than by achieving gains (van Beek, Taris, Schaufeli, & Brenninkmeijer, 2013).

Given the detrimental effects of workaholism on employee health, we hope this study will also encourage future research on the role of supervisors and other contextual factors in the emergence of workaholism in the workplace. First, because dispositional factors play a significant role in fostering workaholism (Clark, Michel et al., 2016), future studies may seek to investigate how relevant traits interact with LMX to predict workaholism. This would help clarify the context and situations where LMX is harmful vs. protective. Second, the role of leadership styles in the emergence of workaholism should be further examined. For example, using a nationally representative sample and cross-sectional data collected in Norway, Andreassen et al. (2019) found no association between transformational leadership and abusive supervision and workaholism. However, they found a positive association between laissez-faire leadership and workaholism. These preliminary findings call for future replications and extensions using longitudinal and multisource data. It is also possible, as our study suggests, that various leadership styles become harmful only under certain conditions (e.g., a strong psychological climate for overwork or other conditions such as heavy workloads). More generally, exploring other contextual determinants of workaholism (e.g., HR policies, organizational norms, intense use of information and communication technologies) would help deepen our understanding of this syndrome and provide actionable avenues to limit its influence.

### **Conclusion**

This study aimed to broaden the understanding of the contextual antecedents of workaholism. Supporting our hypotheses, we found that, in organizational contexts perceived to promote long work hours, a good subordinate-supervisor relationship quality increased subordinates' likelihood of engaging in workaholism and ultimately experiencing job strain. These findings shed light on the role of organizations and managers in preventing their

employees from falling into the spiral of workaholism and suffering from its health-related consequences.

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Table 1

*Results for Measurement Invariance Tests*

	$\chi^2$	<i>df</i>	CFI	TLI	RMSEA	SB $\Delta\chi^2$	$\Delta df$	$\chi^2$
<b>Workaholism invariance between T1 and T2</b>								
Model 1. Configural invariance	33.765*	15	.98	.96	.05	–		–
Model 2. Weak invariance (loadings)	35.551*	18	.98	.97	.05	2 vs. 1	1.46	3
Model 3. Strong invariance (loadings, thresholds)	39.696*	21	.98	.97	.04	3 vs. 2	4.05	3
Model 4. Strict invariance (loadings, thresholds, residuals)	44.335*	25	.98	.98	.04	4 vs. 3	4.45	4
<b>Job Strain invariance between T2 and T3</b>								
Model 1. Configural invariance	7.377*	5	0.99	.99	.05	–		–
Model 2. Weak invariance (loadings)	8.799*	7	1.00	.99	.04	2 vs. 1	0.32	2
Model 3. Strong invariance (loadings, thresholds)	11.107*	9	1.00	.99	.04	3 vs. 2	2.29	2
Model 4. Strict invariance (loadings, thresholds, residuals)	12.502*	12	1.00	1.00	.01	4 vs. 3	2.03	3

*Note.*  $N = 449$  (T1) and 181 (T2), for workaholism;  $N = 173$  (T2) and 118 (T3), for perceived strain. *df* = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root-mean-square error of approximation; SB = Satorra-Bentler scaled; T1 = Time 1; T2 = Time 2; T3 = Time 3.

\* $p < .001$ .

Table 2

*Results for Confirmatory Factor Analyses*

	$\chi^2$	<i>df</i>	CFI	TLI	RMSEA	SB $\Delta\chi^2$	$\Delta df$
1. Hypothesized four-factor model: LMX (T1), workaholism (T2), psychological climate for overwork (T2), and job strain (T3)	540.130*	313	.95	.95	.04	–	–
2. Three-factor model, combining workaholism (T2) and job strain (T3)	653.491*	316	.93	.92	.05	140.03*	3
3. Three-factor model, combining workaholism (T2) and psychological climate for overwork (T2)	718.455*	316	.92	.91	.05	191.18*	3
4. Three-factor model, combining psychological climate for overwork (T2) and job strain (T3)	795.812*	316	.90	.89	.06	155.47*	3
5. Two-factor model, combining workaholism (T2), psychological climate for overwork (T2), and job strain (T3)	952.548*	318	.87	.86	.07	320.51*	5
6. One-factor model	1015.572*	319	.86	.84	.07	376.68*	6

*Note.*  $N = 449$ , based on full information maximum likelihood estimation. *df* = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root-mean-square error of approximation; SB = Satorra-Bentler scaled; T1 = Time 1; T2 = Time 2; T3 = Time 3.

\* $p < .001$ .

Table 3

*Descriptive Statistics and Correlations for the Study Variables*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
1. Age	37.67	9.00	–									
2. Gender	1.53	0.50	-.14**	–								
3. Organizational tenure (years)	6.07	5.67	.42**	-.12*	–							
4. Tenure with the supervisor (years)	2.95	2.28	.22**	-.10*	.34**	–						
5. LMX (T1)	3.57	0.84	-.06	-.03	-.03	-.02	(.92)					
6. Workaholism (T1)	3.51	0.74	.08	.01	.08	.07	.07	(.85)				
7. Workaholism (T2)	3.36	0.71	.17*	.02	.06	.06	.12	.70**	(.82)			
8. Psychological climate for overwork (T2)	2.40	0.98	.09	.02	.01	.03	-.02	.38**	.22**	(.88)		
9. Job strain (T2)	2.74	1.34	.12	.10	.14	.14	-.33**	.37**	.34**	.38**	(.93)	
10. Job strain (T3)	2.76	1.31	.14	.06	.01	.07	-.19*	.40**	.43**	.19*	.72**	(.91)

*Note:* Correlations are based on the data available at a given time: T1  $N = 430-449$ , T2  $N = 173-181$ , T3  $N = 118$ . For gender, 1 = Male, 2 = Female; LMX = Leader-member exchange; T1 = Time 1; T2 = Time 2; T3 = Time 3. Coefficient alphas are reported in parentheses along the diagonal.

\* $p < .05$ ; \*\* $p < .01$ .

Table 4

*Structural Equations Modeling Results for the Moderated Model and the Moderated Mediation Model*

Parameter estimates	Moderation				Moderated mediation				
	Baseline model		Moderated model		Baseline model		Moderated mediation model		
	B	SE	B	SE	B	SE	B	SE	95% CI
LMX (T1) → Workaholism (T2)	.09	.08	.10	.07	.09	.07	.09	.07	[-.064, .229]
Workaholism (T1) → Workaholism (T2)	.74***	.06	.75***	.06	.77***	.06	.77***	.06	[.646, .889]
PCO (T2) → Workaholism (T2)	-.12	.10	-.12	.09	-.16	.09	-.16	.09	[-.370, .012]
LMX (T1) x PCO (T1) → Workaholism (T2)			.23*	.09			.25**	.09	[.024, .449]
LMX (T1) → Job strain (T2)					-.62***	.12	-.63***	.12	[-.900, -.392]
Workaholism (T1) → Job strain (T2)					.50***	.10	.50***	.10	[.306, .726]
LMX (T1) → Job strain (T3)					-.08	.15	-.08	.15	[-.387, .224]
PCO (T2) → Job strain (T3)					-.08	.12	-.08	.12	[-.340, .153]
Workaholism (T2) → Job strain (T3)					.29**	.10	.29**	.10	[.082, .517]
Job strain (T2) → Job strain (T3)					.62***	.09	.62***	.09	[.428, .788]
First stage moderation									
High PCO (+1 SD)			.28**	.11			.29**	.10	[.020, .510]
Low PCO (-1 SD)			-.09	.10			-.12	.10	[-.320, .075]
Difference (± 1 SD)			.37*	.15			.41**	.15	[.040, .736]
Indirect effect									
High PCO (+1 SD)							.08*	.04	[.014, .207]
Low PCO (-1 SD)							-.03	.03	[-.012, .016]
Difference (± 1 SD)							.12*	.05	[.023, .293]

Note: N = 449, based on full information maximum likelihood estimation. Entries are unstandardized path coefficients (B); SE = standard error; CI = confidence interval; LMX = leader-member exchange; PCO = Psychological climate for overwork; T1 = Time 1; T2 = Time 2; T3 = Time 3.

\*p < .05; \*\*p < .01; \*\*\*p < .001.

Figure 1. Theoretical model for the study. T1 = Time 1; T2 = Time 2; T3 = Time 3.

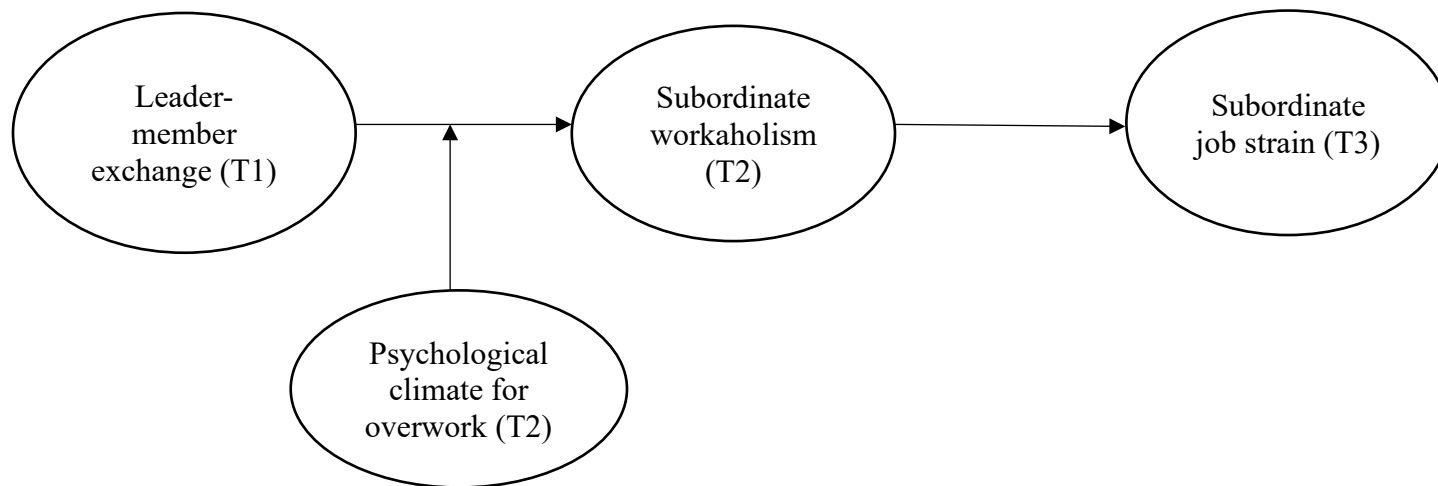


Figure 2. Interaction between Time 1 LMX and Time 2 psychological climate for overwork predicting Time 2 workaholism, controlling for Time 1 workaholism. Effects are represented at 1 *SD* below and above the mean of psychological climate for overwork.

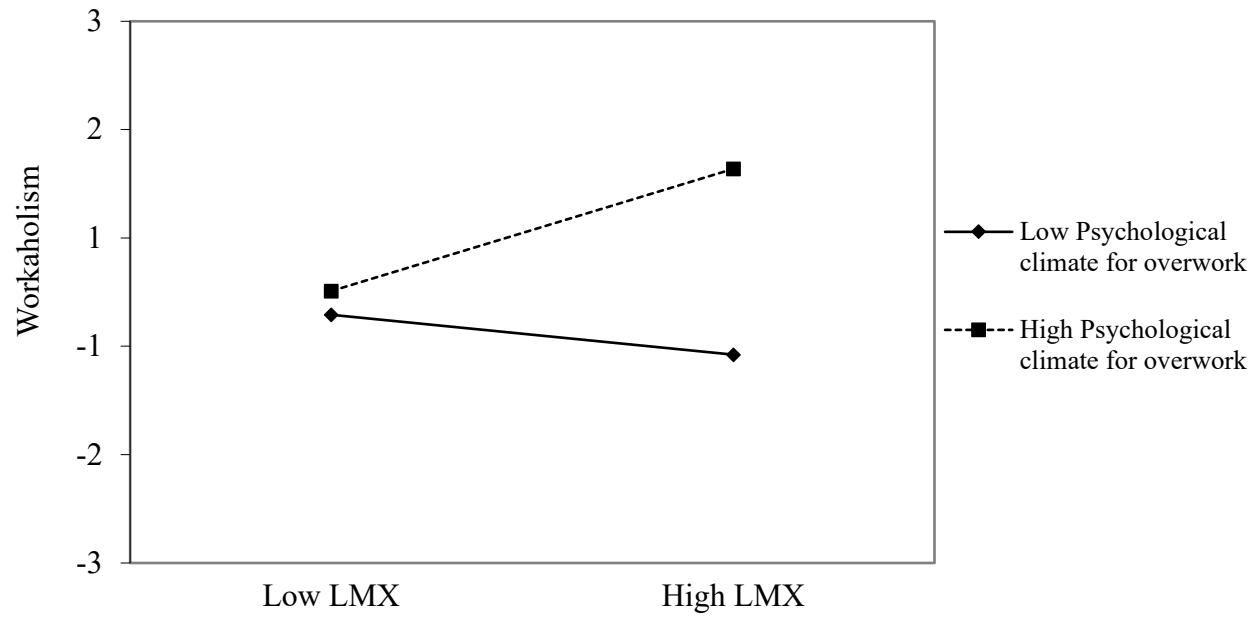


Figure 3. Final structural model with standardized parameter estimates. T1 = Time 1; T2 = Time 2; T3 = Time 3. For the sake of clarity, covariances among exogenous variables and among the residuals of endogenous variables are not reported. The lagged paths from T1 variables to T2 job strain were estimated (see Table 4) but are not reported.

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

