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How Leadership Can Influence Well-Being: The Roles of Leader-Member Exchange and Social Support

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HOW LEADERSHIP CAN INFLUENCE WELL-BEING: THE ROLES OF
LEADER-MEMBER EXCHANGE AND SOCIAL SUPPORT

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ABSTRACT

The present study examined how leadership can influence the impact of job demands on well-being by facilitating the development of known moderators of this relationship, such as social support. Direct and moderated relationships were proposed between job demands, leader-member exchange (LMX), supervisor social support, psychological well-being and emotional exhaustion. Data were collected from high-skilled employees and managers in a manufacturing plant in the People's Republic of China. Surveys were administered in two waves, allowing longitudinal relationships to be tested. As hypothesized, high-quality LMX relationships facilitated supervisor social support. Also as expected, supervisor social support had a direct positive relationship with psychological well-being and a direct negative relationship with emotional exhaustion. However, job demands were not directly related to either psychological well-being or emotional exhaustion. Further, supervisor social support did not moderate the relationships between job demands and (a) well-being and (b) emotional exhaustion. The hypotheses were not supported in longitudinal analyses. Results of supplemental analyses suggested that supervisor social support partially mediated the relationships between LMX and (a) psychological well-being and (b) emotional exhaustion. Possible explanations for the findings are presented, followed by implications of the results, study limitations, and suggestions for future research in this area.

DEDICATION

To my parents, Terry and Susan, from whom I learned the meaning of hard work and the importance of family. Your encouragement and wisdom mean so much to me.

To my sister, Jackie, who has always believed in me and been incredibly supportive.

In memory of my grandmother, Virginia, from whom I learned the value of education and serving others.

And to each of you, my family, from whom I learned to honor God with the gifts and talents He has given you.

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CHAPTER ONE

INTRODUCTION

Employee health and well-being have a considerable effect on organizational performance. Poor psychological health can affect an organization's bottom line in terms of reduced job performance and productivity (Donald et al., 2005), increased absenteeism (Cartwright, 2000), and increased work-related injuries (Salminen, Kivimaki, Elovainio, & Vahtera, 2003). The direct medical costs of stress-related illnesses to U.S. organizations range from $150 billion to $300 billion annually (Riedell, Lynch, Baase, Hymel, & Peterson, 2001, as cited in Eisen, 2005). The annual cost of employees' depression, in particular, has been estimated at $50 billion for medical treatment (Durso, 2004) and $44 billion for absence and reduced performance at work (Stewart, Ricci, Chee, Hahn, & Morgenstein, 2003).

Work stress is also associated with negative physical and psychological health consequences for employees, such as cardiovascular disease, high blood pressure, depression, headaches, and poor lifestyle habits (National Institute for Occupational Safety and Health, 1999; Sparks, Faragher, & Cooper, 2001). As a result, healthcare utilization from stress-related illnesses is a major cost to organizations and their members. The frequency of stressful events at work is associated with an increased doctors' office visits, hospital visits, and healthcare insurance claims submitted (Fusilier & Manning, 2005). Therefore, reducing employee stress benefits organizations and their members.

Previous research has examined a wide variety of work-related variables that influence employee stress and well-being, and one important factor is the relationship with one's supervisor. Recent research demonstrates the crucial influence that supervisors have on their subordinates' health and well-being (Arnold, Turner, Barling, Kelloway, & McKee, 2007; van Dierendonck, Haynes, Borrill, & Stride, 2004). Effective leadership has been shown to help subordinates withstand stressful working conditions (Gavin & Hoffman, 2002). Alternatively, poor-quality leadership can constitute a major source of stress, in terms of low supervisor support, communication, and a lack of information (Graen & Uhl-Bien, 1995). The documented positive relationship between leadership and psychological well-being implies utility in supervisor efforts to develop high-quality relationships with subordinates (Singh & Srivastava, 2009).

Gaps in Previous Literature

Although research suggests the influence of leadership on subordinate health and well-being, few studies have examined the relationship between leadership in terms of leader-member exchange (LMX) and employee health (Singh & Srivastava, 2009). In short, LMX focuses on the dyadic interactions that occur between leaders and followers (Graen & Uhl-Bien, 1995). Many researchers have documented favorable relationships between LMX quality and subordinate outcomes, such as higher performance ratings, organizational commitment, job satisfaction, organizational citizenship behaviors, perceived organizational support, and decreased turnover intentions (see Gerstner & Day, 1997 for a meta-analysis and Singh & Srivastava, 2009 for a review). These positive organizational and individual outcomes have been associated with high-quality LMX

relationships, but a relative lack of research examining the relationship between LMX and employee health remains (Singh & Srivastava, 2009). This should be an important research agenda given that poor employee health and well-being is associated with decreased job performance and productivity. Thus, there is limited evidence as to the relationship between LMX quality and employee health, especially compared to many other organizational and individual outcomes.

Seligman (2008) called attention to the fact that positive health, as opposed to the mere absence of ill health, has received little attention scientifically. Recent research has started to examine how effective leadership may not only reduce ill health (e.g. burnout, depression), but how it may also enhance positive mental health (Arnold, Turner, Barling, Kelloway, & McKee, 2007). In a one-year longitudinal study, Feldt, Kinnunen, and Mauno (2000) reported that positive changes in leadership relations were associated with improved employee psychological well-being. Although some evidence has suggested that effective leadership may enhance employee well-being, specifics of this relationship are not clear. Thus, the relationship between leadership and positive health outcomes warrants further attention.

In addition, it is important to understand the different ways in which leadership can affect employee health and well-being (Britt, Davison, Bliese, & Castro, 2004). Britt and colleagues (2004) described three primary ways in which leadership can influence the link between stressors and health outcomes: by directly influencing the stressor, by reducing the adverse effects of stressors on health outcomes, and by affecting other variables that reduce the adverse consequences of stressors. The least well-studied of

these pathways appears to be influence of leadership on known moderators of stressor-strain relationships, such as social support or subordinate motivation. As an example, Chen and Bliese (2002) demonstrated that task clarification and supportive leadership facilitated self and collective efficacy among soldiers. Efficacy, in turn, has been found to protect soldiers from the adverse health consequences of a stressful environment (Jex & Bliese, 1999). In sum, further research is needed concerning leadership as it affects other variables that reduce the adverse consequences of stressors.

Lastly, the majority of studies on work stress are cross-sectional in nature (Gelsema et al., 2006). Cross-sectional studies have several limitations, perhaps the most important being that they are not suited to test causal relationships. Cross-sectional studies cannot provide evidence regarding the temporal order of variables, and reversed or reciprocal causal relationships cannot be tested. By establishing the temporal order of variables, longitudinal designs allow for stronger conclusions regarding causal relationships among variables than cross-sectional designs (Taris & Kompier, 2003). As there is a paucity of longitudinal studies in occupational health psychology, previous researchers have called for further research with longitudinal designs (de Lange, Taris, Kompier, Houtman, & Bongers, 2003). Some of the relationships examined in the current paper have received longitudinal support. For example, job demands have been found to be longitudinally associated with emotional exhaustion (Bourbonnais, Comeau, & Vézina, 1999; de Lange, Taris, Kompier, Houtman, & Bongers, 2004), depression (de Lange et al., 2004), and psychological well-being (Bradley & Cartwright, 2002).

Summary and Contribution

       The present study contributes to the literature by addressing the gaps described above. First, to address the gap concerning the relationship between LMX quality and employee health, I will propose a model in which high-quality LMX relationships increase social support from one's supervisor. Supervisor social support, in turn, directly affects employee health and well-being, as well as moderates the relationship between job demands and employee health. High-quality LMX relationships are expected to benefit employee health, thus further demonstrating the utility of developing high-quality relationships with subordinates. Second, in response to the call from Seligman (2008) to expand the study of positive health, I will examine how job demands and supervisor social support predict a positive mental health outcome (psychological well-being) as well as a negative mental health outcome (emotional exhaustion). By examining both positive and negative health outcomes, the current study examines if supportive leadership increases positive outcomes and reduces negative outcomes under demanding working conditions. Third, to better understand the different ways in which leadership can affect employee health and well-being, I will examine how LMX quality influences supervisor social support, a known moderator of stressor-strain relationships. Examining supervisor social support as an outcome of high-quality LMX relationships helps clarify how LMX affects employee health and well-being. Fourth, to address the call for continued longitudinal research in occupational health psychology, I will examine the proposed relationships with a three-month interval between the measurement occasions. Previous research examining work stressors, social support, and psychological well-being

have found significant relationships with a six-month interval (Bradley & Cartwright, 2002). I will examine if these relationships may be present with a somewhat shorter interval, which follows the discussion of de Lange and colleagues (2004) that it is important to investigate the effects of different time lags.

Furthermore, I will test the proposed relationships using an organizational sample in the People's Republic of China. China has the largest workforce and fastest-growing economy in the world (Frauenheim, 2007; Xie, 1996). China is also the largest manufacturer in the world, as many organizations have become multinational and invested in China (Frauenheim, 2007). As a result of their growing workforce and influence, it is beneficial to explore the transportability of Western managerial theories and practice to China. Extending Western theories to China provides valuable information about the similarities and differences between individuals from individualist and collectivist cultures (Xie, 1996). Although LMX is a Western concept, a number of studies on LMX have shown the validity of this construct in the Chinese context (Aryee & Chen, 2006; Hui & Graen, 1997; Wang, Law, & Chen, 2008; Wang, Law, Hackett, Wang, & Chen, 2005).

The primary purpose of the current study is to examine how leadership, in terms of LMX relationships, is related to other factors that moderate the relationship between job demands and well-being, namely supervisor social support. The current paper is organized in the following manner. First, I will provide descriptions of job demands, psychological well-being, and emotional exhaustion, as well an explanation of the theorized relationships between them. Second, I will describe the constructs of LMX and

supervisor social support, as well as provide theoretical support for supervisor social support as an outcome of high-quality LMX relationships. Third, I will review research explaining why supervisor social support is directly associated with well-being and exhaustion. Fourth, I will present theory and research describing how supervisor social support moderates the relationships between job demands and (a) well-being and (b) emotional exhaustion. These variables are expected to predict psychological well-being and emotional exhaustion at two measurement occasions that are three months apart. Then, I will detail the method including the study's design, sample, measures, and analyses. Lastly, I will present the results of the hypothesized relationships, discuss the findings, and suggest directions for future research. Note that throughout the paper I use the terms leader and supervisor synonymously. These terms refer to individuals who have assumed formal supervisory roles in their organization and are expected to function as leaders.

Job Demands

Job demands are defined as aspects of a job that require sustained physical and/or psychological efforts and are therefore associated with certain costs (Schaufeli & Bakker, 2004). Job demands are associated with the pressure to produce an output, often within a certain amount of time (Karasek, 1979). Factors such as the pace of work and a lack of breaks contribute to job demands. Job demands have been operationalized mainly in terms of time pressure and role conflict (van der Doef & Maes, 1999). The current paper considers job demands in terms of the psychological pressures associated with accomplishing one's workload, not physical job demands. Physical demands are typically

described in terms of physical exertion or the amount of physical effort required to complete one's tasks (Park, 2007).

Psychological job demands are one important aspect of the job demand-control (JDC) model originally proposed by Karasek (1979). This model been a leading model of work stress since the 1980s (de Lange et al., 2003). The JDC model focuses on two dimensions of the work environment: job demands and job control. Job control, also referred to as decision latitude, refers to having intellectual discretion and authority over decisions (van der Doef & Maes, 1999). The JDC model proposes an interaction between these dimensions, such that job control reduces the negative relationship between job demands on psychological well-being. Thus, individuals with high levels of job demands and low job control are likely to have poorer psychological well-being than individuals with high job demands and high job control (Daniels, 1999).

The job demand-control model was expanded by Johnson (Johnson, 1986, as cited in Karasek et al., 1998; Johnson & Hall, 1988) to include social support as a third dimension. In the job demand-control-support (JDCS) model, job control and social support are both expected to reduce the negative relationship between job demands and well-being. This model suggests that jobs which are high in job demands, low in control, and also low in work-related social support carry the highest risk of illness, such as psychological distress and coronary heart disease (Karasek et al., 1998).

Empirical support for two- and three-way interaction effects as described by the JDC and JDCS models, respectively, has been mixed (see de Lange et al., 2003; Theorell & Karasek, 1996; van der Doef & Maes, 1999, for reviews). Interaction effects may not

be found because of a lack of statistical power, or the interaction may unpredictably depend on some type of third variable (e.g., personality factors, type of demand, control, or outcome examined; Taris, 2006). Rather than only focusing interaction effects, recent researchers have examined the additive effects (i.e., main effects only), as well as the JDCS dimensions separately. For example, nearly all of the studies included in a meta-analysis by de Lange and colleagues (2003) found evidence for the main effect of one or more dimensions of the JDCS model on well-being outcomes. Thus, demands, control, and social support are each considered major predictors of employee health and well-being (Taris, 2006).

Well-Being and Emotional Exhaustion

Psychological Well-Being

Psychological well-being is considered an indicator of individual mental health status (Keyes, 2002). One aspect of psychological well-being concerns positive self-regard, or self-worth. This dimension is associated with feeling confident, competent, and self-efficacious (Warr, 2005). A second aspect of well-being considers one's relationships with others and social functioning. Feeling useful, capable of making decisions, concentrating, and enjoying activities are associated with overall social functioning (Warr, 2005). Lastly, psychological well-being is associated with mastery over one's environment and the capability to face and overcome difficulties that arise.

Two independent dimensions of well-being are often distinguished: affective direction and level of arousal (Warr, 2005). This two-dimensional model describes psychological well-being as an individual's degree of pleasure or displeasure combined

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with a level of mental arousal. For example, someone experiencing low pleasure and high

mental arousal may be experiencing anxiety. Depression is the combination of low

mental arousal and displeasure. Thus, well-being is often considered a function of these

two dimensions, and this framework has been supported by scientific investigations

(Remington, Fabrigar, & Vissser, 2000; Russell, 2003).

The current study considers context-free psychological well-being rather than

well-being in a particular domain, such as one's job. Job-related psychological well-being

describes the feelings of occupational stress, worry, job-related mood, and job-related

anxiety (van der Doef & Maes, 1999). In contrast, context-free psychological well-being

is a more global construct that can be influenced by one's job, family, community,

physical health, and other non-work related factors (Kelloway & Barling, 1991). Thus,

the current study examines how characteristics of work can affect overall psychological

functioning.

Job Demands as a Predictor of Well-Being

As mentioned above, previous research has consistently indicated that

psychological job demands are highly correlated with perceived work stress (Park, 2007).

Role ambiguity and role conflict, specifically, have been empirically linked to context-

free psychological well-being (Kelloway & Barling, 1991). The job demand-control

model (Karasek, 1979) indicates that job demands have a negative relationship with

psychological well-being, and job control can improve the relationship. In a longitudinal

study, de Lange and colleagues (2004) found evidence for the main effect of job

demands, as well as other job characteristics, on mental health over time. Many studies

included in reviews by van der Doef and Maes (1999) and de Lange and colleagues (2003) reported significant main effects of job demands predicting psychological indicators of strain, often in conjunction with main effects of control or social support. This relationship is examined in the current study as replication of previous research, as well as an extension of this literature to a Chinese sample. Based on previous research, I would expect employee job demands to have a negative relationship with psychological well-being.

Hypothesis 1a: There will be negative relationship between job demands and psychological well-being.

Emotional Exhaustion

Emotional exhaustion refers to feeling emotionally overextended, often from consistent or draining interactions with others (Fusilier & Manning, 2005). Exhaustion represents the depletion of one's emotional resources. Previous research indicates that emotional exhaustion is predicted by an incongruence between feeling and action, termed emotional dissonance (Lewig & Dollard, 2003). Emotional dissonance is a type of role conflict that has been shown to be a key antecedent of emotional exhaustion. Emotional exhaustion is also considered the central outcome of the job burnout syndrome, conceptualized overall as a psychological syndrome in response to chronic interpersonal stressors on the job (Maslach, Schaufeli, & Leiter, 2001). When employees are emotionally exhausted, not only are they less capable of dealing with job stressors, they also lack the energy to perform their job tasks well.

Emotional exhaustion has been heavily studied as an outcome of the job demands-

resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). The JD-R model posits that although every job may have its own specific risk factors associated with stress and exhaustion, these factors can be classified into two general categories: job demands and job resources (Demerouti et al., 2001). Thus, the JD-R model can be applied to various occupational settings regardless of the specific job demands and resources involved.

The JD-R model also suggests that the highest levels of exhaustion develop when job demands are high and when job resources are limited, irrespective of the occupation or specific factors involved. Thus, job resources reduce the negative effects of job demands on burnout and emotional exhaustion (Demerouti et al., 2001). This buffering hypothesis is consistent with the job demand-control-support model (Johnson & Hall, 1988; Karasek, 1979), but expands upon it suggesting that several different job resources can protect against the negative effects of several different job demands (Bakker, Demerouti, & Euwema, 2005). For example, the resources of autonomy, social support, information, and feedback may play more or less of a role in reducing job demands depending on the type of demand, type of job, or specific goal to be achieved.

Job Demands as a Predictor of Emotional Exhaustion

Similar to psychological well-being, measures of job demands are consistently associated with emotional exhaustion (Karasek et al., 1998). As mentioned, emotional exhaustion has been examined in the context of the JD-R model (Demerouti et al., 2001). By definition, job demands refer to aspects of the job that require cognitive or emotional effort and are, therefore, associated with certain psychological costs, such as emotional

exhaustion (Demerouti et al., 2001). The influence of job demands is the first of two processes involved in the development of emotional exhaustion proposed by the JD-R model. In the second process, a lack of resources complicates the meeting of job demands.

Recent studies have presented evidence for the relationship between job demands and emotional exhaustion. In a study involving nurses, Jourdain and Chênevert (2010) reported that job demands were one the strongest determinants of emotional exhaustion. Similarly, a longitudinal study involving different occupational groups found that increases in job demands over time resulted in emotional exhaustion, thus providing stronger evidence for a causal relationship (de Lange et al., 2004). In addition, job demands measured by both self-report and observer ratings have been found to be positively associated with emotional exhaustion (Demerouti et al., 2001). This relationship is examined in the current study as replication of previous research, as well as an extension of this literature to a Chinese sample. Thus, I would expect increases in job demands to be associated with increases in emotional exhaustion.

Hypothesis 1b: There will be a positive relationship between job demands and emotional exhaustion.

Leader-Member Exchange

Previous research has examined how the relationship with one's supervisor may be a key factor in reducing the influence of stressors. Leadership can influence the relationship between potential work stressors, such as high job demands, and aspects of psychological well-being. Leaders provide different forms of support and resources that

reduce the adverse health consequences of job stressors (Bliese & Castro, 2000; Bliese & Halverson, 2002). Leaders influence and support followers by clarifying tasks, communicating goals and professional development opportunities, providing feedback, and providing job resources (Northouse, 2007).

Organizational researchers often describe the relationship between leader and follower in terms of leader-member exchange (LMX) theory. LMX is a relationship-based approach to leadership based on the dyadic interactions which occur between a leader and a follower (Graen & Uhl-Bien, 1995). This focus on the dyadic relationship differentiates LMX from other leadership theories. As opposed to traditional theories that describe leadership as a function of the personal characteristics and behaviors of the leader, the situation, or both, LMX theory examines supervisor-subordinate relationships (Gerstner & Day, 1997).

LMX theory regards the development of the leader-member relationship as a dynamic process in which work roles are negotiated, defined, and developed over time (Dienesch & Liden, 1986). The basic premise of LMX is that supervisors develop different forms of social-exchange relationships with their subordinates, resulting in unique relationships for each leader-follower pair (van Dierendonck et al., 2004). Social exchange is considered the exchange of socio-emotional benefits, such as trust, support, and consideration, as opposed to material transactions that characterize economic exchange (Graen & Uhl-Bien, 1995). Also, social exchange relationships are based on each individual trusting that the other party will reciprocate their obligation at some point in the future, rather than on a calculated or quid pro quo basis (Gouldner, 1960).

According to the norm of reciprocity that underlies social exchange relationships (Gouldner, 1960), individuals tend to reciprocate the benefits they receive and hope of a return in kind (Molm, Schaefer, & Collett, 2007). Thus, if leaders engage in behaviors that complement subordinate needs, followers are likely to reciprocate benefits to the supervisor, such as improved levels of individual job performance (Graen & Uhl-Bien, 1995; House, 1996).

Liden and Maslyn (1998) suggested that LMX quality is based on four dimensions: perceived contribution to the exchange, loyalty, affect, and professional respect. Thus, compared to those in low-quality relationships, partners in high-quality LMX relationships contribute more work-oriented effort toward mutual goals, publicly support each other's actions and character, enjoy each other's company, and believe that the other has built a reputation of professional excellence (Graen & Uhl-Bien, 1995; Liden & Maslyn, 1998). Subordinates with high-quality LMX relationships receive several advantages from their supervisors, such as loyalty, respect, information, professional development opportunities, and input into decisions. In exchange, supervisors expect and trust subordinates in high-quality LMX relationships to perform tasks that are beyond the scope of the formal job description (Harris & Kacmar, 2006). Alternately, low-quality LMX relationships are characterized by less leader attention, less communication, formal role-defined relations, and loosely matched goals (Graen & Uhl-Bien, 1995). Therefore, subordinates in low-quality LMX relationships do not receive a high level of work-related effort, loyalty, or respect from their supervisor.

Existing research has generally indicated positive associations between high-

quality LMX relationships and a variety of favorable performance and attitudinal outcomes for subordinates, supervisors, and the organization (Graen & Uhl-Bien, 1995; Townsend et al., 2000). Some of these include improved subjective and objective measures of job performance, overall job satisfaction, satisfaction with supervisor, organizational commitment, role perceptions, and turnover intentions (Gerstner & Day, 1997). In accordance with the norm of reciprocity that underlies social exchange relationships, these examples of favorable subordinate performance may serve as reciprocation for benefits from the supervisor (Settoon, Bennett, & Liden, 1996).

Considerably less research attention has been devoted to the potential negative consequences associated with low-quality leader-member relationships (Townsend et al., 2000). Some research has found that dyads generally characterized by low-quality LMX, such as those with laissez-faire leaders, have been associated with subordinate psychological distress (Skogstad, Einarsen, Torsheim, Assland, & Hetland, 2007). Leaders who engage in laissez-faire leadership style avoid decision making and the responsibilities associated with their position (Bass, 1990). Employee strain associated with laissez-faire leadership is plausibly due to the leader's lack of involvement and communication that characterize this style.

Low-quality leader-member relationships have also been associated with subordinate retaliatory behavior against the supervisor, peers, and organization (Townsend et al., 2000). Retaliatory behaviors are characterized as discretionary behavior used to reciprocate perceived injustice and mistreatment (Skarlicki & Folger, 1997). Therefore, low-quality relationships are not only associated with the absence of favorable

outcomes, they also contribute to potentially disruptive work behaviors. Overall, existing research suggests that high-quality LMX relationships are associated with favorable outcomes, and poor-quality LMX relationships are related to undesirable outcomes.

Supervisor Social Support

Social support is an important construct in organizational research, and leadership research describes the social support subordinates receive from their supervisor as a buffer of job demands and other stressors (Bliese & Castro, 2000; Johnson & Hall, 1988). Previous research has often examined the effects of perceived social support, as opposed to received or enacted support. As a resource, perceived social support represents the perception that one's network is ready to provide aid if needed, rather than enacted supportive behaviors. Perceived social support appears to have a stronger influence on health and well-being than the effects of received supportive behaviors (Wethington & Kessler, 1986). It follows that social support is considered a coping resource that individuals draw upon when dealing with stressors (Thoits, 1995).

Social support has been defined broadly as the availability and quality of helping relationships (Leavy, 1983). More specifically, social support may be classified as instrumental, emotional, informational, or appraisal support (Kelloway, Sivanathan, Francis, & Barling, 2005). Instrumental supervisory support includes behaviors that help subordinates complete their tasks or accomplish goals, such as delegating the task load if a subordinate is overworked. Emotional supervisory support includes expressions of empathy and concern for personal welfare, such as listening when a problem arises. Examples of informational support include providing advise or teaching a skill that can

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help solve a problem, such as how to safely and effectively complete a task. Lastly, appraisal support from a supervisor includes providing formal performance appraisal feedback, as well as informal suggestions and encouragement. These categories of social support should be evaluated as interrelated components of supervisor social support rather than independent entities (Leavy, 1983).

Social support from one's supervisor has been examined as having an overall beneficial relationship with well-being (main effect model) and as a variable that mitigates the relationship between occupational stressors and strain (stress-buffering model; Cohen, Gottleib, & Underwood, 2000; Cohen & Wills, 1985). Previous research has found evidence for both of these conceptualizations, but they represent different processes by which support affects well-being. Supervisor social support can influence outcomes directly, such as creating a sense of self-worth for the subordinate. Supervisor support can also influence outcomes indirectly by buffering against the negative effects of stressful working conditions (Cohen & Wills, 1985).

Furthermore, supervisor social support may be most vital under very stressful conditions or for jobs that are inherently stressful. Karlin, Brondolo, and Schwartz (2003) examined New York City traffic enforcement agents, individuals who issue traffic and parking violations and experience daily insults and threats from motorists. They found that social support from one's immediate supervisor reduced the negative effect of stress on systolic blood pressure. Interestingly, the same relationship was not found for other sources of social support, including coworkers and higher-level managers. Immediate supervisors interact with employees more than higher-level managers, and direct

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supervisors are often the person consulted in cases of difficulty on the job (Karlin et al., 2003). In this position, they also serve as an important source of support during stressful conditions.

Distinctiveness of LMX and Supervisor Social Support

LMX and supervisor social support are distinct modern conceptualizations of leadership. However, empirical research examining LMX and supervisor social support as separate constructs is lacking. Although they are conceptually related, LMX and supervisor social support have different dimensional structures and are measured with distinct items. As previously mentioned, the dimensions of LMX relationships include mutual contribution to the exchange, loyalty, affect, and professional respect (Liden & Maslyn, 1998). Example items to measure LMX include: "I do work for my supervisor that goes beyond what is specified in my job description" (contribution) and "I respect my supervisor's competence on the job" (professional respect; Liden & Maslyn, 1998). In contrast, supervisor social support can be classified as emotional, instrumental, informational, and appraisal support. Example supervisor social support items include "My supervisor helps solve my personal problems" and "My supervisor makes my work life easier" (Papper, 1983, as cited in Jones-Johnson & Johnson, 1992). Comparing these items, LMX appears to describe the quality of a work relationship, and supervisor support describes the perceived helping resources provided by another individual. Thus, I explore the proposition that both constructs are salient and differentially related to employee outcomes.

There are also important differences in how supervisor social support and LMX are defined and develop. Supervisor social support refers to the perceived availability of helping resources, whereas LMX quality describes aspects of a continuous exchange relationship between a supervisor and subordinate. Also, LMX theory describes the development of leader-member relationships as a dynamic process of negotiating roles over time (Dienesch & Liden, 1986). Graen and Uhl-Bien (1995) suggest a leadership making model that describes the stages of leader-member relationship development. The process begins with the "stranger" stage, in which exchanges occur on a formal, contractual basis and neither party provides any additional resources or influence. In the "acquaintance" stage, increased social exchanges go beyond the contractual requirements and begin sharing additional information and resources. In the third and final "mature partnership" stage, exchanges between the partners are highly developed, and each partner offers substantial incremental influence and resources. Mutual respect and trust are developed at this stage. Notably, some dyads may not advance beyond the stranger stage, characterized by limited interaction and strictly contractual exchanges (Graen & Uhl-Bien, 1995). Subordinates are not likely to perceive much supervisor social support at the stranger stage because exchanges do not go beyond formal, contractual requirements. Supervisor social support is more likely to be present in the acquaintance and mature partnership stages because they are characterized by higher levels of influence and shared resources. In contrast to LMX, supervisor social support is not typically discussed as this type of dynamic process in which roles are negotiated, defined,

and developed over time. Thus, these constructs appear to have distinct definitions and development processes.

In considering the possibility that high-quality leadership affects protective factors at work, I explore the proposition that high-quality LMX directly influences the development of social support from one's supervisor. That is, the presence, absence, or strength of supervisor social support may be determined by LMX quality. As described above, supervisor social support is likely not present until LMX relationships are well-developed, also known as the mature partnership stage (Graen & Uhl-Bien, 1995). Subordinates with high-quality LMX relationships receive several different kinds of benefits from their supervisor. High-quality LMX relationships are characterized by high levels of task-related effort, trust, affection, and respect between the between the leader-member pair. Low-quality LMX relationships may result in minimal interaction between the individuals and little access to social support. Thus, subordinates with higher-quality LMX relationships are expected to experience higher levels of supervisor social support.

Hypothesis 2: There will be a positive relationship between LMX quality and supervisor social support.

Supervisor Social Support and Psychological Well-being

Previous research suggests that social support is directly related to different types of strains, such as psychological health and emotional exhaustion, regardless of the level of stressors experienced (Bourbonnais et al., 1999; Cohen et al., 2000; Cohen & Wills, 1985). Meta-analyses have found direct negative correlations between social support averaged from several sources (e.g., supervisor, coworkers, and family) and strains (e.g.,

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psychological distress, self-reported health, and burnout; Viswesvaran, Sanchez, &

Fisher, 1999). These results suggest that low social support itself may be a type of

stressor. Additionally, research involving nurses has found that work-related social

support was beneficial for psychological well-being and job satisfaction (de Jonge et al.,

2001).

Furthermore, in research involving residential health facility workers,

psychological distress (i.e., depression and anxiety) decreased significantly as supervisor

support increased, but psychological distress was not significantly related to coworker

social support (Akerboom & Maes, 2006). This indicates that supervisors may be

especially influential in reducing employee strain. A longitudinal study among nurses

also revealed that increases in supervisor social support were related to lower levels of

psychological distress (Gelsema et al., 2006). The relationship between supervisor social

support and well-being may be particularly important and robust for individuals who

work closely with their supervisor or in teams, such as in nursing, medical, or military

professions. Thus, based on this literature, I would expect that supervisor social support

will be positively associated with psychological well-being, such that well-being

improves as supervisor support increases.

Hypothesis 3a: There will be a positive relationship between supervisor social

support and psychological well-being.

Supervisor Social Support and Emotional Exhaustion

Similarly, previous research suggests work-related social support is directly

associated with an individual's level of emotional exhaustion (Bourbonnais et al., 1999;

Ross, Altmaier, & Russell, 1989). The conservation of resources model of burnout (Hobfoll, 1989) describes that social support can directly reduce burnout by increasing one's pool of available resources and reinforcing resources that may have been lacking. In research involving nurses, social support from one's supervisor, coworkers, and overall work atmosphere each explained unique variance in emotional exhaustion above that explained by job demands, job control, and non-work responsibilities (Sundin, Hochwälder, Bildt, & Lisspers, 2007). Thus, social support from work-related sources appears to be an important factor associated with emotional exhaustion.

Social support from one's supervisor, in particular, may be important for maintaining emotional resources at work. In a study of counseling center professionals, different sources of social support were examined: supervisor, coworkers, spouse, friends, and family members. Supervisor social support was the only source of support to significantly predict employee emotional exhaustion, such that emotional exhaustion decreased significantly as supervisor social support increased (Ross et al., 1989). This finding is consistent with that of Cohen and Wills (1985), Tetrick, Slack, Da Silva, and Sinclair (2000), Halbesleben's meta-analysis (2006), and other studies that suggest that supervisor social support is most strongly associated with emotional exhaustion and other work-related strains compared to other sources of social support.

More specifically, supervisor support that bolsters self-esteem and enhances an individual's sense of competence may be most effective in reducing burnout (Russell, Altmaier, & Van Velzen, 1987). It follows that low levels of social support, especially from one's supervisor, may be a determinant of emotional exhaustion. Thus, based on the

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existing literature, I would expect supervisor social support to be negatively associated with emotional exhaustion.

Hypothesis 3b: There will be a negative relationship between supervisor social support and emotional exhaustion.

Supervisor Social Support as a Moderator of Job Demands and Psychological Well-Being

Summarizing the relationships discussed thus far, job demands are expected to have a negative relationship with psychological well-being and a positive relationship with emotional exhaustion. High-quality LMX relationships facilitate the development of supervisor social support. Supervisor social support is expected to have a direct positive association with well-being and a direct negative association with emotional exhaustion. Expanding on these relationships, supervisor social support may also moderate the negative relationship between job demands and well-being, as well as the positive relationship between job demands and emotional exhaustion. Thus, LMX quality influences the relationship between stressors and well-being outcomes by facilitating the development of factors that can lessen the harmful effects of stressors, in this case, supervisor social support.

Social support is probably the most well-known situational variable that has been proposed as a potential buffer against job stressors (see van der Doef & Maes, 1999, for a review; Johnson & Hall, 1988). In a longitudinal study, Frese (1999) tested different sources of social support (i.e., supervisor, coworkers, spouse, and friends/family members) as moderators of the relationship between job demands and psychological

dysfunction (i.e., depression, anxiety, psychosomatic complaints). The moderating effect of each source of social support was analyzed separately. Controlling for initial levels of psychological dysfunction, this study found evidence for social support as a moderator of the relationship between job demands and the change in psychological dysfunction over the 16-month measurement interval. The relationship between job demands and psychological dysfunction was less positive for individuals with higher levels of social support. Significant moderator effects were fairly evenly distributed across the four sources of social support and across the dimensions of psychological dysfunction that were examined. This study provides longitudinal evidence, and thus support for the causal structure, that social support plays an important role in reducing the negative effects of job demands on psychological well-being.

The stress-buffering model (Cohen & Wills, 1985) describes how social support may influence individual responses at two different points in the causal chain linking stressors to strain. First, the perceived availability of social support may influence one's appraisal of the demands and one's own adaptive capacities. Hence, the perception that others will provide necessary resources to help cope may allow an event to be appraised as benign rather than stressful. Second, if a demand is perceived as a stressor, social resources may influence one's cognitive or emotional response so the strain outcome is reduced or eliminated. Social support provides resources for adaptive coping, such as problem-focused and emotion-focused coping (Daniels, 1999). Problem-focused coping refers to efforts to alter or manage the source of the problem. Emotion-focused coping consists of efforts to reduce or manage feelings of distress. Social resources can also

provide a solution to the problem, reduce the perceived importance of a problem, or provide a distraction from the problem. Social resources may reduce the negative effects of work stressors by listening, sharing in the experience, or providing instrumental support by helping complete the task. If social support is perceived, then well-being remains stable when faced with demanding circumstances. (Cohen et al., 2000; Cohen & Wills, 1985).

Some researchers emphasize matching principles that suggest the type or source of social support should be specific and relevant to the context of the stressor (e.g., de Jonge & Dormann, 2006; Luszczynska & Cieslak, 2005). According to the model of optimal stressor-support matching, the most beneficial source of social support is one that originates from the same role as the stressor (Cutrona & Russell, 1990, as cited in Luszczynska & Cieslak, 2005). For example, social support from one's supervisor is likely the most beneficial source of support for work-related strain than other sources of support, such as family members, because supervisors and work-related stressors both originate from the same role.

Additionally, the most beneficial type of support is one that is based on the same conceptual dimension as the stressor experienced (Cohen & Wills, 1985; Viswesvaran et al., 1999). Previous research has examined cognitive, socio-emotional, and physical types of stressors and support (Frese, 1999; de Jonge & Dormann, 2006). For example, an emotional stressor (e.g., listening to customer complaints) will likely have a stronger interactive effect with emotional types of support than with less emotional types of support, such as, cognitive-informational support.

These principles have been extended to refer to stressor-support-outcome matching, or the triple-match principle (de Jonge & Dormann, 2006). This hypothesis posits that the strongest interactive effect of stressors and resources will be found when the stressor, type or source of support, and strain are all based on a conceptually similar dimension. Thus, the likelihood of a support variable moderating a stressor-strain relationship is related to the degree of match between the stressor, resource, and strain (de Jonge & Dormann, 2006). In sum, by providing socio-emotional and informational support, supervisors are in a position to be very effective in helping subordinates withstand job demands, especially for job demands and strains that are based on conceptually similar dimensions, such as cognitive or emotional.

The influence of leadership on social support and other known moderators of the relationship between job demands and well-being has rarely been considered. Chen and Bliese (2002) provided an example of leadership examined as an immediate predictor of variables that moderate the stressor-strain relationship. They examined the extent to which leader behaviors from military officers predicted self efficacy and collective efficacy among their soldiers. Results indicated that clarifying and supportive leader behaviors predicted self and collective efficacy among the soldiers. In turn, self and collective efficacy have been found to moderate the relationship between stressors and adverse health consequences for soldiers (Jex & Bliese, 1999). Thus, leader behaviors influenced variables that moderate stressor-strain relationships.

Social support from one's supervisor is especially needed in jobs or circumstances that are psychologically or physically distressing (House, 1996). In another study

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involving soldiers, Gavin and Hofmann (2002) used hierarchical linear modeling (HLM)

to examine the cross-level moderation effect of group-level perceptions of leader support

on the relationship between individual-level task significance and hostility in Army

companies. Results of this study indicated that individuals who had lower perceptions of

task significance also tended to experience more hostility. This relationship presents a

important practical problem for the military and other occupations that often have to

accomplish tasks of varying levels of significance to accomplish overall goals. In

addition, Gavin and Hofmann (2002) found that perceived leader support moderated the

relationship between task significance and hostility, such that in companies whose

members perceived support from the leader, individual soldiers had a weaker negative

relationship between task significance and hostility than in companies who perceived less

leader support (Gavin & Hofmann, 2003). Leader behaviors that isolate individuals and

deny them access to social support may exacerbate the influence of task insignificance, in

this case, and other work stressors (Kelloway et al., 2005). Thus, based on previous

literature, I expect that supervisor social support will moderate the relationship between

job demands and psychological well-being.

>*Hypothesis 4a:* Supervisor social support will moderate the relationship between
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>job demands and psychological well-being such that there will be a weaker
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>negative relationship for individuals who are high rather than low on supervisor
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>social support (see Figure 1).

Figure 2 presents the hypothesized model of job demands, leader-member exchange, and

supervisor social support predicting psychological well-being.

Supervisor Social Support as a Moderator of Job Demands and Emotional

Exhaustion

Social support resources also help individuals cope with stressors and reduce the likelihood of emotional exhaustion and other aspects of burnout. Social support is effective because it reinforces positive aspects of the self when stressful conditions have led one to lose sight of them. In a study involving home health employees, Xanthopoulou and colleagues (2007) found that work-related social support moderated the relationship between workload and emotional exhaustion, such that there was a weaker positive relationship between workload and emotional exhaustion when social support was high. Similarly, work-related social support moderated the relationship between emotional demands and emotional exhaustion (Xanthopoulou et al., 2007). Emotional demands had a weaker relationship with emotional exhaustion when social support was high. Social support and other resources help employees effectively confront demanding circumstances by helping preserve emotional resources.

In the context of the JD-R model, job resources by definition act as buffers of the relationship between job demands and emotional exhaustion (Demerouti et al., 2001). Bakker and colleagues (2005) reported that work-related social support moderated the relationship between all four job demands examined (work overload, emotional demands, physical demands, and work-home interface) and emotional exhaustion. Thus, employees who felt supported at work reported significantly less emotional exhaustion in the face of high job demands than employees who did not perceive work-related social support.

According to the matching principles discussed above (de Jonge & Dormann, 2006; Luszczynska & Cieslak, 2005), sources of social support are most effective when they originate from within the same role as the source of demands. Thus, work-related social support is more relevant and effective in reducing the negative relationship between work-related stressors and strains than social support from other sources. Individuals who perceived social support from their supervisor, in particular, have been found to appraise job demands more favorably than those who did not perceive such support (Halbesleben, 2006).

Additionally, perceived supervisor social support has been shown to moderate the relationship between job demands and work-related strain, such that there was a stronger positive relationship between demands and strain for individuals low rather than high on supervisor support (Kobasa & Puccetti, 1983). Social support from one's supervisor may help resolve job demands and preserve emotional resources because leaders offer suggestions, clarify tasks, help with prioritization, provide instrumental help, and express their appreciation for one's work (Bakker et al., 2005). Thus, I expect that social support from one's supervisor will moderate the relationship between job demands and emotional exhaustion.

> *Hypothesis 4b:* Supervisor social support will moderate the relationship between job demands and emotional exhaustion such that there will be a weaker positive relationship for individuals who are high rather than low on supervisor social support (see Figure 3).

Figure 4 presents the hypothesized model of job demands, leader-member exchange, and

supervisor social support predicting emotional exhaustion.

CHAPTER TWO

METHOD

Participants

  The present study of occupational health issues facing Chinese employees used data that were collected as part of a larger study. The survey was distributed to 385 high-skilled employees working as machine operators, technicians, and managers in an automotive parts manufacturing plant in the People's Republic of China. Of these employees, 316 responded (82.1%) at Wave 1. Most participants (89%) were male. The average age of participants was 31.2 years ($SD = 9.0$). The average organizational tenure of respondents was 4.7 years ($SD = 5.5$).

  The Wave 2 survey was given approximately three months later to the 316 employees who responded to the Wave 1 survey. Of the employees who were given this survey, 159 (50.3%) employees responded. At Wave 2, 94% of respondents were male, and the average age of respondents was 29.6 years ($SD = 8.3$). The average organizational tenure of respondents was 4.3 years ($SD = 4.6$).

  Descriptive statistics were compared between those who only participated in the first measurement wave and those who participated in both waves. Study dropouts had slightly longer organizational tenure than the total sample at Wave 1 ($M_1 = 5.5$ years, $SD_1 = 6.1$; $M_2 = 4.7$ years, $SD_2 = 5.5$, respectively). On the predictor variables, dropouts reported slightly lower-quality LMX than the Wave 1 sample ($M_1 = 3.66$, $SD_1 = .62$; $M_2 = 3.70$, $SD_2 = .57$, respectively). Similarly, dropouts reported slightly lower supervisor social support than the Wave 1 sample ($M_1 = 3.68$, $SD_1 = .88$; $M_2 = 3.82$, $SD_2 = .79$,

respectively). Dropouts also reported slightly lower job demands than the Wave 1 sample ($M_1 = 4.14$, $SD_1 = .72$: $M_2 = 4.21$, $SD_2 = .68$, respectively). On the outcome variables, dropouts reported similar psychological well-being to the Wave 1 sample ($M_1 = 3.60$, $SD_1 = .42$; $M_2 = 3.59$, $SD_2 = .40$, respectively) and similar emotional exhaustion to the Wave 1 sample ($M_1 = 2.52$, $SD_1 = .71$; $M_2 = 2.53$, $SD_2 = .62$, respectively). In sum, participants who only completed the survey at the first wave did not appear largely different from those who completed the survey at both waves.

Procedure

Design. Surveys were given to employees in two waves with a time interval of approximately three months. In the first wave, employees were asked about their demographics, job demands, LMX, psychological well-being, emotional exhaustion, and supervisor social support. In the second wave, participants were asked about their psychological well-being and emotional exhaustion. The longitudinal nature of the data strengthens the causal inference and allows job demands, LMX, and supervisor social support at Wave 1 to be tested as predictors of psychological well-being and emotional exhaustion at Wave 2.

Translation. The scales were translated from English into Chinese using a process of back-translation (Brislin, 1970). Back translation is an iterative process in which a judge translates the English scales to Chinese. Then, another translator, blind to the original English items, translated the Chinese items back into English. The newly back-translated English items were then compared to the original English items and any

necessary changes were made to ensure item accuracy. Three bilingual translators completed this process.

Measures

      Job demands. Participants responded to four items designed to measure job demands from the Job Content Questionnaire (JCQ; Karasek et al., 1998). The JCQ has been used world-wide to measure psychosocial job characteristics and has been translated into a number of languages. Ratings were made on a 5-point Likert scale (*strongly disagree – strongly agree*). Higher scores on this scale indicate higher levels of job demands. Due to low reliability, the two items that were written in the reverse direction ("I am not asked to do an excessive amount of work" and "I have enough time to get my job done") were removed from further analyses. Thus, this measure was based on the two items "My job requires working very fast" and "My job requires working very hard." Cronbach's alpha was .73 in the present study. (See Appendix A).

      Leader-Member Exchange. Liden and Maslyn's (1998) Multidimensional LMX scale (LMX-MDM) was used to measure subordinate perceptions of the LMX relationship. This 12-item scale measures the four dimensions of the LMX relationship described by Liden and Maslyn (1998). The dimensions are contribution to the exchange, affect, loyalty, and professional respect. The four-factor structure originally proposed by Liden and Maslyn (1998) has been replicated with employees from diverse organizational settings (Greguras & Ford, 2006). Using a 5-point Likert scale (*strongly disagree – strongly agree*), participants were asked to rate their level of agreement with each statement regarding their supervisor. Higher scores indicate a higher-quality LMX

relationship with one's supervisor, and lower scores represent a lower-quality LMX relationship with one's supervisor. Due to low reliability and an almost zero loading on the contribution factor, the item "I do work for my supervisor that goes beyond what is specified in my job description" was removed from further analyses. Thus, two items measured the contribution dimension, and three items measured the other three dimensions. Thus, this measure was based on eleven items. To give equal weight to each dimension, the items within each dimension were averaged, and those four scores were then averaged to obtain LMX scale scores. The items are listed in order according to their dimension in Appendix B.

To confirm the factor structure of the LMX-MDM, four alternative factor-analytic models were compared on the basis of information provided by previous studies (see Table 1). In my comparison, Model 1 was a test of unidimensionality. Model 2 was a two-factor model that compared work-related (contribution and professional respect) and subjective/relational (affect and loyalty) aspects of LMX. This model treats only the professional and subjective dimensions as distinguishable, rather than the four dimensions described by Liden and Maslyn (1998). Earlier studies have also proposed a three-factor model of LMX consisting of contribution, affect, and loyalty (Dienesch & Liden, 1986), and confirmatory factor analyses have provided support for these three dimensions (Schriesheim. Neider, Scandura, & Tepper, 1992). In my comparison, Model 3 contained the three factors identified by both Dienesch and Liden (1986) and Schriesheim and colleagues (1992). Lastly, Model 4 contained the four factors identified by Liden and Maslyn (1998).

The data was found to violate the assumption of multivariate normality of the maximum likelihood estimation method, as Mardia's normalized estimate, which is interpreted as a *z*-score, exceeded the recommended value of $\pm$ 5.0 (estimate = 10.54; Bentler, 2005, as cited in Byrne, 2006). Therefore, robust estimates were used for these fit indices, except SRMR, that are valid despite the violation of normality. Model fit was assessed using the Satorra-Bentler scaled chi-square value (S-B χ^2), comparative fit index (CFI), standardized root mean residual (SRMR), and root-mean-square error of approximation (RMSEA). These robust statistics have been shown to perform better than uncorrected statistics when the assumption of normality fails to hold (Hu, Bentler, & Kano, 1992).

An online calculator (Crawford & Henry, 2003) was used that implements corrections developed by Satorra and Bentler (2001) to more validly compare models using Satorra-Bentler chi-square difference tests. The goodness of fit of the alternative models is presented in Table 2. Models 2-4 showed a significant improvement in fit compared to the one-factor model, as indicated by chi-square difference tests (ΔS-B χ^2 = 23.41, *df* = 1, *p* < .001; ΔS-B χ^2 = 86.50, *df* = 3, *p* < .001; ΔS-B χ^2 = 173.31, *df* = 6, *p* < .001, respectively). Thus, more than one dimension is present. Further, Model 4 showed a significant improvement in fit compared to Models 2 and 3, as indicated by chi-square difference tests (ΔS-B χ^2 = 162.74, *df* = 5, *p* < .001; ΔS-B χ^2 = 86.85, *df* = 3, *p* < .001, respectively). Model 4 showed good fit with the data based on all fit indices (S-B χ^2 = 75.93, *df* = 38, CFI = .97, SRMR = .04, RMSEA = .06), and the other models had only adequate fit. Thus, a four-factor model of LMX is the best fitting representation of the

data. Cronbach's alpha values for the four dimensions were .83, .91, .67, and .91 for contribution, affect, loyalty, and professional respect, respectively. Cronbach's alpha for the total LMX scale (11 items) was .76 in the present study.

Supervisor social support. A single-item adapted from Jones-Johnson and Johnson (1992) was used to measure perceived supervisor social support. Participants responded to following the question: "How much does your supervisor understand, encourage, and reassure you concerning your job?" Response options included *not at all*, *a little bit*, *some*, *plenty*, and *a great deal*. Higher scores indicate higher levels of supervisor social support. A study by Sagrestano and colleagues (2002) found that a single-item measure of social support was significantly correlated with a 15-item measure. They concluded that single-item measures are appropriate for psychosocial variables that are sufficiently narrow and straightforward, such as social support at work or from a spouse.

Psychological well-being. A commonly used 12-item shortened form of the General Health Questionnaire (GHQ; Goldberg, 1978, as cited in van der Doef & Maes, 1999) was used to measure context-free psychological well-being. Participants were asked to indicate to what extent they have recently experienced each well-being item using a 5-point Likert scale (*not at all – much more than usual*). An example question is, "Have you recently been able to concentrate on what you are doing?" Higher scores indicate higher levels of psychological well-being, while lower scores represent lower levels of psychological well-being. (See Appendix C).

To confirm the factor structure of the GHQ-12, five alternative factor-analytic

models were compared on the basis of information provided by previous studies (see Table 3). Confirmatory factor analyses from previous research have resulted in a correlated three-factor solution consisting of anxiety/depression, social dysfunction, and loss of confidence (Cheung, 2002; Mäkikangas et al., 2006). Martin (1999) obtained a different three-factor solution, in which the factors were named cope (e.g., "capable of making decisions"), stress (e.g., "constantly under strain"), and depression (e.g., "unhappy and depressed").

In my examination, Model 1 was a test of unidimensionality. Model 2 examined method influence and contained two factors: positive content items and negative content items. Model 3 contained the three factors identified by Martin (1999): cope, stress, and depression. Model 4 contained the three factors identified by both Cheung (2002) and Mäkikangas et al. (2006): anxiety/depression, social dysfunction, and loss of confidence. Lastly, Model 5 combined the rationale of Models 2 and 4 and contained four factors: anxiety/depression, social dysfunction, and loss of confidence, plus a method factor for the negative content items.

The goodness of fit of the alternative models is presented in Table 4. As shown, Models 2-5 showed a significant improvement in fit compared to the one-factor model. Furthermore, Model 5 showed a significant improvement in fit compared to Models 2, 3, and 4 (ΔS-B $\chi^2 = 59.58$, $df = 8$, $p < .001$; ΔS-B $\chi^2 = 60.19$, $df = 6$, $p < .001$; ΔS-B $\chi^2 = 42.99$, $df = 6$, $p < .001$, respectively). Model 5 showed the best fit with the data based on all fit indices (S-B $\chi^2 = 111.29$, $df = 45$, CFI = 1.0, SRMR = 06, RMSEA = .06). Thus, a four-factor model of psychological well-being as measured by the GHQ-12 is the best

fitting representation of the data. Although inconsistent with the three-factor models from previous research, this structure is consistent with the examination of both content and method factors found in previous studies (Sinclair & Tetrick, 2000; Spector, Van Katwyk, Brannick, & Chen, 2007). Cronbach's alpha for the total psychological well-being scale was .74 in the present study.

Emotional exhaustion. Participants responded to seven items from the emotional exhaustion subscale of the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981). Ratings were made on a 5-point Likert scale (*strongly disagree – strongly agree*). Higher scores on this scale represent more emotional exhaustion. An example item is, "I feel emotionally drained from my work." Cronbach's alpha was .82 in the present study. (See Appendix D).

Control variables. Organizational tenure and gender were included as control variables because they have been identified as individual variables that significantly impact LMX quality and strain outcomes (Harris & Kacmar, 2006).

CHAPTER THREE

RESULTS

Before examining the hypotheses, the data were screened for potential outliers

using PASW 17.0. Univariate outliers were standardized scores that were ± 3 *SD* beyond

the mean on a single variable. Seven cases were removed as univariate outliers.

Multivariate outliers were first assessed using Mahalanobis distance, a measure of

leverage. Using the chi-square table, the critical value for Mahalanobis distance is 18.47

($df = 4, p < .001$). No additional cases exceeded this critical value and were extreme,

indicating that outliers were not a concern. Next, the data were inspected for cases

contributing to multivariate kurtosis using EQS 6.1 (Bentler, 2006). Four additional cases

had kurtosis estimates that were grouped together and extreme (kurtosis estimates greater

than 600), and these cases were removed as outliers. Thus, eleven total outliers were

removed based on an inspection of univariate and multivariate scores.

To assess the assumption of multivariate normality, Mardia's normalized estimate

was examined using EQS. The data were found to violate this assumption, as Mardia's

normalized estimate, which is interpreted as a z-score, exceeded the recommended value

of ± 5.0 (estimate = 10.54; Bentler, 2005, as cited in Byrne, 2006). Therefore, robust

estimates and fit indices were used that are valid despite the violation of normality.

To assess the assumption of homoscedasticity, linear regressions of the

hypothesized relationships were performed using PASW. The unstandardized residuals

and predicted values from the regressions were saved and used to create a scatterplot for

each dependent variable. These scatterplots were used to graphically check for violations

of the homoscedasticity assumption. The spread of residuals was approximately constant across values of the predicted scores for each dependent variable. Therefore, the assumption of homoscedasticity appeared to be satisfied.

Descriptive Statistics and Correlations

Although measurement CFAs identified four dimensions of the LMX relationship, the current study aimed to focus on the overall quality of the LMX relationship and thus analyzed the dimensions together. The first reason for analyzing the dimensions together was that all of the dimensions had significant bivariate relationships (r = .22-.66, p < .01). Second, the results of the hypotheses remained the same when each LMX dimensions was included individually in the models and when LMX total scores were used (see next section for hypothesis testing). As the dimensions related similarly to each other and the variables of interest, they were examined together in the current study.

Means, standard deviations, and correlations of study variables are presented in Table 5. Regarding the control variables, organizational tenure was negatively associated with LMX (r = -.18, p < .01), indicating that longer tenure is associated with lower-quality LMX. Gender had a significant bivariate relationship with emotional exhaustion measured at Wave 2 (r = .17, p < .05, females slightly higher); thus, it was included in those analyses and is discussed in greater detail below.

Supervisor social support was significantly related to psychological well-being and emotional exhaustion at Wave 1 (r = .21, p < .01; r = -.24, p < .01, respectively). Higher levels of supervisor social support were associated with better psychological well-being and less emotional exhaustion. Interestingly, job demands were also positively

related to psychological well-being at Wave 1 ($r = .17$, $p < .01$), indicating that individuals with more job demands were likely to have more healthy psychological well-being. As expected, LMX was positively related supervisor social support ($r = .47$, $p < .01$). Also as anticipated, LMX was positively associated with psychology well-being at Wave 1 ($r = .28$, $p < .01$) and negatively associated with emotional exhaustion at Wave 1 ($r = -.21$, $p < .01$).

The correlations also supported relationships between predictors at Wave 1 with outcomes at Wave 2. Job demands were associated with psychological well-being and emotional exhaustion at Wave 2 ($r = .22$, $p < .01$; $r = -.22$, $p < .01$, respectively). LMX was negatively related to emotional exhaustion at Wave 2 ($r = -.21$, $p < .01$). However, supervisor social support was not related to either of the outcome measures at Wave 2.

Path Analyses

Path analysis using EQS 6.1 (Bentler, 2006) was used to test the hypotheses. Path analysis is a statistical procedure that assesses the extent to which a set of covariances (or correlations) are consistent with a hypothesized causal model. Path coefficients are used as estimates of the causal effects in a theoretical model. These analyses do not generate evidence that establishes causality; rather, they yield estimates of the relationships among variables under the assumption that the causal structure of these relationships is correctly specified (Shadish, Cook, & Campbell, 2002).

Prior to inclusion in the path models, all predictor variables were first mean-centered. This process removes all nonessential multicollinearity, that is, correlations between predictor variables that exist merely due to scaling (Cohen et al., 2003). Mean-

centering is also an important step when conducting analyses that include an interaction term. By centering the predictors, each first-order regression coefficient is interpreted as the regression of the criterion on the predictor at the mean of the sample and as the average regression of the criterion on the predictor across the range of other predictors in the equation (Cohen et al., 2003).

As the data were found to violate the assumption of multivariate normality, robust estimates were used for these fit indices, except SRMR, that are valid despite the violation of normality. An online calculator (Crawford & Henry, 2003) was used that implements corrections developed by Satorra and Bentler (2001) to more validly compare models using Satorra-Bentler chi-square difference tests.

Analyses with psychological well-being. Path analyses indicated that gender had a small but significant association with psychological well-being (females slightly higher; robust $z = 2.06$, $p < .05$). Therefore, gender was included as a control variable in these analyses. Organizational tenure was not associated with well-being and was subsequently left out of the analyses.

First, the hypothesized model predicting psychological well-being at Wave 1 was compared to the independence model. The independence model represents complete independence between all variables in the model, meaning they are all uncorrelated (Byrne, 2006). The hypothesized model showed a significant improvement in fit compared to the independence model, as indicated by a chi-square difference test (ΔS-B $\chi^2 = 106.58$, $df = 13$, $p < .001$). According to guidelines by Hu and Bentler (1999), the

hypothesized model showed satisfactory fit to the data (S-B χ^2 = 6.22, df = 2, CFI = .96, SRMR = .03, RMSEA = .09).

Figure 5 presents the standardized path coefficients of the hypothesized model predicting psychological well-being at Wave 1. Contrary to Hypothesis 1a, job demands were not a significant predictor of psychological well-being. LMX quality was positively related to supervisor social support, providing support for Hypothesis 2. Furthermore, supervisor social support was positively associated with psychological well-being, providing support for Hypothesis 3a. Finally, supervisor social support did not moderate the relationship between job demands and psychological well-being; thus Hypothesis 4a was not supported. LMX quality accounted for 21.6% of the variance in supervisor social support, and all of the hypothesized predictors accounted for 6.8% of the variance in psychological well-being.

Although not formally hypothesized, supervisor social support was tested as mediator of the relationship between LMX quality and psychological well-being. This relationship is part of the hypothesized model shown in Figure 5 and was supported when tested as full mediation (robust z = 2.70, $p < .01$). To further examine this effect, a modified model was tested that included the direct path between LMX and psychological well-being (i.e., partial mediation). The modified model showed a significant improvement in fit over the hypothesized model, according to a chi-square difference test (ΔS-B χ^2 = 5.62, df = 1, $p < .05$). Given only one degree of freedom, this model naturally fit the data well (S-B χ^2 = .58, df = 1, CFI = 1.0, SRMR = .01, RMSEA = .00). Figure 6 presents the standardized path coefficients associated with this modified model. Only the

results of Hypothesis 3a differed between the hypothesized and modified models: Supervisor social support was not significantly related to psychological well-being when the direct path between LMX quality and psychological well-being was included. However, the direct path between LMX and psychological well-being was significant.

To explain these effects more clearly, these pathways were decomposed into total, direct, and indirect effects. The unstandardized total effect of LMX quality on well-being was .14 ($p < .05$), the direct effect was .11 ($p < .05$), and the indirect mediation effect of supervisor social support was .03 ($p = .12$). Thus, supervisor social support explained 21.4% of the effect of LMX quality on psychological well-being (.03/.14 = 21.4%). In this modified model, LMX quality accounted for 21.6% of the variance in supervisor social support, and all of the hypothesized predictors accounted for 8.8% of the variance in psychological well-being.

Next, longitudinal relationships were examined between the predictors (i.e., job demands, LMX, and supervisor social support) at Wave 1 and psychological well-being at Wave 2, controlling for outcome scores at Wave 1. This model showed satisfactory fit to the data (S-B $\chi^2 = 0.28$, $df = 2$, CFI = 1.0, SRMR = .01, RMSEA = .00). Only Hypothesis 2 received longitudinal support: LMX quality was positively related to supervisor social support. None of the predictors of interest were significantly related to changes in psychological well-being from Wave 1 to Wave 2. Controlling for well-being scores at Wave 1, LMX quality accounted for 20.1% of the variance in supervisor social support, and all of the hypothesized predictors accounted for 17.1% of the variance in psychological well-being at Wave 2.

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Analyses with emotional exhaustion. Path analyses indicated that neither gender nor organizational tenure was associated with emotional exhaustion at Wave 1; thus, these were not included in Wave 1 analyses. First, the hypothesized model predicting emotional exhaustion at Wave 1 was compared to the independence model. The hypothesized model showed a significant improvement in fit compared to the independence model, as indicated by a chi-square difference test (ΔS-B χ^2 = 87.91, df = 8, p < .001). The hypothesized model demonstrated adequate fit to the data (S-B χ^2 = 9.44, df = 2, CFI = .92, SRMR = .04, RMSEA = .12). The modification indices did not suggest any additional paths that would improve model fit.

Figure 7 presents the standardized path coefficients of the hypothesized model predicting emotional exhaustion at Wave 1. Contrary to Hypothesis 1b, job demands was not significantly associated with emotional exhaustion. LMX quality was positively related to supervisor social support, providing support for Hypothesis 2. Furthermore, supervisor social support was negatively associated with emotional exhaustion, providing support for Hypothesis 3b. Finally, supervisor social support did not moderate the relationship between job demands and emotional exhaustion. Thus, Hypothesis 4b was not supported. LMX quality accounted for 22.0% of the variance in supervisor social support, and all of the hypothesized predictors accounted for 6.5% of the variance in emotional exhaustion.

Supervisor social support was also tested as mediator of the relationship between LMX quality and emotional exhaustion. This relationship is part of the hypothesized model shown in Figure 7 and was supported when tested as full mediation (robust z = -

3.83, $p < .01$). To further examine this effect, a modified model was tested including the direct path between LMX and emotional exhaustion (i.e., partial mediation). The modified model showed a significant improvement in fit over the hypothesized model, according to a chi-square difference test (ΔS-B $\chi^2 = 7.45$, df $= 1$, $p < .01$). Given only one degree of freedom, this model naturally fit the data well (S-B $\chi^2 = .66$, $df = 1$, CFI $= 1.0$, SRMR $= .01$, RMSEA $= .00$). Figure 8 presents the standardized path coefficients associated with this modified model. The results of each hypothesis were unchanged by adding the direct path between LMX and emotional exhaustion. In addition, the direct path between LMX and emotional exhaustion was significant.

To explain these effects more clearly, these pathways were decomposed into total, direct, and indirect effects. The unstandardized total effect of LMX quality on emotional exhaustion was -.33 ($p < .05$), the direct effect was -.25 ($p < .05$), and the indirect mediation effect of supervisor social support was -.08 ($p < .05$). Thus, supervisor social support explained 25.5% of the effect of LMX quality on emotional exhaustion (-.08/-.33 $= 25.5\%$) and partially mediates this relationship. In this modified model, LMX quality accounted for 22.0% of the variance in supervisor social support, and all of the hypothesized predictors accounted for 10.3% of the variance in emotional exhaustion.

Next, longitudinal relationships were examined between the predictors (i.e., job demands, LMX, and supervisor social support) at Wave 1 and emotional exhaustion at Wave 2, controlling for outcome scores at Wave 1. Gender was significantly associated with emotional exhaustion at Wave 2, with females indicating more exhaustion (robust z $= 2.41$, $p < .05$). Organizational tenure was not associated with emotional exhaustion.

Figure 9 presents the standardized path coefficients. This model showed satisfactory fit to the data (S-B χ^2 = 0.14, df = 2, CFI = 1.0, SRMR = .00, RMSEA = .00).

Contrary to Hypothesis 1b, there was a significant negative relationship between job demands and emotional exhaustion at Wave 2. Supporting Hypothesis 2, LMX quality was positively related to supervisor social support. Supervisor social support was not associated with emotional exhaustion at Wave 2, contrary to Hypothesis 3b. Lastly, supervisor social support did not moderate the relationship between job demands and emotional exhaustion at Wave 2. Thus, Hypothesis 4b was not supported. Controlling for emotional exhaustion scores at Wave 1, LMX quality accounted for 19.6% of the variance in supervisor social support, and all of the hypothesized predictors accounted for 22.6% of the variance in exhaustion.

Summary. The current study proposed direct and moderated relationships predicting psychological well-being and emotional exhaustion. These predictions were both cross-sectional (i.e., within-wave) and cross-lagged (i.e., predictors at Wave 1 related to outcomes at Wave 2). Hypotheses 1a-b regarding the direct relationship between job demands and (a) psychological well-being and (b) emotional exhaustion were not supported. In the model predicting emotional exhaustion at Wave 2, job demands and exhaustion were significantly but negatively related, contrary to the hypothesis. Hypothesis 2 regarding a positive relationship between LMX quality and supervisor social support was supported in every model. Hypothesis 3a regarding a positive relationship between supervisor social support with psychological well-being was supported in the cross-sectional but not the cross-lagged analysis. Likewise,

Hypothesis 3b regarding a negative association between supervisor social support and emotional exhaustion was only supported in the cross-sectional analysis. Lastly, Hypotheses 4a-b regarding supervisor social support as a moderator of the relationships between job demands and (a) psychological well-being and (b) emotional exhaustion were not supported.

Supplemental Analyses

Some recent research has indicated that the relationships between aspects of work and health may be more complex than originally presumed, and that they do not always follow a linear pattern (e.g., Karanika-Murray, 2010). Curvilinear hypotheses propose that there is an optimal level of the effects of work characteristics on an individual's health. The upward slope of the curve suggests that given levels of a stressor are beneficial, and the downward slope suggests that given levels of a stressor are harmful. Curvilinear relationships were examined for the direct relationships between: job demands and (a) psychological well-being and (b) emotional exhaustion; supervisor social support and (a) psychological well-being and (b) emotional exhaustion. Hierarchical multiple regression was performed using PASW.

The control variables and linear terms were added into a hierarchical regression before the squared terms were added. Results suggested that job demands squared was not significantly related to psychological well-being ($B = -.02$, $p > .05$) or emotional exhaustion ($B = .11$, $p > .05$) over and above the effects of the linear terms. Similarly, supervisor social support squared was not significantly related to psychological well-being ($B = -.01$, $p > .05$) or emotional exhaustion ($B = .06$, $p > .05$) over and above the

effects of the linear terms. Thus, curvilinear relationships were not found for the hypothesized direct effects in the current study.

CHAPTER FOUR

DISCUSSION

The current study tested models of job demands and supervisor social support predicting (a) psychological well-being and (b) emotional exhaustion. The quality of leader-member exchange (LMX) relationships was also examined as a predictor of supervisor social support. Four sets of hypotheses were proposed to test these relationships. Some of the cross-sectional hypotheses were supported by the data, but none of the longitudinal relationships were supported. Although not formally hypothesized, supervisor social support was found to partially mediate the relationships between LMX and employee well-being. Each hypothesis is discussed below in an exploration of possible reasons for the findings. Lastly, implications of the present study, limitations, and directions for future research are presented.

Discussion of the Findings

Hypotheses 1a-b. The first objective of the current study was to establish a negative relationship between job demands and psychological well-being, as well as a positive relationship between job demands and emotional exhaustion. These main effects are central to the job demands-control-support (JDCS; Karasek et al., 1998; Johnson & Hall, 1988) and job demands-resources (JD-R; Schaufeli & Bakker, 2004) models of work stress. Several studies included in reviews by van der Doef and Maes (1999) and de Lange and colleagues (2003) reported significant main effects of job demands predicting

self-reported psychological well-being. Findings such as these served as the basis for the first set of hypotheses. However, these relationships were not unequivocally supported in the individual studies included in these review papers, and the current study adds to the literature that did not find support for these direct effects.

The results of the present study suggested that job demands did not have a direct relationship with psychological well-being or emotional exhaustion, failing to support the first set of hypotheses. The present study also failed to support these hypotheses longitudinally, controlling for outcome scores at Wave 1. Thus, job demands did not predict a change in psychological well-being or emotional exhaustion over a three-month time lag. Contrary to the hypothesis, a significant negative relationship was found between job demands and emotional exhaustion at Wave 2. Higher levels of job demands predicted reduced emotional exhaustion over time.

The results of the present study are inconsistent with a relatively large body of research demonstrating a significant relationship between job demands and employee well-being. One explanation is that there may be mediators of this relationship that were not measured in this study. Some models of work stress have suggested an appraisal step in the stress process: after exposure to a potentially stressful event, the individual must actually appraise it as stressful (Perrewe & Zellars, 1999). In short, not all potential stressors actually cause stress for an individual (Perrewe & Zellars, 1999). Motowidlo, Packard, and Manning (1986) emphasized that the experience of stress is the next step in the causal relationship. Experiencing stress, especially for an extended duration or at high intensity, is associated with indicators of depression and anxiety (Motowidlo et al., 1986).

Thus, stress appraisal and experienced stress may mediate the relationship between job demands and employee well-being. Future research is needed to test these predictions.

Another explanation might be that these variables have different scopes of measurement: job demands is relatively narrow and context-free psychological well-being is relatively broad. The former evaluates demanding aspects of one's job, and the latter evaluates psychological functioning in general across all aspects of life. If these variables were better matched in terms of content scope, it is possible the hypothesized relationships may have been identified (de Jonge & Dormann, 2006). Job demands and emotional exhaustion are more similar in scope because they assess the job domain; however, they may not be similar enough to in scope to find a significant relationship. Job demands were operationalized as working hard and fast, and this may be too broad to directly affect *emotional* exhaustion. Emotional job demands, rather than job demands in general, may be more likely to be directly related to emotional exhaustion.

Further, these relationships may only hold for certain subgroups of individuals. Thus, moderator variables may exist such as personality characteristics or situational moderators. Personality characteristics have been of considerable interest to researchers examining job-related stressor-strain relationships (Cooper et al., 2001). There are two basic ways in which personality may affect stressor-strain relationships. First, personality may result in differential exposure to stressors, such that certain individuals may place themselves in more stressful environments. Second, personality influences stress appraisal and coping mechanisms (Cooper et al., 2001). Some individuals cope with

stress more or less effectively. Therefore, the relationship between job demands and well-being may only hold for certain subgroups of individuals.

Hypothesis 2. The second objective was to establish a direct positive relationship between LMX quality and supervisor social support. This relationship was supported in every model. This finding suggests that high-quality LMX directly influences the development of supervisor social support. As described in the introduction, supervisor social support is likely not present until LMX relationships are well-developed, known as the mature partnership stage (Graen & Uhl-Bien, 1995). Conversely, low-quality LMX relationships may result in minimal interaction between the individuals and little access to social support. Thus, subordinates with higher-quality LMX relationships experienced higher levels of supervisor social support. LMX quality and supervisor social support had a relatively strong correlation ($r = .47$), which suggests that they are conceptually related but not identical constructs.

Hypotheses 3a-b. The third objective was to demonstrate a direct relationship between supervisor social support and (a) psychological well-being and (b) emotional exhaustion. These relationships were significant in the cross-sectional analyses but not the longitudinal analyses in which supervisor social support was expected to predict changes in well-being over time. The cross-sectional findings are consistent with previous research that social support is directly related to different types of strains, such as psychological health and emotional exhaustion, regardless of the level of stressors experienced (Bourbonnais et al., 1999; Cohen et al., 2000; Cohen & Wills, 1985).

One explanation for why these relationships were not supported in the

longitudinal analyses is that the three-month lag between the measurement of social support and the measurement of employee well-being may have been too short or too long. A basic assumption in longitudinal research is that the time lags correspond with the underlying time line of the true development of the relationship (de Lange et al., 2004). If the measurement lag is shorter than the underlying causal process, the relationship is likely to be underestimated because the predictor will not have fully developed its impact on the outcome variable (de Lange et al., 2004). Previous research examining work stressors, social support, and psychological well-being have found significant relationships with a six-interval (Bradley & Cartwright, 2002). Further, de Lange and colleagues' (2004) examination of three time lags (one, two, and three years) revealed that the strongest effects were found for the one year interval. Thus, the three-month interval in the present study may have been too short to identify significant relationships. If supervisor social support is significantly related to changes in employee well-being, it may take longer than three months for those effects to develop. It is also possible that three months is too long of an interval to detect how supervisor social support is related to well-being over time; however, based on some existing literature, it is more likely that this social support takes longer than three months to significantly affect well-being.

Hypotheses 4a-b. The final objective was to provide evidence of supervisor social support as a moderator of the relationships between job demands and (a) psychological well-being and (b) emotional exhaustion. Social support is probably the most well-known situational variable that has been proposed as a potential buffer against

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job stressors (see van der Doef & Maes, 1999, for a review; Johnson & Hall, 1988). In the context of the JD-R model, job resources, by definition, act as buffers of the relationship between job demands and emotional exhaustion (Demerouti et al., 2001). Frese (1999) and de Lange and colleagues (2004) provided longitudinal evidence, and thus support for the causal structure, that social support plays an important role in reducing the negative effects of job demands on psychological well-being. Findings such as these served as a basis for the fourth set of hypotheses.

The results of the present study are inconsistent with these reports but correspond with other research suggesting that interactive effects as described by the JDCS model have been mixed (see de Lange et al., 2003; Theorell & Karasek, 1996; van der Doef & Maes, 1999, for reviews). A recent review of research published between 1998 and 2007 suggested that interactive effects as predicted by the three-way interaction hypothesis of the JDCS model were weak (Häuser, Mojzisch, Niesel, & Schulz-Hardt, 2010). Häusser and colleagues (2010) concluded that support for the buffering hypothesis depends primarily on the degree of qualitative match between the demands, control, and support dimensions. They inferred that the likelihood of finding moderating effects would increase as the match between demands, support, and strains increased; however, matching on the strain dimension could not be tested because very few JDCS studies published during that period matched on all three dimensions (Häusser, 2010). As previously mentioned, de Jonge and Dormann (2006) also discussed the importance of stressor-support-outcome matching, known as the triple-match principle.

The degree of match in the present study was relatively low. Job demands was

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operationalized as working hard and fast, which could be interpreted in relation to physical or cognitive tasks. In terms of the four types of social support described by Kelloway and colleagues (2005), the measure of supervisor social support evaluated emotional and appraisal support. Thus, social support and the emotional exhaustion outcome are from the same conceptual domain, but the measure of job demands does not match because it does not evaluate *emotional* job demands. This is referred to as double match because two of the three constructs match (de Jonge & Dormann, 2006).

The degree of match is even lower between job demands, social support, and psychological well-being. The measure of psychological well-being evaluates some aspects of socio-emotional functioning, but it also evaluates physical and cognitive functioning, such as sleep quality and ability to concentrate. The concern discussed above regarding scope of measurement applies again here. One reason that moderator effects were not detected is likely because the measure of job demands is relatively narrow and context-free psychological well-being is relatively broad. If these variables were better matched in terms of scope and content domain (e.g., physical, cognitive, socio-emotional), it is more likely that moderator effects would have been identified (Häusser et al., 2010; de Jonge & Dormann, 2006).

Further, interaction effects may not be found because of a lack of statistical power, or the interaction may unpredictably depend on some type of third variable (e.g., personality factors, type of demand, support, or outcome examined; Taris, 2006). Thus, the interaction may only be significant for certain subgroups of employees, such as, those who depend on each other more for task completion. The participants in this study were

high-skilled employees working as machine operators, technicians, and managers in a manufacturing plant; however, this study did not assess task interdependence. Future studies of work-related social support should consider evaluating the influence of task interdependence.

        Supplemental analyses. Supervisor social support was also examined as a mediator of the relationship between LMX quality and (a) psychological well-being and (b) emotional exhaustion. Supervisor social support partially mediated the relationship between LMX quality and employee well-being outcomes. This suggests that some of the variance in well-being explained by LMX quality is transmitted through supervisor social support, and additional variance is explained by the direct relationship between LMX and well-being. This finding extends Hypothesis 2: LMX quality directly influences the development of supervisor social support, and supervisor social support is a more proximal predictor of the LMX—well-being relationship.

Limitations and Future Directions

        Some limitations should be considered when interpreting the findings. The limitations discussed also suggest improvements and directions for future research. First, the cross-sectional analyses with Wave 1 data should be interpreted with caution, as the data were obtained by means of self-report at one occasion. Causality cannot be inferred from the relationships between the variables with a cross-sectional, correlational design. A strength of the current study is that the hypotheses were also tested with a longitudinal design that allows for a stronger causal inference between the predictors at Wave 1 and the outcomes at Wave 2.

All data were collected by means of self-report, which is often discussed as a limitation because self-reporting can produce common method variance that has the potential to inflate correlations (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, Spector (2006) argued that these concerns might be overstated depending on the constructs of interest. In short, the correlations between some constructs may be more or less influenced by the use of a common method. For example, if two constructs are similarly affected by socially desirable responding, their correlations may be inflated if a common method is used. In the current study, socially desirable responding is not expected to influence self-reports of job demands, LMX, or supervisor social support. Socially desirable responding may influence self-reports of psychological well-being and emotional exhaustion, such as the desire to minimize one's psychological or emotional difficulties. However, psychological well-being and emotional exhaustion are analyzed as separate outcome variables. Therefore, common method variance due to socially desirable responding is not expected to be a major limitation of the current study.

Self-report surveys seem to be the most effective method of capturing the subjective nature of leader-follower relationships and employee well-being. It would not be sensible to employ alternative sources such as supervisors to evaluate these constructs, as they are generally subjective, individual experiences. The current study attempted to minimize common method bias by creating a temporal lag between the measurement of the predictor and outcome variables. Single-factor tests using CFA were also performed to determine if one factor, such as a method factor, accounted for the majority of the variance in the LMX and psychology well-being scales. These tests indicated that

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multiple factors were present, providing further evidence single-source bias is not a major limitation. As mood states also influence reporting, future studies in this area might considering controlling for positive or negative affectivity as another way to reduce common method bias.

Another limitation related to the longitudinal design was that the three-month lag between measurement occasions might have been too short or too long to identify significant relationships. As discussed above, the time lag between the waves should correspond with the underlying time line of the true development of the relationship (de Lange et al., 2004). Previous reports in this area have found support for six-month and one-year intervals. Further, more than two measurement occasions are recommended for examining causal processes between variables over time (Taris & Kompier, 2003). If possible, future research should use a multi-wave design (e.g., three, six, and twelve month lags) to better examine the relationships between variables.

Additionally, we did not have a full panel design in which all variables were measured at all occasions. Therefore, changes in the predictors over time could not be measured or controlled. A full panel design is necessary to test reversed and reciprocal causation models, in addition to normal causation models (i.e., work characteristics influence health). As discussed by de Lange and colleagues (2004), very few longitudinal studies have examined different types of causal relationships and the impact of different time lags. De Lange and colleagues (2004) found evidence for reciprocal causal relationships between the JDCS dimensions and employee well-being, but the normal causal effects were stronger than reversed causal effects. Future studies should include a

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full panel design so that different causal relationships, and thus different theoretical explanations for relationships between variables, can be explored.

The current study was also limited by the single-item measure of supervisor social support. Although some studies have suggested that single-item measures are appropriate for psychosocial variables that are sufficiently narrow and straightforward, such as social support at work (Sagrestano et al., 2002), the effects may have been larger and more stable with more items to measure social support. With only a single item, these results should be interpreted with caution and examined in future research with multiple items as an attempt to replicate the findings of this study.

Lastly, as mentioned, future studies should attempt to evaluate the process by which job demands affect well-being more specifically by including potential mediators such as stress appraisal, experienced stress, and job-related psychological well-being. Future studies should also aim to increase the degree of qualitative match between demands, support, and outcomes, as well as examine the extent to which the likelihood of finding these relationships increases as the degree of match increases. Improving the degree of match between these variables will create a more appropriate test of the buffering hypothesis and correct the conclusion that buffering rarely exists, as suggested from the existing literature that has a minimal degree of match between the variables (Häusser et al., 2010).

Implications

The results of present study extend the literature relating leadership to occupational health psychology outcomes. First, the findings were inconsistent with a

relatively large body of research demonstrating a significant relationship between job demands and employee well-being. This may suggest that there are mediators of this relationship that are not commonly measured but need to be measured here. From distal to more proximal predictors of psychological well-being, likely mediators of the relationship between job demands and well-being may include stress appraisal, felt stress, and job-related well-being. Thus, psychological well-being is likely a distal outcome of job demands, but more proximal outcomes are probably affected first in the causal chain before general well-being is affected.

Second, this thesis offers preliminary evidence that LMX quality directly influences perceptions of supervisor social support. This relationship needs to be examined longitudinally in order to provide stronger evidence for the causal order. The present study also adds to the evidence that has been found for the relationship between LMX quality and employee well-being (Singh & Srivastava, 2009). Supervisor social support partially mediated the relationship between LMX quality and employee well-being. Thus, an employee's relationship with his or her leader is an important influence on health and well-being, and the social support received from one's leader appears to be a proximal predictor in the relationship between leadership and well-being. In sum, these findings add to the literature regarding the different ways in which leadership can reduce strain (Britt et al., 2004). Leadership can facilitate the development of other factors that can directly reduce strain, in this case, social support.

Third, the present study provided some support for Häusser and colleagues' (2010) conclusion that little support has been found for the three-way buffering

hypothesis of the JDCS model. In the current study, the relationships between job

demands and (a) psychological well-being and (b) emotional exhaustion did not depend

on supervisor social support. As discussed by Häusser and colleagues (2010), this is not

to say that interaction effects do not exist. Instead, a more likely explanation is that this is

a measurement issue related to the fact that significant interactions are more likely when

demands, support, and strain outcomes are matched in terms of content domain and

scope.

Lastly, the current study explores the generalizability of Western concepts and

theories to a Chinese sample and contributes to a growing literature on Chinese

employees. The work-related factors and well-being outcomes examined in this study

appear to be relevant constructs to Chinese employees. Although support for the JDCS

model and the construct of LMX has been found from Chinese employees (Xie, 1996;

Wang et al., 2008), cultural differences may be a reason that some well-documental

relationships were not found here. For example, Chinese employees may not appraise job

demands as they were measured here as a stressor; thus, they did not affect psychological

well-being and exhaustion. There are many possible explanations for these null results

that cannot be ruled out in this study. Future research should continue examining Western

constructs and theories in culturally dissimilar workforces.

In addition, several practical implications may be gleaned from the results of the

current study. Organizations should encourage high-quality supervisor-subordinate

relationships to facilitate supervisor social support and improve employee well-being.

High-quality LMX relationships involve each partner contributing more work-oriented

effort toward mutual goals, publicly supporting each other's actions and character, enjoying each other's company, and respecting each other professionally (Graen & Uhl-Bien, 1995; Liden & Maslyn, 1998). The LMX literature emphasizes the dyadic exchange relationship between a leader and each of his followers. Therefore, leaders should consider how they might tailor their leadership style and behaviors to the needs of individual employees. As suggested by others (e.g., Offerman & Hellmann, 1996), leader behavior is an organizational variable that can be changed and is thus one way to reduce employees' appraisal of stressors or buffer against the negative effects of stressors.

Further, as LMX quality and supervisor social support were directly related to employee well-being, supervisors should ensure that they are providing social support to their subordinates, including emotional, instrumental, informational, and appraisal support. Organizations should aim to help leaders assess the extent to which they are supporting their employees and identify opportunities where they can provide additional support. Based on the literature concerning the effects of ill health on organizational performance, improving employee health and well-being should improve organizational performance in terms of improved job performance and productivity (Donald et al., 2005), reduced absenteeism (Cartwright, 2000), and reduced work-related injuries (Salminen et al., 2003). Reduced stress and improved employee well-being should also reduce healthcare utilization and the associated costs for employees and organizations.

Conclusion

This thesis suggests that one way organizations can improve employee health and well-being is to focus on the dyadic relationships between leaders and followers.

Specifically, leaders should ensure that they are providing adequate socio-emotional support to their subordinates. Although the current study did not find a direct relationship between job demands and employee well-being or a buffering effect of supervisor social support on this relationship, the most plausible conclusion is that these variables were not well matched in terms of content domain and scope. Recent reviews have concluded that the additive effects of demands and support on well-being have been reported so extensively that there is no longer a need to investigate them (Häusser et al., 2010). As these direct effects were not found here, it is certainly reasonable that mismatched item content influenced the results. I hope that this thesis stimulates continued research into the processes by which leadership affects employee health and well-being. A better understanding of these relationships will demonstrate how leaders can help followers withstand stressful working conditions.

APPENDICES

Appendix A

Job Demands subscale from the Job Content Questionnaire

Instructions: Please indicate your level of agreement or disagreement with each statement

by circling one of the five alternatives next to each statement.

1 = Strongly Disagree
2 = Moderately Disagree
3 = Neutral
4 = Moderately Agree
5 = Strongly Agree

1. My job requires working very fast.	1 2 3 4 5
2. My job requires working very hard.	1 2 3 4 5
3. I am not asked to do an excessive amount of work. (R)	1 2 3 4 5
4. I have enough time to get my job done. (R)	1 2 3 4 5

Appendix B

LMX Multidimensional Measure

Instructions: These are some statements about your supervisor, and your feelings of working with him/her. Please indicate your level of agreement or disagreement with each statement by circling one of the five alternatives next to each statement.

1 = Strongly Disagree
2 = Moderately Disagree
3 = Neutral
4 = Moderately Agree
5 = Strongly Agree

1.	I do work for my supervisor that goes beyond what is specified in my job description.	1	2	3	4	5
2.	I am willing to apply extra efforts, beyond those normally required, to meet my supervisor's work goals.	1	2	3	4	5
3.	I do not mind working my hardest for my supervisor.	1	2	3	4	5
4.	I like my supervisor very much as a person.	1	2	3	4	5
5.	My supervisor is the kind of person one would like to have as a friend.	1	2	3	4	5
6.	My supervisor is a lot of fun to work with.	1	2	3	4	5
7.	My supervisor defends my work actions to a superior, even without complete knowledge of the issue in question.	1	2	3	4	5
8.	My supervisor would come to my defense if I were "attacked" by others.	1	2	3	4	5
9.	My supervisor would defend me to others in the organization if I made an honest mistake.	1	2	3	4	5
10.	I am impressed with my supervisor's knowledge of his/her job.	1	2	3	4	5
11.	I respect my supervisor's competence on the job.	1	2	3	4	5
12.	I admire my supervisor's professional skills.	1	2	3	4	5

Appendix C

General Health Questionnaire

Instructions: Please indicate how much you have had the following experiences recently.

Have you recently:

1 = Not at all
2 = Much less than usual
3 = Less than usual
4 = Same as usual
5 = Much more than usual

1. Been able to concentrate on what you are doing?	1	2	3	4	5
2. Lost much sleep over worry? (R)	1	2	3	4	5
3. Felt that you are playing a useful part in things?	1	2	3	4	5
4. Felt capable of making decisions about things?	1	2	3	4	5
5. Felt constantly under strain? (R)	1	2	3	4	5
6. Felt you couldn't overcome your difficulties? (R)	1	2	3	4	5
7. Been able to enjoy your normal day-to-day activities?	1	2	3	4	5
8. Been able to face up to your problems?	1	2	3	4	5
9. Been feeling unhappy and depressed? (R)	1	2	3	4	5
10. Been losing confidence in yourself? (R)	1	2	3	4	5
11. Been thinking of yourself as a worthless person? (R)	1	2	3	4	5
12. Been feeling reasonably happy all things considered?	1	2	3	4	5

Appendix D

Emotional Exhaustion subscale of the Maslach Burnout Inventory

Instructions: Please indicate your level of agreement with the following statements about

your work.

1 = Strongly disagree
2 = Moderately Disagree
3 = Neutral
4 = Moderately Agree
5 = Strongly agree

1.	I feel emotionally drained from my work.	1	2	3	4	5
2.	I feel used up at the end of the workday.	1	2	3	4	5
3.	I feel fatigued when I get up in the morning and have to face another day on the job.	1	2	3	4	5
4.	I feel burned out from my work	1	2	3	4	5
5.	I feel frustrated by my job.	1	2	3	4	5
6.	I feel I'm working too hard on my job.	1	2	3	4	5
7.	I feel like I'm at the end of my rope.	1	2	3	4	5

Table 1. Alternative Confirmatory Factor Analysis Models of the LMX-MDM.

Item	Model 1	Model 2		Model 3			Model 4			
		Work-related	Subjective relationship	Work-related	Affect	Loyalty	Contribution	Affect	Loyalty	Professional Respect
1. I am willing to apply extra efforts, beyond those normally required, to meet my supervisor's work goals.	*	*		*			*			
2. I do not mind working my hardest for my supervisor.	*	*		*			*			
3. I like my supervisor very much as a person.	*		*		*			*		
4. My supervisor is the kind of person one would like to have as a friend.	*		*		*			*		
5. My supervisor is a lot of fun to work with.	*		*		*			*		
6. My supervisor defends my work actions to a superior, even without complete knowledge of the issue in question.	*		*			*			*	
7. My supervisor would come to my defense if I were "attacked" by others.	*		*			*			*	
8. My supervisor would defend me to others in the organization if I made an honest mistake.	*		*			*			*	
9. I am impressed with my supervisor's knowledge of his/her job.	*	*		*						*
10. I respect my supervisor's competence on the job.	*	*		*						*
11. I admire my supervisor's professional skills.	*	*		*						*

Table 2. Model Comparison Results for LMX.

	S-B χ^2	df	CFI	SRMR	RMSEA
Model 1: One factor	388.43	44	.72	.11	.17
Model 2: Two factors	308.43	43	.78	.12	.15
Model 3: Three factors	211.40	41	.86	.09	.12
Model 4: Four factors	75.93	38	.97	.04	.06

Notes. Model 1 was a single factor test. Model 2 tested two factors: work-related and subjective relationship. Model 3 tested three factors: work-related relationship, affect, and loyalty. Model 4 tested four factors: contribution, affect, loyalty, and professional respect. S-B χ^2 = Satorra-Bentler chi square; df = degrees of freedom; CFI = comparative fit index; SRMR = standardized root mean residual; RMSEA = root-mean-square error of approximation.

Table 3. Alternative Confirmatory Factor Analysis Models of the GHQ-12 Psychological Well-Being Scale.

Item	Model 1	Model 2		Model 3			Model 4			Model 5			
		Pos.	Neg.	Cope	Stress	Depress.	Social Dys.	Anx/Dep.	Loss confid.	Social Dys.	Anx./Dep.	Loss confid.	Neg.
1. Able to concentrate	*	*		*			*			*			
2. Lost sleep over worry	*		*		*			*			*		*
3. Playing a useful part	*	*		*			*			*			
4. Capable of making decision	*	*		*			*			*			
5. Constantly under strain	*		*		*			*			*		*
6. Could not overcome difficulties	*		*			*		*			*		*
7. Enjoy day-to-day activities	*	*			*		*			*			
8. Able to face up to problems	*	*		*			*			*			*
9. Unhappy and depressed	*		*			*		*			*		
10. Losing confidence in self	*		*			*			*			*	*
11. Thinking of self as worthless	*		*			*			*			*	*
12. Reasonably happy	*	*				*	*			*			

Notes. Pos. = positive content. Neg. = negative content. Depress. = depression. Social Dys. = social dysfunction. Anx./Dep. = anxiety/depression. Loss confid. = loss of confidence.

Table 4. Model Comparison Results for Psychological Well-Being.

	S-B χ^2	df	CFI	SRMR	RMSEA
Model 1: One factor	271.72	54	.72	.12	.12
Model 2: Two factors	175.22	53	.84	.08	.09
Model 3: Three factors	186.56	51	.82	.10	.10
Model 4: Three factors	154.31	51	.87	.08	.09
Model 5: Four factors	111.29	45	1.0	.06	.06

Notes. Model 1 was a single factor test. Model 2 tested two factors: positive and negative content. Model 3 tested three factors: cope, stress, and depression. Model 4 tested three different factors: social dysfunction, anxiety/depression, and loss of confidence. Model 5 tested four factors: social dysfunction, anxiety/depression, and loss of confidence, and a negative content factor. S-B χ^2 = Satorra-Bentler chi square; df = degrees of freedom; CFI = comparative fit index; SRMR = standardized root mean residual; RMSEA = root-mean-square error of approximation.

Table 5. Descriptive Statistics, Alpha Coefficients, and Bivariate Correlations for Study Variables.

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Tenure (years)	4.74	5.53	-								
2. Gender	1.11	.31	.07	-							
3. LMX	3.70	.57	-.18**	.01	(.76)						
4. Job demands	4.21	.68	-.09	.05	.35**	(.73)					
5. Supervisor social support	3.82	.79	-.05	.01	.47**	.23**	-				
6. Psychological well-being W1	3.10	.40	-.01	.09	.28**	.17**	.21**	(.74)			
7. Psychological well-being W2	3.13	.38	-.10	.01	.15	.22**	.05	.36**	(.74)		
8. Emotional exhaustion W1	2.55	.62	.08	-.03	-.33**	-.04	-.24**	-.53**	-.13	(.81)	
9. Emotional exhaustion W2	2.51	.54	-.03	.17*	-.21**	-.22**	-.15	-.21**	-.37**	.40**	(.80)

Notes: * $p < .05$ (2-tailed); ** $p < .01$ (2-tailed). Gender was coded 1 = Male, 2 = Female. Values listed in the diagonal, with parenthesis, are Cronbach's alpha values for the scale indicated. Outcome variables were measured at Wave 1 (W1) and Wave 2 (W2). Predictor variables were only measured at Wave 1. Sample sizes ranged from 147 (W2) to 309 (W1). LMX = Leader-Member Exchange.

Figure 1. Hypothesized effect of supervisor support as a moderator of job demands and psychological well-being.
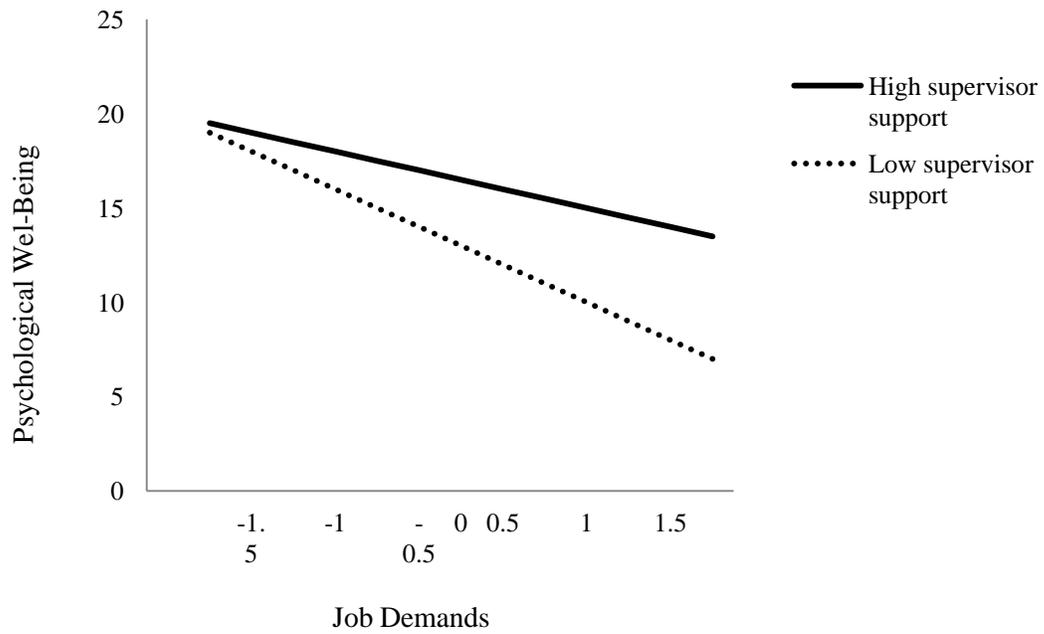
Figure 2. Hypothesized model of job demands, leader-member exchange, and supervisor social support predicting psychological well-being.
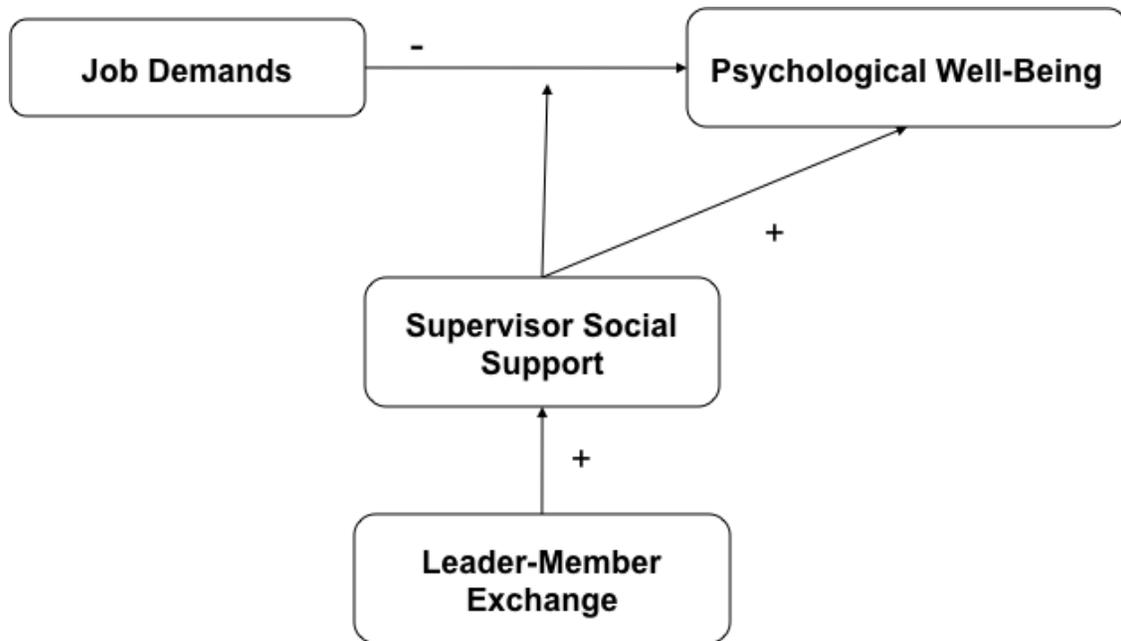
Figure 3. Hypothesized effect of supervisor support as a moderator of job demands and emotional exhaustion.
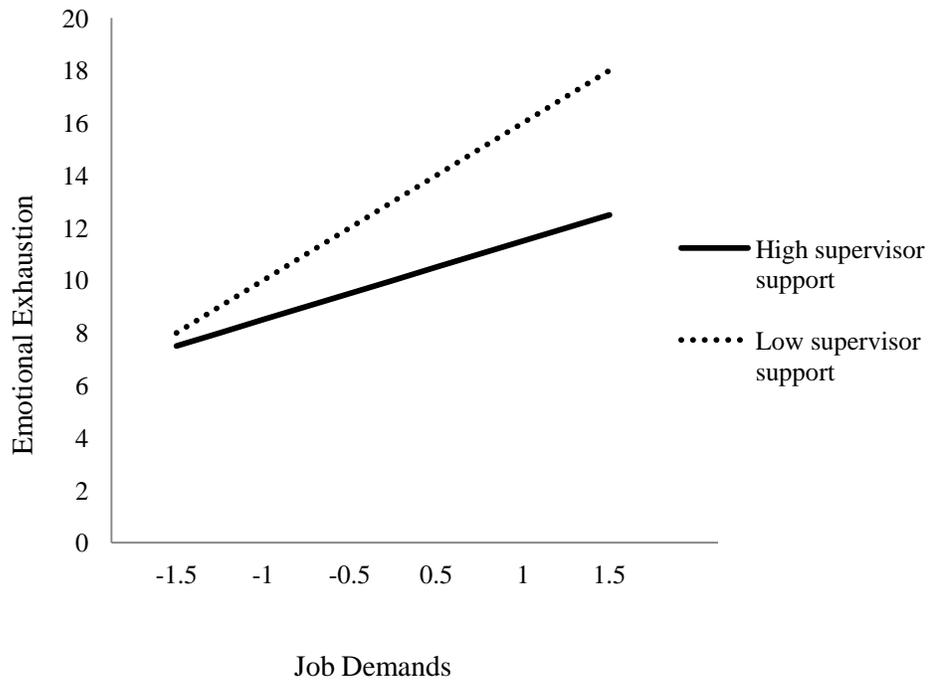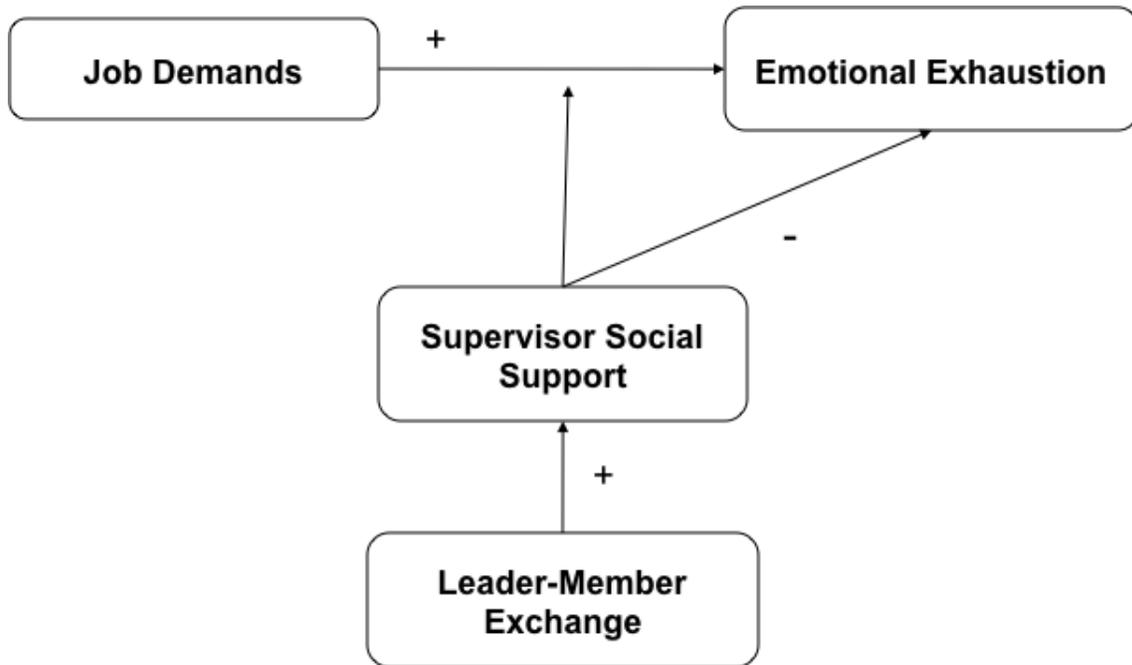

Job Demands

Figure 4. Hypothesized model of job demands, leader-member exchange, and supervisor social support predicting emotional exhaustion.
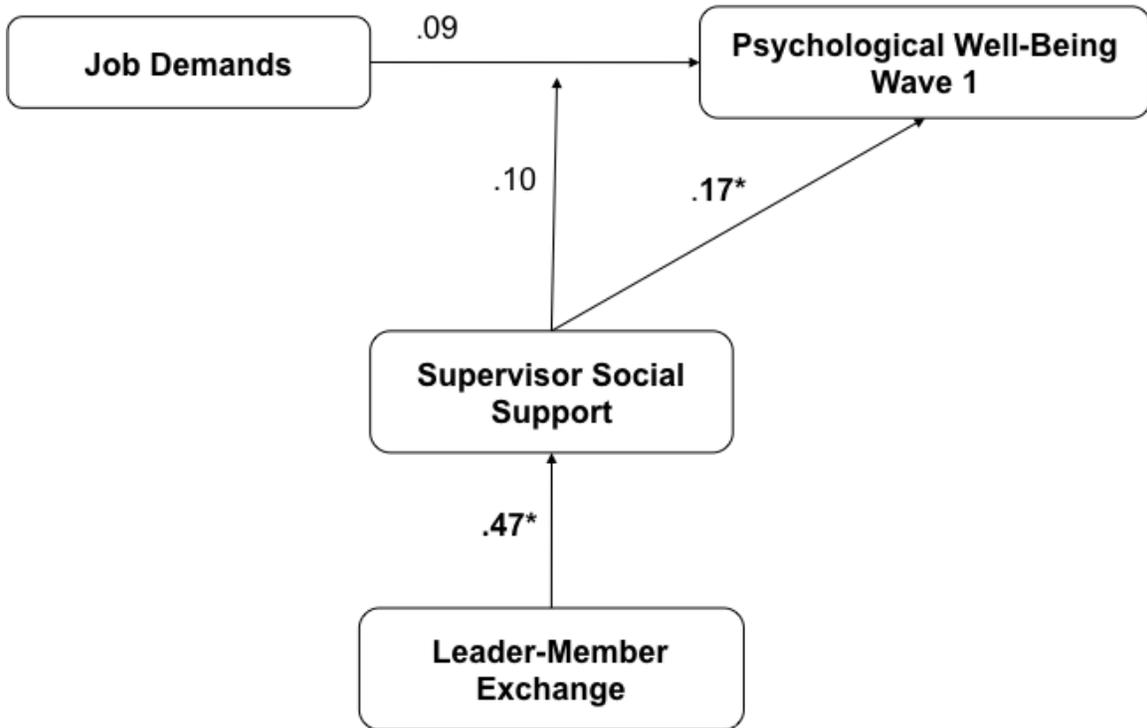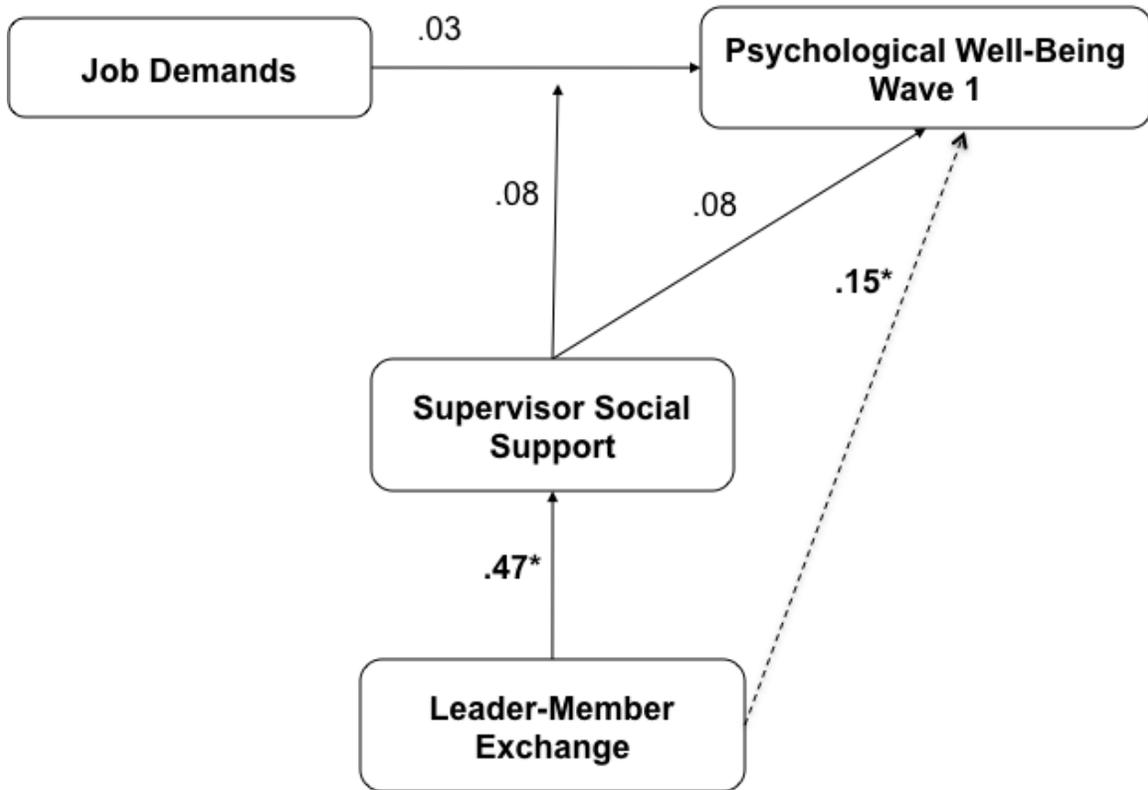
Figure 5. Standardized path coefficients in the hypothesized model predicting psychological well-being at Wave 1.
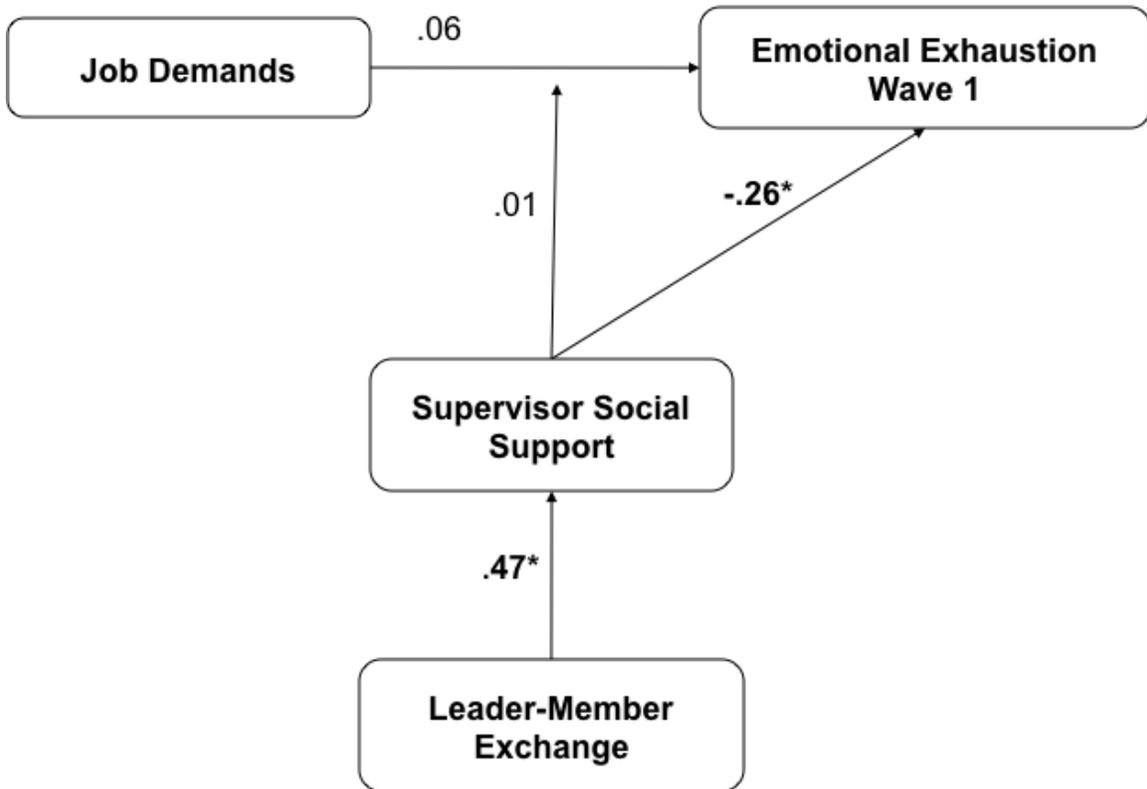

Note: *p < .05

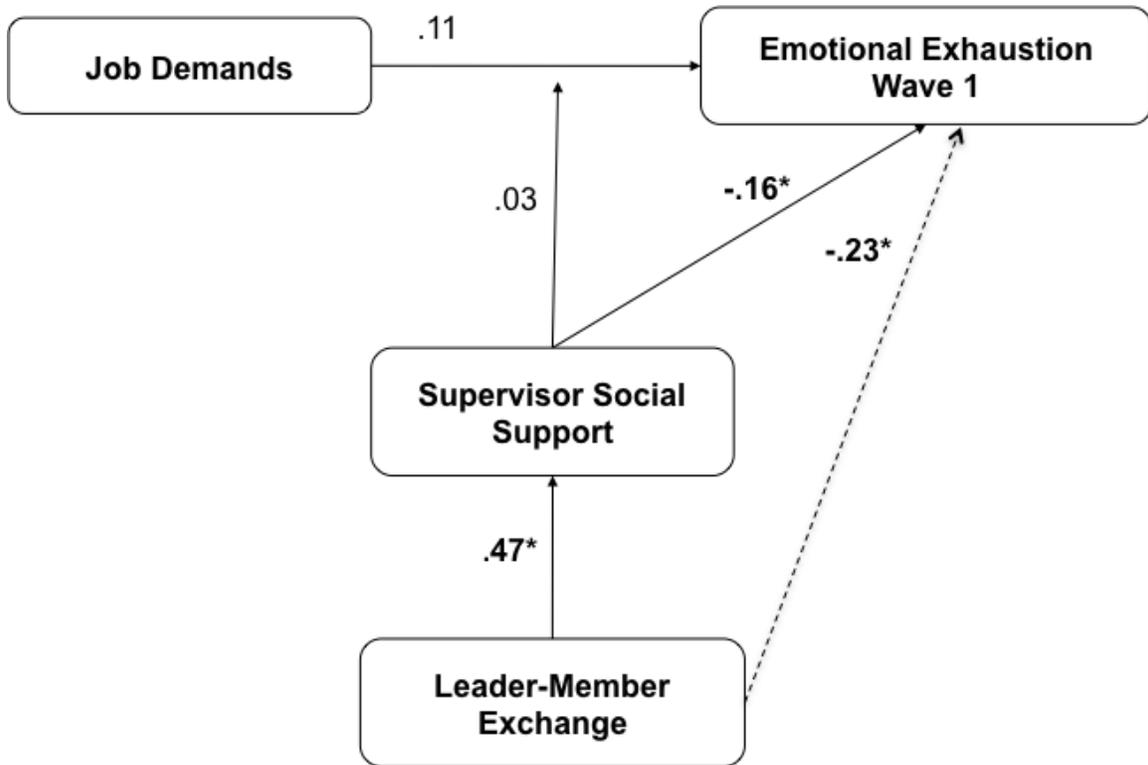Figure 6. Standardized path coefficients in a modified model predicting psychological well-being at Wave 1.

Note: *p < .05. Dashed line indicates the modification to the hypothesized model.

Figure 7. Standardized path coefficients in the hypothesized model predicting emotional exhaustion at Wave 1.

*Note: *p < .05*

Figure 8. Standardized path coefficients in a modified model predicting emotional exhaustion at Wave 1.

Note: *p* < .05. Dashed line indicates the modification to the hypothesized model.

Figure 9. Standardized path coefficients in the hypothesized model predicting emotional
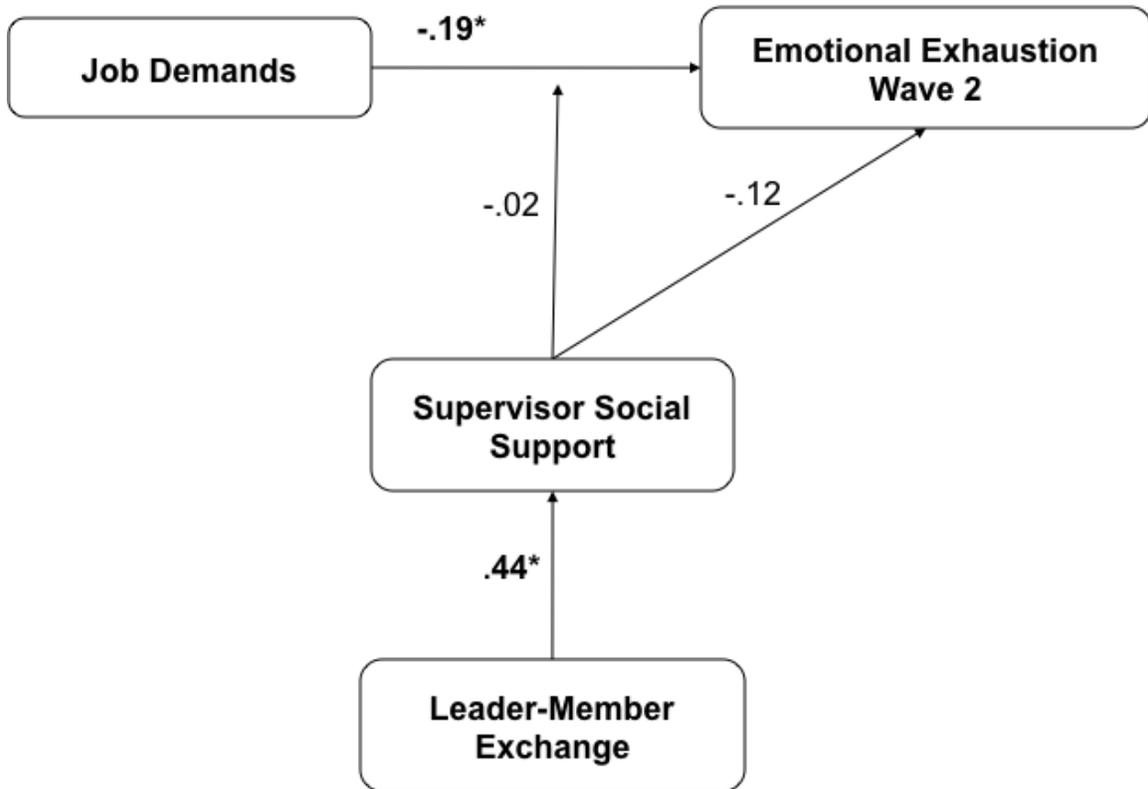exhaustion at Wave 2, controlling for emotional exhaustion at Wave 1.

*Note: *p < .05*

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