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Supervisor support: Does supervisor support buffer or exacerbate the adverse effects of supervisor undermining?

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Abstract

Empirical investigations concerning the interplay between supervisor support and supervisor undermining behaviors and their effects on employees yielded contradictory findings; with some studies suggesting that support buffers the adverse effects of undermining, and others suggesting that support exacerbates these adverse effects. Seeking to explain such contradictory findings, we integrate Uncertainty-Management perspectives with Coping-Theory to posit that relational uncertainty is inherent in the mixture of supervisor support and undermining. Hence, whether supervisor support buffers or exacerbates the adverse effects of supervisor undermining on employee health and well-being depends on factors pertaining to employee ability to resolve and manage such relational uncertainty. Specifically, we hypothesize a buffering effect for employees with high self-esteem and high quality of work-life, and an exacerbating effect for employees with low self-esteem and low quality of work-life. Analyses of two-wave data collected from a probability stratified sample of US Air Force personnel supported our predictions. Two supplementary studies of the US military replicated our core findings and demonstrated its practical significance.

Keywords

supervisor support; supervisor undermining; self-esteem; quality of work-life; job strain; perceived health

Interpersonal relationships are critical for organizational functioning and effectiveness (Duffy, Ganster, & Pagon, 2002). Of special importance are employee interpersonal relationships with their supervisors (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002; Shanock & Eisenberger, 2006). Supervisors act as agents of the

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organization, hence employees tend to view their behavior toward them as indicative of the extent to which the organization values their contributions and cares about their well-being (Eisenberger, Huntington, Hutchison, & Sowa, 1986; Levinson, 1965). Supervisors are also an important source of guidance, assistance and feedback to subordinates as they accomplish their workplace tasks (Eisenberger, et al., 2002). The organizational literature generally suggests that supervisor support can help employees deal with occupational stress and adversity (Buunk, 1990; Eisenberger, et al., 2002), as it signals to the employees that they are cared for, esteemed, valued and belong to a network of communication and mutual obligation (Cobb, 1976).

Still, many aspects of the supervisory relationship (e.g., power inequality and poor subordinate's performance), might lead the supervisor to behave in undermining ways (Tepper, 2007; Tepper, Moss & Duffy, 2011). Supervisor undermining reflects a range of negative supervisory behaviors that encompasses the display of negative affect, criticism, and other actions that hinder employee ability to attain his/her instrumental goals (Vinokur & van Ryn, 1993). These behaviors were consistently found to have adverse effects on the health and well-being of employees, with consequences including emotional exhaustion, depression, and poor physical well-being (see Hershcovis & Barling, 2010, for a meta-analytic review).

Research in the past decade has pointed out that in supervisor-employee relationships, supervisor undermining behavior often co-exists with supervisor support (Duffy, Ganster, & Pagon, 2002; Rooney & Gottlieb, 2007; Yagil, 2006). For example, a supervisor may display hostility in response to poor employee performance, and also offer advice and assistance aiming to improve employee performance. Hence, increased attention was given to investigating how this mixture of supportive and undermining behaviors affects employee outcomes (e.g., Duffy et al., 2002; Hobman, Restubog, Bordia & Tang, 2009; Lim, 2006). However, studies examining this issue have yielded contradictory results, with some demonstrating that supervisor support reduced (i.e., buffered) the adverse effects of supervisor undermining on employees (de Fluiter, 2011; Dormann & Zapf, 1999), and others demonstrating that supervisor support increased (i.e., exacerbated) these adverse effects (Duffy et al, 2002; Hobman et al, 2009).

To explain these contradictory findings, the goal of our study is to propose and test a framework that takes into account the characteristics of the individual and his/her work environment and the role they play in shaping how the employee experiences the mixture of support and undermining from the same supervisor (McNulty & Fincham, 2012). Our framework integrates two theoretical perspectives, namely Uncertainty-Management (see Lind & Van den Bos, 2002; Thau, Aquino & Wittek, 2007) and Coping-Theory (Lazarus, 1993). From an uncertainty-management perspective, the mixture of support and undermining from the same supervisor reflects *inconsistency* in supervisory behaviors (De Cremer, 2003; Uchino et al., 2012). Such inconsistency creates uncertainty regarding the intentions and trustworthiness of the supervisor that the employee is required to manage in order to maintain his/her well-being (Uchino et al., 2012; Uchino & Birmingham, 2010). If not managed properly, such uncertainty might harm the well-being of the employee by (a) threatening the coherence of his/her perceived self-evaluation (Lind & Van den Bos, 2002;

Swann, Rentfrow & Guinn, 2003); (b) jeopardizing his/her ability to predict and exert control over the work environment (Uchino et al., 2012; Uchino & Birmingham, 2010); and (c) signaling a failure in maintaining a good relationship with one's supervisor, hence increasing the risk of termination and loss of organizational membership (Eberly, Holley, Johnson, & Mitchell, 2011). Coping theory suggests that the coping capacity of an employee shapes his/her ability to manage stressful circumstances. The coping capacity of an individual consists of internal (e.g., personality attributes) and external (e.g., the work environment) contextual features that shape the effectiveness of his/her efforts to appraise and manage potentially demanding circumstances (Folkman, 1984; Holahan & Moos, 1987; Lazarus, 1993).

An integration of uncertainty management perspectives and coping-theory suggests that relational uncertainty in the workplace, and particularly uncertainty stemming from relationships with work-related authorities, is a unique stressor (see Eberly et al., 2011 for review). Hence, coping with such relational uncertainty can be facilitated by specific components of the employee coping capacity which are salient in (a) reducing threat to self-coherence; (b) enhancing predictability and control; and (c) reducing threat to organizational membership termination. Our framework suggests that these specific components of the employee coping capacity--which we label ***Uncertainty-Capacity***--shape whether the mixture of supervisor support and undermining will have an adverse effect on their health and well-being.

This uncertainty-capacity framework makes a significant contribution to the literature in the area of supervisor-employee relations and their effects on employee well-being. More specifically, this framework moves beyond the main effects of supervisor undermining and supervisor support towards the acknowledgement that each of these behaviors do not exist in isolation (McNulty & Fincham, 2012; Nahum-Shani & Bamberger, 2012a). Rather, these two types of behaviors, that are often conceptualized to represent positivity (i.e., support) and negativity (i.e., undermining) in supervisor-employee relationships, might interact in varying ways to affect the health and well-being of employees. We propose that employee capacity to resolve and manage uncertainties plays a critical role in explaining how and when these behaviors interact. Hence, our framework reconciles inconsistent empirical evidence concerning the effect of supervisor support in the context of undermining behaviors from the same supervisor. Moreover, focusing on and labeling the components of an employee coping capacity which are most relevant to uncertainty management (i.e., uncertainty-capacity) enables one to better identify the boundary conditions that determine whether supervisor support buffers or exacerbates the adverse effect of supervisor undermining.

The current research conceptualizes and tests this framework in the following ways. First, we adopt a conceptualization of undermining behaviors which incorporates both intentional and unintentional behaviors (see Rafaeli, Cranford, Green, Shrout, & Bolger, 2008). Second, we use a two-wave panel study design to identify the long-term effects of supervisor support and supervisor undermining on employees' health and well-being. Third, and most importantly, we test whether the interaction between supervisor support and supervisor undermining is moderated by two contextual factors—employee self-esteem, and his/her

quality of work-life. These two contextual factors represent internal and external components of employee capacity to resolve and manage uncertainties stemming from relationships with work-related authorities. Below we review in further detail the relevant literature with regard to the interplay of support and undermining in the context of employee uncertainty-capacity.

The Interplay between Support and Undermining

The social psychological literature suggests that the key rationale accounting for the interactive effect of support and undermining from the same source is provided by the ***stress-buffering*** hypothesis (Cohen & Wills, 1985). This hypothesis holds that the adverse effects of stressors are reduced for individuals who receive high levels of social support. Given empirical evidence highlighting the adverse effects of supervisor undermining on employee health and well-being (Duffy et al., 2002; Duffy, Ganster, Shaw, Johnson & Pagon, 2006), researchers often conceptualize supervisor undermining as a job-stressor (see Ganster, 2008). To the extent that being undermined by one's supervisor is stressful (Duffy et al., 2006), receiving support from the same source (i.e., the supervisor) is likely to buffer the harmful effects of stress (Miner, Settles, Pratt-Hyatt, & Brady, 2012; Rafaeli et al., 2008). Consistent with this hypothesis, Beehr and colleagues (Beehr, Farmer, Glazer, Gudanowski, & Nair, 2003) as well as Dormann and Zapf (1999) found that the adverse effects of stressors caused by the supervisor (e.g., conflicts with the supervisor and supervisor pressure) were attenuated when the supervisor is also a source of social support. Similarly, de Fluiter (2011) found that supervisor support attenuated the negative effect of abusive supervision on employee satisfaction.

However, despite the intuitive appeal of the stress-buffering rationale, some studies found that supervisor support exacerbated the harmful effects of supervisor undermining (Duffy et al., 2002; Hobman et al., 2009; Pagon, Duffy, Ganster, & Lobnikar, 1998). To explain this stress-exacerbating effect, researchers have suggested that receiving support in the context of an otherwise undermining relationship is perceived by the target person as unexpected and conflictual, hence increasing the salience of social undermining and its adverse implications (Beehr, et al., 2003; Major, Zubek, Cooper, Cozzarelli, & Richards, 1997). These contradictory findings call for the development of a new explanatory framework that concerns the conditions in which supervisor support buffers *or* exacerbates the harmful effects of supervisor undermining. Here, we suggest that an integration of uncertainty-management perspectives and coping theory can shed new light on these conditions.

Uncertainty Management Perspectives

Extensive theoretical and empirical evidence highlight the role of uncertainty in relational exchanges as the key mechanism for shaping the effects of the mixture of supervisor support and undermining on employee well-being (Duffy et al., 2002; Duffy et al., 2006). This is based on the notion (for review see Uchino & Birmingham, 2010) that inconsistent ties (e.g., those involving high levels of both support and undermining), give rise to relational uncertainty, which leads to more negative outcomes relative to ties that are only aversive (e.g., those involving high levels of undermining and low levels of support) or ties that are

indifferent (e.g., those involving low levels of both support and undermining). Consistent with this idea, observational and laboratory studies have demonstrated that inconsistent ties have detrimental effects that are larger in magnitude compared to consistent aversive or indifferent relations (see e.g., Brimingham et al., 2009; Holt-Lunstad et al., 2003;Uchino et al., 2001; Uchino et al., 2004).

In the context of supervisor-employee relations, uncertainty management perspectives suggest that the uncertainty inherent in inconsistent supervisory behaviors can be detrimental in three respects: First, it threatens the ***coherence*** of one's perceived self-evaluation (De Cremer, 2003; Hogg, 2009; Lind & Van den Bos, 2002; Swann et al., 2003). This is based on the notion that people strive for psychological coherence, which reflects their ability to integrate their experiences into their evolving theory of self (see Swann et al., 2003). When receiving inconsistent signals from the supervisor, an individual's sense of coherence is jeopardized, leading to feelings of threat and disorientation (De Cremer, 2003; Swann et al., 2003).

Second, the uncertainty inherent in the mixture of support and undermining from the supervisor reduces the ability of employees to ***predict and exert control*** over their work environment (Lind & Van den Bos, 2002; Thau et al., 2007; Thau, Bennett, Mitchell & Marrs, 2009). When the supervisor behaves in a consistent manner, the subordinate can interpret and act upon the symbolic message conveyed by these behaviors (Wrzesniewski, Dutton & Debebe, 2003). Such predictability and sense of control are jeopardized when the supervisor behaves in an inconsistent manner (Thau et al., 2007; Thau et al., 2009).

Finally, relational uncertainty with respect to one's supervisor poses a threat to the ***stability and continuity*** of organizational membership. In general, relational uncertainties make salient the possibility of failure to maintain the relationship (Eberly et al., 2011). The relationship with one's supervisor is not easily substitutable and it is critical to employee ability to achieve important goals such as job security, pay and promotions. Hence, uncertainty in such relations likely leads to feelings of anxiety on the part of the employee and concerns over how to improve the relationship and continue to satisfy one's needs and goals (Baumeister & Leary, 1995; Eberly et al., 2011; Leary & Baumeister, 2000).

Uncertainty-Capacity: A Coping-Based Framework

Coping theory suggests that the individuals' coping capacity plays a key role in determining how they experience and frame social interactions. Coping capacity is a function of personal characteristics (e.g., self-esteem) and contextual ones (e.g., the quality of the work environment). These characteristics shape emotional, cognitive and behavioral responses to social encounters and their effects (Folkman, 1984). First, personal and contextual characteristics influence primary appraisals, namely the extent to which an individual evaluates the situation as having the potential for harm or benefit to oneself. Second, they affect secondary cognitive appraisals, namely the way in which individuals evaluate their existing capacity for control, in terms of their ability to reduce the threat and diminish potential harm. Third, these characteristics also determine the efficacy of one's coping efforts, namely the extent to which cognitive and behavioral efforts to manage a specific

threatening situation will be successful (Folkman, 1984; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986).

Here, integrating coping theory with uncertainty management perspectives, we use the term employee Uncertainty-Capacity as an overarching concept that captures a broad range of internal and external characteristics that are critical for employee's ability to successfully resolve and manage relational uncertainties in the workplace. Thus, we suggest that while the coping capacity of the employee determines his/her ability to cope with stressful circumstances and relational stressors in general, when facing relational uncertainty in the workplace, specific components of the coping capacity become especially important. These components consist of internal factors related to the self, and external factors related to the work environment, that are specifically relevant in managing work-related uncertainties because they help to (a) reduce the potential threat to one's self-coherence; (b) promote feelings of control and predictability; and (c) enhance the efficacy of efforts to resolve and manage the uncertainty, and hence facilitate stability and continuity of organizational membership (Anderson, John, & Keltner, 2005; Folkman, 1984; Keltner et al., 2003). In the context of relational uncertainty with one's supervisor, we argue that two key internal and external components of employee uncertainty-capacity are, respectively, employee self-esteem and quality of work life.

Internal Uncertainty-Capacity: Self-esteem as a Moderator

An individual's self-esteem has long been conceptualized as a component of the coping capacity of an individual (Kessler, Price, & Wortman, 1985). Individuals with high self-esteem tend to evaluate their personal characteristics favorably, seeing themselves as competent, capable, accepted, and valued by others (see Rosenberg, 1979, Stets & Burke, 2003, and also Dutton et al., 2010 for review). From an uncertainty-management perspective, it has been well established that self-esteem plays a key role in individuals' ability to manage and tolerate uncertainties (Hogg, 2009; Lind & Van den Bos, 2002; Thau et al., 2007).

First, self-esteem determines the extent to which uncertainty poses a threat to one's sense of self-coherence (Cremer & Sedikides, 2005; Kernis, 2003). It has been shown that individuals with high self-esteem have a more clearly defined and stable concept of self (Campbell, 1990), and therefore relational uncertainty is less likely to threaten their self-concept or sense of psychological coherence (Compas, 1987; Campbell, 1990). In contrast, individuals with low self-esteem are more vulnerable and reactive to uncertainty in social relations (Hui & Lee, 2000).

Second, individuals with high self-esteem evaluate more highly their ability to control and manage demanding circumstances (Greenberg et al., 1993; Menaghan, 1982), and perceive their capacity for uncertainty tolerance to be higher, than those with low self-esteem (Greco, & Roger, 2001). The latter tend to evaluate their competency more negatively (Baumeister, 1993) and feel that they don't have adequate access to resources that are necessary for uncertainty resolution (e.g., social support: Russell, Cutrona, Rose, & Yurko, 1984).

Finally, individuals' self-esteem determines whether they will be able to access and effectively utilize their personal and external resources to resolve and manage uncertainties (Grecoa & Roger, 2001; Judge, Thoresen, Pucik, & Welbourne, 1999). Reduced utilization of personal and social resources of individuals with low self-esteem is attributed to their general tendency to monitor the environment for and focus their attention on negative feedback (Brockner, 1988; Dandeneau & Baldwin, 2004). Such attention bias towards negativity is likely to reduce one's ability to notice and utilize available internal (i.e., cognitive skills) and external resources (e.g., supportive relations) that can facilitate coping (Dandeneau & Baldwin, 2004; 2009). In contrast, individuals with high self-esteem tend to monitor the environment and focus their attention on positive information with regard to available resources, enabling them to reframe uncertainty in a positive manner, and to utilize external resources to resolve and manage it (Dandeneau & Baldwin, 2004; 2009). Consistent with these ideas, empirical evidence suggests that compared with their low self-esteem counterparts, individuals with high self-esteem are more likely to use effective strategies to resolve uncertainties (Grecoa & Roger, 2001; Judge et al., 1999; Kramer & Wei, 1999; Sorrentino & Short, 1986). Hence, in the face of relational uncertainties in the workplace, compared with their low self-esteem counterparts, individuals with high self-esteem are likely to feel less threatened by the possibility of losing their organizational membership, and feel a greater sense of stability (Callero, 2003) and continuity (Vignoles, Chryssochoou, & Breakwell, 2002).

Overall, the research reviewed above suggests that when the supervisor is a source of both support and undermining, compared with employees with low self-esteem, employees with high self-esteem are more likely to successfully cope with the uncertainty that is inherent in the inconsistent supervisory behaviors. Accordingly, we hypothesize a three-way interaction effect of supervisor support, supervisor undermining and employee self-esteem on employee health and well-being, which are assessed using measures of perceived health and job strain, such that:

> H1a: Supervisor support buffers the harmful effect of supervisor undermining on the health and well-being of employees with high self-esteem.
>
> H1b: Supervisor support exacerbates the harmful effect of supervisor undermining on the health and well-being of employees with low self-esteem.

External Uncertainty-Capacity: Quality of Work-Life as a Moderator

Perceived quality of work-life (QWL) is considered a key external coping resource that shapes how employees experience and frame their work-based interactions (Marks, Mirvis, Hackett, & Grady, 1986; Pelled & Xin, 1999; Shaw, Fields, Thacker, & Fisher, 1993). QWL is a comprehensive, multidimensional construct reflecting the extent to which employee needs are satisfied by the resources, relationships and outcomes that arise from work-related involvement (Nadler & Lawler, 1983; Sirgy, Efraty, Siegel, & Lee, 2001). Although researchers often use job satisfaction as an indicator of QWL (Locke, 1976), industrial psychologists and management scholars agree that "the focus of QWL is beyond job satisfaction" (Sirgy et al., 2001: 242). QWL incorporates the effect of the workplace on satisfaction with the job as well as with all other aspects related to the work environment,

such as the organization's mission, relationships with peers, and various job and occupational rewards including pay, promotion, job security, and occupational fulfillment (Chacko, 1983; Cohen, Chang & Ledford, 1997; Fields & Thacker, 1992; Hofstede, 1984; Sirgy et al., 2001). While relationships that arise from work-related involvement might affect how employees feel about the quality of their work-life, it is only one aspect, among many others, that shape their QWL (Sirgy et al., 2001). Indeed, research evidence suggests that employees can be satisfied with the quality of their work-life even in the presence of a certain extent of negative supervisory behaviors (e.g., Harris, Kacmar & Zivnuska, 2007; Tepper et al., 2009; Schaubroeck, Lam, & Xie, 2007).

While QWL is considered a general coping resource for employed individuals, uncertainty management perspectives suggest that it is especially critical for employee's ability to resolve and manage work-related uncertainty, because uncertainty triggers a sense-making process in which employees seek information in their *broader* work environment to help them resolve and cope with it (Thau et al., 2009; van den Bos, 2009). More specifically, this perspective suggests that several mechanisms underlie the critical role QWL plays in employee ability to resolve and manage work-related uncertainty. First, high quality work environments promote value congruence (Edwards & Cable, 2009), sense of belonging (Harris & Fink, 1994) and identification with the workplace (Ashforth, Harisson & Corley, 2008), which reduce the extent to which relational uncertainty introduces threat to one's sense of self coherence and continuity (Dutton, Roberts, Bednar, 2010). Second, when experiencing relational uncertainty, fairness concerns become more salient to employees (Thau et al., 2009). High quality work environments contain fairness-related information, including satisfaction with pay and promotion (Folger & Konovsky, 1989; Witt & Nye, 1992) and job security (Rousseau & Aquino, 1993). This information increases feelings of control and predictability, and makes the possibility of losing organizational membership less salient (for reviews see Lind and Van den Bos, 2002; Van den Bos and Lind, 2002). Third, high quality work environments improve the efficacy of one's efforts to cope with uncertainties because the employee can more easily obtain, from other employees, valuable resources such as cooperation, knowledge, and different perspectives (Saint-Charles & Mongeau, 2009). In sum, in the context of high quality work environments, the employee can more easily reframe and resolve uncertainties in light of other aspects of the job that are fulfilling and satisfying (e.g., the job itself, organization's mission: Pelled & Xin, 1999; Abrams et al., 2003).

Consistent with this notion, empirical evidence suggests that employees who attain a higher level of QWL are more likely to feel predictability and control (Ashford et al., 1989; Westman, Etzion & Danon, 2001); experience positive mood states more frequently (Fassina, Jones, & Uggerslev, 2008), trust the employer (Robinson, 1996) and other employees (Vanhala & Ahteela, 2011); have positive social bonds with other members of the organization (Tyler, 1999); and experience and frame work-related situations more positively compared with dissatisfied employees (Bacharach, Bamberger, Biron, & Horowitz-Rozen, 2008). Earlier research by Howard, Cunningham, and Rechnitzer (1986) suggests that employees who are satisfied with their job and work environment tend to cope more effectively with uncertainties in the workplace such as role-ambiguity. Finally, research concerning the adverse effects of organizational downsizing (Armstrong-Stassen, 2003;

Armstrong-Stassen, 2005) pointed out that employees who have positive attitudes and expectations concerning their workplace, job, and career are likely to utilize work-related relations effectively in order to cope with uncertainties in the workplace (e.g., job-insecurity).

Overall, our review of the research leads us to posit that QWL plays a critical role in whether employees will be able to cope effectively with the uncertainty inherent in the mixture of supportive and undermining behaviors from the supervisor. More specifically, when the supervisor is a source of both support and undermining, compared with employees experiencing low QWL, employees experiencing high QWL are more likely to manage and cope successfully with the uncertainty that is inherent in the inconsistent supervisory behaviors. Hence, we hypothesize a three-way interaction effect between supervisor support, supervisor undermining and employee QWL, on employee health and well-being, assessed by measures of perceived health and job strain, such that:

> H2a: Supervisor support buffers the harmful effect of supervisor undermining on the health and well-being of employees who experience high quality of work-life.
>
> H2b: Supervisor support exacerbates the harmful effect of supervisor undermining on the health and well-being of employees who experience low quality of work-life.

Method

The conduct of this research was approved by the Institutional Review Boards of the University of Michigan and the Uniformed Services University of the Health Sciences. Hypotheses were tested in the primary study described below. We also provide a short description and results of analyses from two supplementary studies that shared all or most of the measures used in our primary study. As we describe below, the purpose of the supplementary studies was to demonstrate the replicability (Study 2) and practical significance (Study 3) of our results.

Sample

The Defense Manpower Data Center (DMDC) of the U.S. Department of Defense (DoD) provided a probability stratified sample with contact information for 2,250 Air Force men and women who were deployed during the period of October 7, 2001 to September, 2004. The sample was constructed to include equal numbers of men and women and equal numbers from the Active Duty component of the Air Force, the Reserve, and the Guard. All men and women in the sample were invited to participate in the study through a recruitment letter and a small incentive (gift valued at less than $5). They were then called to complete a short telephone interview (about 20 minutes). Those participating in the interview were then sent another small incentive with a mailed self-administered questionnaire (SAQ). The option of completing the SAQ online (on the web) was offered and 40% did so. Of the 2,250 men and women who were invited to the study, 1,451 (64%) completed the telephone interview, and 1,009 (45%) provided data using the mailed SAQ (60%), or its equivalent online (40%). Approximately 14 months later, all participants received an announcement letter and a small incentive, inviting them to complete a follow-up SAQ, or its equivalent online. A follow-up period of one year was selected in order to provide enough time for the

long-term health effects of social stressors to develop and manifest. For example, Garst, Frese, and Molenaar (2000) found that the long-term effect of social stressors on psychological well-being manifests 12–24 months after stressor exposure. Similarly, a 4-wave longitudinal study that focused on job-related stressors and mental health demonstrated causal effects using a 1-year follow-up period (De Lange, Taris, Kompier, Houtman, & Bongers, 2004).

Of the 1,009 men and women completing the initial Time 1 (T1, June 2005) SAQ, 796 (79%) also completed the follow-up Time 2 (T2, September 2006) SAQ or its equivalent online (32% and 68%, respectively). We excluded 235 participants from the analyses due to missing data. Of the 235, 89% were excluded due to missing data on the outcome measure at T1 or T2, and 11% were excluded due to missing or invalid data on one or more of the control variables (e.g., deployment, neuroticism, and workload). This left us with a final sample of 561 participants of whom 52% were men and 48% women, 21% from Active Duty, 42% from Reserve and 37% from Guard.

Given the information received with the sample frame, we found that compared to the entire sample, participants were older, with a higher proportion of females, parents, and officers. However, these were relatively small biases with odd ratios that did not exceed 1.69. Participation rate in the T2 follow-up was biased only by age, but not by any of the T1 baseline measures. And, most importantly, when comparing individuals who were included in the final analysis to those who dropped out or were excluded, we found that none of the variables of theoretical interest (supervisor support; supervisor undermining; QWL; subjective health at T2 and job strain at T2) predicted participants' exclusion/inclusion in the analysis. This confirms an absence of sample attrition bias with respect to the variables of theoretical interest.

Measures

Independent variables.—*Supervisor Undermining and Support* (T1): social undermining from the immediate supervisor was assessed using a six-item measure (α = .90) developed and validated by Abbey and colleagues (Abbey, Abramis & Caplan, 1985) and extended by Vinokur and colleagues (Vinokur & Van Ryn, 1993; Vinokur, Price, & Caplan, 1996). Using five-point scales ranging from 1 (not at all) to 5 (a great deal), the items assessed the respondent's perception of being the target of actions by his/her immediate supervisor at the Air Force that directly undermine him/her (e.g., he/she "acts in an unpleasant or angry manner toward you"). Social support from the immediate supervisor of an employee was assessed using a five-item measure (α = .93), designed to tap emotional, appraisal, informational, and instrumental support (see Abbey et al., 1985; Vinokur, Schul, & Caplan, 1987, for validity details). Using five-point scales ranging from 1 (not at all) to 5 (a great deal), the items assessed the respondent's perception of being the target of supportive actions by his/her immediate supervisor at the Air Force (e.g., he/she "provides you with encouragement and reassurance when you need it").

We conducted confirmatory factor analyses (CFA) to assess the empirical basis for conceptualizing and assessing the effects of supervisor support and supervisor undermining as two separate dimensions as opposed to a single, overarching construct that encompasses

the two. The results of the analyses indicate that the two-factor model (GFI = 0.94, AGFI = 0.91, RMSEA = 0.08) fits the data significantly better than a single factor model (GFI = 0.89, AGFI = 0.84; RMSEA = 0.11) with $\Delta\chi^2 = 1519$, $\Delta df = 1$, $p < .001$. These findings are consistent with other studies, which found support for the notion that undermining and support are distinct constructs (e.g., Duffy et al., 2002; Vinokur, Price, & Caplan, 1996; Vinokur & van Ryn, 1993).

Dependent variables.—*Perceived Health* (T1 and T2) was assessed with a four-question measure ($\alpha = 0.78$) based on the Medical Outcome Study (MOS: Stewart & Ware, 1992). Participants were asked to answer the following questions: 'In general, would you say your health is excellent, very good, good, fair, or poor?' (1 = excellent, to 5 = poor); 'To what extent do you have any particular health problems?' (1 = never/no extent, to 5 = a very great extent); 'Thinking about the past 2 months, how much of the time has your health kept you from doing the kind of things other people your age do?' (1 = none of the time, to 5 = all of the time); and 'To what extent do you feel healthy enough to carry out things that you would like to do?' (1 = never/no extent, to 5 = a very great extent). The scoring of the first three items was reversed so that in all four items a higher score represents better health. *Job strain* (T1 and T2), or distress, was assessed with an eight-item measure ($\alpha = .86$), of which six were developed by Kandel and colleagues (Kandel, Davies, & Raveis, 1985) and also used by Frone, Russell, and Cooper (1992). The two additional items were added by Vinokur, Pierce and Buck, C. L. (1999) to represent aspects of distress in military jobs. The items assessed the degree of experiencing various daily emotional reactions on the job (e.g., relaxed, frustrated, fortunate, bothered or upset), using a four-point scale ranging from 1 (not at all) to 4 (very). The scores of the positive items were reversed.

Moderators.—*Quality of work-life* (T1) was assessed using a ten-item measure ($\alpha = .83$) developed by Andrews and Withey (1976). Respondents were asked to rate on seven-point scales their feelings (1 = terrible, to 7 = delighted) regarding various aspects of their work-life, such as the work itself, utilization of skills, the people they work with, pay, job security, chances for promotion, and the mission of the Air Force. *Self-esteem* (T1) was measured using the Rosenberg (1965) self-esteem scale (10 items, $\alpha = .89$). Participants were asked to indicate on a five-point scale ranging from 1 (strongly agree) to 5 (strongly disagree) how much they agree with various statements such as "I am able to do things as well as most other people." The scores of negatively worded items were reversed.

We assessed the construct validity of the two moderators, using confirmatory factor analysis (CFA). This analysis compared the fit of a four-factor model distinguishing among employee QWL, employee self-esteem, supervisor support and supervisor undermining compared with (a) a two-factor model distinguishing between the moderators (i.e., one construct encompassing both self-esteem and QWL) and the independent variables (i.e., one construct encompassing both supervisor support and undermining); and (b) a one-factor model encompassing all four constructs. The results indicate that the four-factor model ($\chi^2_{(428)} = 3242$; GFI = .96; AGFI = .95; RMSEA = .09) fits the data significantly better, than the two-factor model ($\chi^2_{(433)} = 6461$; GFI = .88; AGFI = .86; RMSEA = .13) ($\Delta\chi^2_{(5)} = 3219$; p

< .001) and the one-factor model ($\chi^2_{(433)}$ = 8582; GFI = .83; AGFI = .81; RMSEA = .15) ($\Delta\chi^2_{(6)}$ = 5340; p < .001).

Control Variables.—We controlled for constructs that have been shown in previous studies to be highly predictive of job strain and/or health and hence might confound our results. These control variables included gender (e.g., Green & Pope, 1999), T2 workload (e.g., Sluiter, de Croon, Meijman, & Frings-Dresen, 2003), neuroticism (e.g., Russo, Katon, Lin, Von Korff, Bush, Simon, & Walker, 1997), and whether or not the participant was deployed within the last 12 months (e.g., Hoge, Auchterlonie & Milliken, 2006). In the job strain model, we also controlled for perceived health at T1, to account for the possibility that poor health affects the perception and effects of stressful experiences at work (see Melamed, Shirom, Toker, Berliner, & Shapira, 2006 for review). In the perceived health model, we also controlled for financial strain, which explains health disparities (see Price, Choi, & Vinokur, 2002).

Work overload (T2) was assessed with a five-item measure (α = .84) developed by Frone, Russell and Cooper (1992). Respondents were asked to indicate how often they experience overload on their job at the air Force (e.g., “how often do you have too much work to do”), on five-point scales ranging from 1 (almost never or never) to 5 (almost always). *Neuroticism* (T1) was assessed with the 13-item Neuroticism Scale (α = .83) of the NEO Five Factor Inventory (NEO-FFI) and Personality Inventory (NEO-PI; Costa & McCrae, 1992). Respondents provided ratings on five-point scales ranging from 1 (strongly disagree) to 5 (strongly agree). *Financial Strain* (T2) was assessed with a measure based on three items (α = .80, Barrera, Caples, & Tein, 2001; Vinokur & Caplan, 1987). Respondents were asked to use five-point scales ranging from 1 (not at all) to 5 (a great deal) to rate their current and anticipated economic hardship, which included difficulties living on their household income and experiencing a reduced standard of living.

Data Analysis Procedure

We tested our hypotheses separately for job strain (Table 2) and perceived health (Table 3) as the outcomes. For each outcome, we tested five hierarchical models. Model 1 (i.e., the control model) includes the control variables, and the baseline measures (T1) of the outcome. Controlling for baseline measures (T1) of the outcome is highly recommended in the case of longitudinal panel data (Rugosa, 1980). Model 2 (main effects model) also includes the main effects of the independent variables (i.e., supervisor support and supervisor undermining) and moderators (i.e., self-esteem and QWL). In Model 3 we included the two-way interaction of supervisor support and supervisor undermining, and in Model 4 we added all the other two-way interactions that are nested within the three-way interactions of primary interest. Model 5 (i.e., the three-way interaction model), includes the two three-way interactions: one between supervisor support, supervisor undermining, and self-esteem; and the other between supervisor support, supervisor undermining, and QWL. Our hypotheses were tested based on these three-way interactions, which assess the extent to which the effect of the interplay between supervisor support and undermining (both at T1) on job strain and on perceived health (both at T2) varies as a function of employee self-esteem and QWL (both at T1). In order to interpret these three-way interactions, we

estimated the simple slopes (Aiken & West, 1991) of supervisor undermining under various conditions of supervisor support and employee self-esteem (see Figure 1) and under various conditions of supervisor support and employee QWL (see Figure 2).

Results

Table 1 presents the means, standard deviations and the correlations among the study variables. The results presented in Table 1 show that greater levels of supervisor undermining at T1 are significantly associated with increased job strain at both T1 and T2 (respectively, $r = .47, .28$; $p < .001$), as well as with reduced health at T1 and T2 (respectively, $r = -.09, -.12$; $p < .01$, $p < .001$). This supports the conceptualization of supervisor undermining as a stressor, demonstrating its prediction of immediate as well as long-term job strain and poor health. Additionally, examination of the joint distribution of supervisor support and undermining reveals that 56% of study participants rated their immediate supervisor as being (to varying degrees) both supportive and undermining. Of these, 50% (28% of total study sample) reported that their supervisor exhibits a relatively high degree (above sample median) of both supportive and undermining behaviors. This supports the idea that supervisor support and undermining often co-exist within the same supervisor-subordinate relationship.

Table 2 (for job-train as the outcome) and Table 3 (for perceived health as the outcome) present the results with respect to our analytical models. The results of Models 2 and 3 of Table 2 indicate that while the main effects of T1 supervisor support ($b = .02$, *ns*) and undermining ($b = .003$, *ns*) on job strain at T2 are not significantly different from zero (Model 2 of Table 3), the effect of the two-way interaction between supervisor support and undermining on job strain (Model 3 of Table 2) is positive and significantly different from zero ($b = 0.06$, $p < .05$). Simple slopes analysis with respect to this interaction reveals that the effect of supervisor undermining on job strain is positive (i.e., harmful) and marginally significant under conditions of high supervisor support (1SD above the sample mean, $b = .15$, $p < .10$). The effect of supervisor undermining on job strain was not significantly different from zero under conditions of low supervisor support (1SD below the sample mean, $b = 0.01$, *ns*). These results suggest an overall stress-exacerbation effect, in that supervisor support at T1 was found to intensify the positive (i.e., harmful) effect of supervisor undermining at T1 on job strain at T2. With respect to perceived health as the outcome, the results of Models 2 and 3 of Table 3 indicate that the main effect of supervisor undermining at T1 on perceived health at T2 (Model 2) is negative and significantly different from zero ($b = -.08$, $p < .05$). However, the main effect (Model 2) of supervisor support at T1 on perceived health at T2 ($b = -.01$, *ns*) as well as the two-way interaction (Model 3) between supervisor support and undermining ($b = -.04$, *ns*) yielded no statistical significance. These results suggest an overall adverse effect of supervisor undermining on perceived health, but no overall effect of supervisor support and no overall interactive effect of supervisor support and undermining.

Concerning Hypothesis 1, which suggests a three-way interaction between employee self-esteem, supervisor undermining and supervisor support, the results in model 5 of Table 2 (T2 job strain as the outcome) and Table 3 (T2 perceived health as the outcome) show

significant three-way interaction effects ($b = -.16$, $p < .05$, for job strain; $b = .28$, $p < .001$, for perceived health). The effect sizes (η^2) of these three-way interactions were .01. The simple slopes with respect to these three-way interactions are presented in Figure 1. More specifically, *for employees with high self-esteem*, the simple slopes analyses indicate that under conditions of low supervisor support, increased levels of supervisor undermining significantly increased job strain (Figure 1a: $b = .13$, $p < .05$), and reduced perceived health at T2 (Figure 1b: $b = -.14$, $p < .05$); whereas under conditions of high supervisor support, increased levels of supervisor undermining were not significantly related to either job strain or perceived health at T2 (Figure 1a and 1b for job strain and perceived health respectively: $b = -.11$, *ns*; $b = .13$, *ns*). These results support hypothesis 1a, demonstrating that for employees with high self-esteem, supervisor support buffers the adverse effects of supervisor undermining on job strain and health. In other words, for employees with high self-esteem, the significant adverse effects of supervisor undermining at T1 on employee job strain and health at T2 was attenuated to the extent that supervisor support at T1 was high.

For employees with low self-esteem, the simple slopes analyses indicate that under conditions of low supervisor support, supervisor undermining was not significantly related to either job strain or perceived health at T2 (Figure 1a and 1b for job strain and perceived health respectively: $b = .02$; $b = .03$, *ns*); whereas under conditions of high supervisor support, supervisor undermining was significantly predictive of an increase in job strain (Figure 1a: $b = .53$, $p < .05$) and a reduction in health at T2 (Figure 1b: $b = -.85$, $p < .01$). These results support hypothesis 1b, demonstrating that for employees with low self-esteem, supervisor support exacerbates the adverse effects of supervisor undermining on job strain and health. In other words, for employees with low self-esteem, the adverse effects of supervisor undermining at T1 on employee job strain and health at T2 was intensified to the extent that supervisor support at T1 was high. In conclusion, the results fully support Hypothesis 1 with respect to both job strain and perceived health as outcomes.

Concerning Hypothesis 2, which suggests a three-way interaction between employee quality of work-life, supervisor undermining and supervisor support, the results in Model 5 of Table 2 (for job strain as the outcome) and Table 3 (for perceived health as the outcome) show a significant three-way interaction effect for job strain ($b = -.10$, $p < .01$), but not perceived health ($b = -.07$, *ns.*)[1]. The effect size (η^2) for the three-way interaction effect on job-strain was .02. The simple slopes with respect to the three-way interaction effect on job strain are presented in Figure 2. More specifically, *for employees with high QWL*, the simple slopes analyses indicate that under conditions of low supervisor support, increased levels of supervisor undermining were significantly associated with increased job strain at T2 (Figure 2: $b = .20$, $p < .01$); whereas under conditions of high supervisor support, increased levels of supervisor undermining were not significantly related to job strain at T2 (Figure 2: $b = -.10$, *ns*). These results support hypothesis 2a, demonstrating that for employees with high QWL,

[1]Model 5 of Table 3 shows two significant two-way interactions between supervisor support and QWL ($b = -.09$, $p < .01$), and between supervisor undermining and QWL ($b = -.21$, $p < .01$). However, these interactions were found to be statistically insignificant once the three-way interaction involving QWL was removed from the model. Hence, the robustness of these findings is questionable. Model 6 of Table 3 presents the results for a reduced three-way interaction model with respect to perceived health as the outcome. In this model, all interactions involving employee QWL were removed to assess the robustness of the findings with respect to the moderating effect of self-esteem.

supervisor support buffers the adverse effects of supervisor undermining on job strain. In other words, for employees with high QWL, the significantly adverse effects of supervisor undermining at T1 on employee job strain at T2 was attenuated to the extent that supervisor support at T1 was high.

For employees with low quality of work-life, the simple slopes analyses indicate that under conditions of low supervisor support, supervisor undermining was not significantly related to job strain at T2 (Figure 2: $b = -.06$, *ns)*; whereas under conditions of high supervisor support, supervisor undermining was significantly predictive of an increase in job strain at T2 (Figure 2: $b = .38$, $p < .01$). These results support hypothesis 2b, demonstrating that for employees with low QWL, supervisor support exacerbates the adverse effects of supervisor undermining on job strain. In other words, for employees with low QWL, the adverse effects of supervisor undermining at T1 on employee job strain at T2 was intensified to the extent that supervisor support at T1 was high. In conclusion, the results fully support Hypothesis 2 with respect to job strain, but not with respect to perceived health.

Overall, with respect to job strain at T2 as the outcome, the three-way interaction model (Model 5 of Table 2) explained 52% of the variance, which is an 18%[2] increase in the variance explained by the control model (Model 1 of Table 2). With respect to perceived health at T2 as the outcome, the three-way interaction model (Model 5 of Table 3) explained 48% (47% for the reduced model) of the variance, which is a nearly 7% (4% for the reduced model: Model 6 of Table 3) increase in the variance explained compared with the control model (Model 1; Table 3).

Missing data and Validity of Results

To ensure that our results were not biased by missing data, and are consistent across multiple imputed datasets, we replicated our analyses using Multiple Imputation (Rubin, 1996; Schafer, 1999). For generating the imputed data sets we used the Imputation and Variance Estimation Software (IVEware: http://www.isr.umich.edu/src/smp/ive/). This software uses a multivariate sequential regression procedure that is useful for imputing missing values in a variety of complex data structures involving many types of variables (for more details see Raghunathan, Reiter & Rubin, 2003, as well as Allison, 2003; Graham et al., 2006). We generated 25 imputed datasets and estimated the pooled three-way interaction effects across the 25 datasets. Confidence Intervals were generated for each of the three-way interaction effects to assess whether each is significantly different from zero across the 25 imputed datasets.

With respect to job strain at T2 as the outcome, the results indicated that the three-way interaction of QWL, supervisor undermining and supervisor support was significantly different from zero across the 25 imputed dataset (estimated average effect = −0.08; upper limit .95 CL = −0.01; lower limit .95 CL = −0.16). However, the interaction of self-esteem, supervisor support and supervisor undermining across the 25 imputed datasets was not significantly different from zero (estimated average effect = −0.07; upper limit .95 CL = 0.05; lower limit .95 CL = −0.20). Thus, the results indicate that with respect to job strain as

[2]·Relative increases in R-square were calculated by R^2_{Full}-$R^2_{Reduced}$/$R^2_{Reduced}$

the outcome, the moderating effect of QWL showed consistency across multiple imputed datasets, while the moderating effect of self-esteem did not. With respect to perceived health as the outcome, consistent with the results obtained in the original (non-imputed) data, the three-way interaction of self-esteem, supervisor support and supervisor undermining was significantly different from zero across the 25 imputed datasets (estimated average effect = 0.12; upper limit .95 CL = 0.23; lower limit .95 CL = 0.002), while the interaction with QWL was not significantly different from zero. This indicates that the results with respect to perceived health as the outcome are consistent across multiple imputed datasets, providing support for the convergent validity of our results.

Supplementary Studies

To assess the replicability and practical significance of our results, we conducted secondary data analysis from two additional studies of the US military. In both studies sampling procedures, measurements and analysis procedures were similar to the current study (which we refer to as Study 1) with any exception described below. Here, we provide a brief summary of the two studies and the key results. A more detailed presentation of the results is provided in Appendix 1.

Study 2: Replication.

This study concerned the mental health and retention of military men and women in the Army deployed between October 2001 and January 2007. This dataset included measurements similar to Study 1 with the exception of self-esteem. Hence, we used this data to assess the replicability of our results, substituting the self-esteem measurement with a measurement of self-mastery.

Sample.—1,800 men and women were invited to participate in the study, and 814 (45%) completed a telephone interview. Of those, 586 (72%) completed the initial Time 1 (T1, January 2007) questionnaire (mailed or online), and 462 (81%) also completed the 12-month follow-up Time 2 questionnaire (mailed or online).

Measures.—Because this dataset did not contain assessment of self-esteem, we used a measure of self-mastery as a proxy. Self-mastery reflects the general sense of personal control and confidence in one’s ability to influence forces affecting one's life (Pearlin & Schooler, 1978), and is highly correlated with self-esteem (Scheier, Carver & Bridges, 1994). Self-mastery was measured with seven items (Pearlin, Menaghan, Lieberman & Mullan, 1981; e.g., “I can do just about anything I really set my mind to do”; α=.81) on a scale from 1 (strongly disagree) to 5 (strongly agree).

Analysis.—We used an analysis similar to that used in Study 1, with the exception of employee self-mastery being the moderator instead of employee self-esteem.

Results.—In this study, 70% of the participants rated their supervisor as being (to varying degrees) both supportive and undermining. Of these, 47% (32% of total sample) rated their supervisor as exhibiting a relatively high degree (above sample median) of both supportive and undermining behaviors. Concerning our hypotheses, the results with respect to job strain

were similar to those obtained in Study 1, indicating that the three-way interaction of supervisor support, supervisor undermining and QWL ($b = -0.21$, $p<.05$) as well as the three-way interaction of supervisor support, supervisor undermining and self-mastery ($b = -0.17$, $p<.01$) were significantly different from zero and in a direction similar to that found in the original study. With respect to perceived health at T2, consistent with the results obtained for Study 1, the interaction of supervisor support, supervisor undermining and QWL was not significantly different from zero ($b = -0.02$, ns); whereas the interaction of supervisor support, supervisor undermining and self-mastery was significantly different from zero and in a direction similar to that found in Study 1 ($b = 0.08$, $p<.05$).

Consistent with Study 1, the simple slopes analysis indicated that supervisor support significantly buffers the adverse effect of supervisor undermining in the case of high QWL (for job-strain at T2 as the outcome) and significantly exacerbates this effect under conditions of low self-mastery (for perceived health as the outcome).

Study 3: Practical significance of the results.

This study concerned the physical health of military women in the Air Force deployed in Operation Iraqi Freedom (OIF) between October 2001 and March 2005. This data included more detailed and less subjective measurements pertaining to medical conditions and illnesses that were not included in Study 1. This study did not contain a measurement of self-esteem. To assess the practical significance of our results, we assessed the interactive effect of supervisor support, supervisor undermining and QWL on Physical Symptoms at T2.

Sample.—2,250 women were invited to participate and 1,477 (66%) completed a telephone interview. Of those, 1,114 (75%) completed the initial Time 1 (T1, March 2005) questionnaire (mailed or online), and 898 (81%) also completed the 12-month follow-up Time 2 questionnaire (mailed or online).

Measures.—The physical health symptoms were measured with a 42-item checklist (e.g., weakness, loss of appetite, insomnia) developed and validated by RAND Corp. (1997).

Analysis.—We used analysis procedures similar to those described in Study 1, with two exceptions: (a) we did not control for self-esteem, which was not measured in the study; and (b) we used Poison regression (with log link function), given that physical symptoms is a count outcome, and controlled for physical symptoms at T1 by including it as an offset variable and as a covariate in the analysis (see Venables & Ripley, 2002 for justification).

Results.—In this study, 60% of the participants rated their supervisor as being (to varying degrees) both supportive and undermining. Of these, 45% (28% of total sample) rated their supervisor as exhibiting a relatively high degree (above sample median) of both supportive and undermining behaviors. Concerning our hypotheses, the results indicated that the interaction of supervisor support, supervisor undermining and QWL was significantly different from zero (Estimate = −.12; $SE = 0.02$; $p<.001$). The simple slopes analysis of this significant three-way interaction showed results that are generally consistent with those obtained from our primary study (Study 1). For *employees with high QWL*, the simple

slopes analyses indicate that under conditions of low supervisor support, increased levels of supervisor undermining was significantly associated with increased physical symptoms at T2 ($b = 0.20$; $p<.001$); whereas under conditions of high supervisor support, increased levels of supervisor undermining were not significantly related to increased physical symptoms at T2 ($b = -0.06$, *ns*). *For employees with low QWL,* the simple slopes analyses indicate that under conditions of low supervisor support, supervisor undermining was not significantly related to increased physical symptoms at T2 ($b = .03$, *ns*); whereas under conditions of high supervisor support, supervisor undermining was significantly associated with increased physical symptoms at T2 ($b = .24$, $p<.05$).

Overall, these results support hypotheses 2a and 2b, demonstrating that for employees with high QWL, supervisor support buffers the adverse effects of supervisor undermining on employee health; whereas for employees with low QWL, supervisor support exacerbates the adverse effects of supervisor undermining on employee health. In terms of practical significance, the simple slopes analysis indicates that under conditions of low QWL and high supervisor support, any one unit increase in supervisor undermining will add 1.2 physical symptoms to those physical symptoms experienced by the employee. Because physical symptoms included weakness, loss of appetite, and insomnia, such increase can be deemed practically/clinically significant.

Discussion

The results of the current study support our proposed uncertainty-capacity framework for explaining the varying effects of supervisor support as a factor that buffers or exacerbates the adverse effects of supervisor undermining. Specifically, the results fully support our first set of hypotheses regarding the moderating effects of employee self-esteem as a key personal coping resource. Findings demonstrated that for employees with high self-esteem, supervisor support buffered the adverse effects of supervisor undermining on employee job strain and perceived health; whereas for employees with low self-esteem, supervisor support exacerbated these adverse effects. Results fully supported our second set of hypotheses, regarding the moderating effect of employee quality of work-life as a key external coping resource, with respect to job strain as the outcome, but not with respect to perceived health. However, the results of Study 3 demonstrated a strong moderating effect of QWL with physical health symptoms as the dependent variable. It is possible that the measure of physical symptoms is a more sensitive indicator of health compared to perceived health. Once again, for employees with high QWL, supervisor support was found to buffer the adverse effects of supervisor undermining; whereas for employees with low QWL, supervisor support was found to exacerbate these adverse effects.

These results make significant theoretical and practical contributions. Theoretically, these results support our uncertainty-capacity framework, which aimed to shed new light on contradictory findings in the literature with respect to the buffering effect of supervisor support on the adverse effect of supervisor undermining. This framework integrates two theoretical perspectives, namely uncertainty-management (see Lind & Van den Bos, 2002; Thau et al., 2007; Van den Bos & Lind, 2002) and coping-theory (Lazarus, 1993), to suggest that the mixture of support and undermining from the same supervisor reflects inconsistent

supervisory behaviors that increase uncertainty regarding the intentions and trustworthiness of the supervisor. It suggests that employees must manage such uncertainty in order to maintain their well-being (Lind & Van den Bos, 2002; Uchino & Birmingham, 2010; Uchino et al., 201; Van den Bos & Lind, 2002). Hence, whether supervisor support buffers or exacerbates the adverse effects of supervisor undermining depends on employee capacity to resolve and manage the uncertainty inherent in these behaviors.

These results also shed new light on how the personal and social context might shape an employees' experience of work-related relational uncertainty. Our uncertainty-capacity framework conceives of self-esteem and QWL as internal and external factors, respectively, that play a key role in shaping employee capacity to resolve and manage relational uncertainties with one's supervisor. In this case, our framework, and the associated findings, provide strong support for McNulty and Fincham's (2012: 101; 106) call for researchers to "…move beyond examining the main effects of traits and processes that may promote well-being on average to study the factors that determine when, for whom, and to what extent… the same traits and processes may promote versus threaten well-being." This idea is also echoed in related cognitive-based conceptual frameworks (Fincham, 2003; Grych & Fincham, 1990; Reis, Collins, & Berscheid, 2000), which suggest that relational processes or experiences, such as social support, are not inherently positive or negative — "whether they have positive or negative implications depends on the context in which they operate." (McNulty and Fincham's (2012; p.107).

Beyond the mixture of supervisor support and undermining, the proposed framework can be further tested and extended in future studies to explain the implications of other uncertainty-generating events and circumstances in the workplace. For example, our theory can be used to reconcile the ongoing debate concerning the implications of competition (see Fletcher, Major & Davis, 2008 for review). More specifically, from an uncertainty-capacity point of view, the extent to which the uncertainty resulting from competitive situations (or relations) will lead to experienced stress (Beehr, 2001; Tetric & LaRocco, 1987) might vary depending on personal and contextual factors pertaining to employee ability to cope with such uncertainty. Similarly, our framework can also be used to explain how the consequences of non-relational factors that generate uncertainty in the workplace, such as job insecurity and anticipation of organizational changes, might vary depending on the personal and social context within which these uncertainties occur (Bordia et al., 2004; Hui & Lee, 2000). Thus, the proposed integration between uncertainty management and coping theory can lay the groundwork for the development of a more general context-based theory of employee reactions to workplace uncertainty.

Strengths, Limitations and Directions for Future Research

The analyses and results reported in this study have some key strengths. They are based on a large stratified probability sample from the entire Air Force using baseline and 12-month follow-up measures. And for the most part, they were replicated using similar samples from two other independent studies, one of which included personnel from the U.S. Army. Nevertheless, below we indicate several important shortcomings of the present analysis that

should be considered and conclude this section with a discussion of the unique contributions of the current study to future research.

First, all of our results are based on data collected with self-reported measures, and as such should be regarded with caution. Additionally, given the correlational design of the current study, our findings have limitations with respect to the causal direction of the proposed effects. For example, it is possible that in the current study support exacerbated the harmful effect of undermining for employees with low self-esteem due to the submissive victim tendencies of individuals with low self-image who are more likely to experience and report receiving more undermining from their supervisor (Aquino & Lamertz, 2004). However, in our study, the correlation between supervisor undermining and self-esteem was relatively small ($r = -.08$; $p < .10$). Moreover, in our analyses we controlled for neuroticism, which is highly predictive of submissive behaviors and tendencies (Mehrabian & O'Reilly, 1980; Mehrabian & Weinstein, 1985). This reduces the possibility that the moderating effect of self-esteem was due to the submissive tendencies of employees with low self-esteem.

Still, it is possible that our results provide a restricted view of the causal direction between the assumed predictors (e.g., social support) and the outcomes (e.g., perceived health). Although the study provided results based on a two-wave panel study regarding the effects of support and undermining on job strain and health, it is important that future studies investigate the possibility of reciprocal causal effects as well. That is, it is quite possible that employees who are in poor health exhibit poor performance, thereby drawing their supervisors to provide more support to ameliorate performance deficits, but also to exhibit more anger and criticism regarding the employee's poor performance, and therefore engage in more undermining behaviors toward employees (Lepine & van Dyne, 2001; Tepper et al., 2011). Future longitudinal designs with multi-wave data collections might enable a more comprehensive investigation of reciprocal causations, one that captures the more dynamic association between supervisor behaviors and employee health and well-being.

Second, the length of exposure to inconsistent supervisory behaviors that produces the effects shown in the current study remains unknown. Given empirical evidence suggesting that consistent or accumulated stressor exposure plays a role in predicting health and well-being (e.g., Kivimäki et al., 2011; Wang, Schmitz, Dewa & Stansfeld, 2009), we conducted secondary data analyses to assessed the extent to which the levels of support and undermining varied between T1 and T2. Repeated measurement analysis indicated no significant time effect (representing the difference between the two time points) with respect to supervisor support ($b = .05$, $SE = .06$, *ns*) and undermining ($b = .003$, $SE = .04$, *ns*). While this indicates consistency with respect to stressor exposure between the two data collection waves, longitudinal studies (with additional time points) are needed in order to better understand how time-varying exposure to supervisor support and undermining affects employee health and well-being. Moreover, further research is required in order to determine whether our results are consistent across different lags between data collection waves.

Third, while our second set of hypotheses, concerning the moderating effect of QWL, was supported with respect to job strain as the outcome, it was not fully supported with respect to employee perceived health as the outcome. Moreover, analyses based on missing data

imputation techniques suggested that while the results for self-esteem as the moderator were robust for perceived health, they were not robust for job-strain as the outcome. It is possible that because QWL is a coping resource relating primarily to the work domain, it has direct implications for employee reactions to job-related stressors and their effects (i.e., job strain), while having more distal, indirect effects with respect to the general health of employees (Sluiter et al., 2003). In contrast to the domain compatibility of QWL with job strain, self-esteem is a broad construct referring to the person as a whole and therefore more compatible in its scope with the broad construct of the person's perceived health than with the narrow domain of job strain. It is therefore more likely to have an effect on general health than on job strain.

Finally, our findings have potential limitations regarding external validity because of the unique characteristics of the military service that is shared by all the respondents of our study (Cameron, 1998). For example, serving in the armed forces might be associated with positive benefits (see Dar & Kimhi, 2001; Woodruff, Kelty & Segal, 2006) which might lead to a sample of employees with relatively high QWL and self-esteem. Still, the levels of QWL (i.e., 1.22 scale points above the mid-point of the scale) and self-esteem (i.e., 1.28 scale points above the mid-point of the scale) in our sample are similar to those reported in other studies of QWL (e.g., S. G. Cohen, Ledford, & Spreitzer, 1996; Huang, Lawler, & Lei, 2007) and self-esteem (Dekker & Barling, 1998; Cohen, Nahum-Shani & Doveh, 2010). Hence, it is less tenable that our results are biased due to the unique characteristics of employees in the armed forces and their work environment.

Despite the limitations noted above, the uncertainty-capacity framework proposed here opens the door to future research that further explores the moderating role of employee capacity to tolerate and manage the relational uncertainty emanating from inconsistent supervisory behaviors. The need for such research is evident given that the current study found a high prevalence of employees (56%-70%) having supervisors who are both supportive and undermining. Further research in this area should proceed and delve into the factors that possibly enhance employee ability to gain control over the work environment and hence ameliorate work-related relational uncertainty. For example, sense-making practices that clearly define employee work contributions (Van Dyne, Kossek & Lobel, 2007) and other procedural justice practices (Trevor & Nyberg, 2008) are likely to improve employee ability to resolve and manage relational uncertainties with peers and authorities. Another direction for research is a focus on supervisor factors that contribute to employee sense of structure and predictability. Research on supervisor attributes and behaviors, such as charisma (see Waldman, Ramírez, House, & Puranam, 2001), setting clear expectations and goals (see O'Driscoll & Beehr, 1994), and authoritarian management style (see Thau, Bennett, Mitchell & Marrs, 2009), might reveal that these factors likely attenuate the relational uncertainty embedded in the mixture of supervisor support and undermining.

Implications for Management and Policy

In recent years, practitioners increasingly view the availability of social support, and especially support from the supervisor, as a key coping mechanism having the potential to mitigate the negative impact of various stressful job situations (Beehr et al., 2000;

Viswesvaran, Sanchez, & Fisher, 1999). Accordingly, increased attention is given to promoting supportive work environments and encouraging supportive supervisory practices (Schaubroeck, Lam, & Xie, 2000). However, the results of the current study suggest that when the supervisor behaves in an undermining manner, receiving support from the same supervisor can protect employees from the adverse effects of undermining only when the employee has a high capacity to manage the uncertainty that is inherent in the mixture of these two types of behaviors. When the employee has low uncertainty-capacity, supervisor support might instead increase the employee's vulnerability to the adverse effects of supervisor undermining. Thus, paradoxically, interventions that encourage supervisors to provide support indiscriminately, that is, without regard to other types of behaviors that they exhibit, and also to the coping capacity of the employees, may not help, or may even harm certain employees.

In the same vein, research by Pearson and Porath (2005) suggests that supervisors might accompany social undermining, which they often attribute to stress or lack of training, with social support in efforts to compensate the employee and make amends. However, as the results of the current study suggest, while such compensation strategies might buffer the adverse effects of undermining for some employees, for others with low capacity to resolve and manage uncertainty, such strategies might be detrimental. Accordingly, more carefully designed interventions to mitigate the effects of supervisor's undermining should focus on increasing the awareness of both employees and supervisors, not only of the existence of undermining behavior in the workplace and the need to avoid it, but also of the possibility that sending mixed signals to the employee by exhibiting both supportive and undermining behaviors can be extremely harmful to some employees. In other words, the training of supervisors should not only focus on encouraging civil treatment of employees, but also on being mindful about behaviors that send mixed signals to the employees, and resolving interpersonal conflicts and misunderstandings in a way that does not jeopardize employees' sense of predictability and control (Pearson & Porath, 2005). Moreover, it is important to develop training programs for employees, helping them to identify and interpret apparent inconsistencies in supervisory behaviors, and to learn effective strategies for managing relational uncertainties. Such strategies might include effective ways of seeking information in the work environment to resolve the uncertainty or reduce its potential threats (e.g., by approaching the supervisor, peers, and mentors; Miller & Jablin, 1991). Our findings based on three different samples of military employees further stress the need to design such interventions, demonstrating a high prevalence rate (ranging from 56% to 70%,) of employees whose supervisors engage in both supportive and undermining behaviors.

Finally, given that in many work-related contexts (and especially in competitive organizational contexts: Eriksson, K., & Sharma, 2003), relational uncertainty might be the rule rather than an exception (Walter, Kellermanns & Lechner, 2012; Yagil, 2006), our findings call for the development of work-based practices and interventions aimed at improving employee capacity to cope with relational and other work-related uncertainties. As suggested by our findings, this can be done by enhancing aspects pertaining to the employee quality of work life, such as promoting a sense of community in the workplace (Truchot & Deregard, 2001), implementing better reward systems (Chenhall, & Langfield-Smith, 2003), and taking actions to enhance procedural justice (Aryee, Budhwar & Chen,

2003) and value congruence (Maslach & Leiter, 2008). Similarly, organizational effort should focus on enhancing employee self-esteem via regular provision of positive reinforcement (e.g., personal recognition, public acknowledgement of good performance: Bagozzi, 1980), affirmation that the employee is valued, accepted and respected (Holmvall, & Bobocel, 2008), and opportunities for demonstrating competence and experiencing personal growth (Johnson, 2002). Moreover, beyond the quality of work-life and self-esteem, the coping capacity of an employee might be enhanced by providing more opportunities to exert control in the workplace, including more flexibility in work schedule (Nahum-Shani & Bacharach, 2011b), enhancing employee autonomy and self-determination (Skinner, 1996) and enhancing skills and competencies through training (Adobor, 2004).

In conclusion, the current study suggests that employees differ in their reactions to relational uncertainties in ways that affect their well-being. It demonstrated that the characteristics of the individual (e.g., self-esteem) and his/her work environment (e.g., quality of work-life) shape how the employee experiences the mixture of support and undermining from the same supervisor. Future research needs to improve our understanding of other characteristics of employees with deficits in uncertainty capacity and further explore what can be done to minimize their experience of uncertainty or bolster their capacity to manage the uncertainty (e.g., improving aspects pertaining to the quality of work life). Such research is likely to provide valuable insights into how managers and policy makers could minimize the dysfunctional consequences of inconsistent supervisory behaviors (Thau et al., 2007).

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Appendix 1:: Results for Study 2 and Study 3

	Study 2		Study 3
Model	**Job-Strain**	**Perceived Health**	**Physical Symptomes**
Intercept	2.38 (.53)***	1.76 (.32)***	.86 (.11)***
Perceived Health T1/Physical Symptoms T1	−.11 (.05)	.77 (.04)***	−.93 (.002)***
Workload T2	.11 (.07)	−.08 (.05)	.14 (.02)***
Neuroticism T1	−.12 (.10)	−.17 (.06)**	−.04 (.04)
Deployment in past 12 months T2			.06 (.08)
Male (=1)	−.08 (.09)	.02 (.06)	
Job Strain T1	.11 (.12)		
Financial Strain T2			.11 (.02)***
Supervisor Undermining T1	.06 (.11)	−.03 (.07)	.10 (.04)**

	Study 2		Study 3
Model	**Job-Strain**	**Perceived Health**	**Physical Symptomes**
Supervisor Support T1	−.03 (.06)	−.04 (.04)	.02 (.02)
Support*Undermining	−.02 (.07)	.001 (.04)	−.01 (.02)
QWL T1	−.26 (.10)**		−.14 (.03)
Self-Mastery T1 (SM)	−.05 (.08)	−.04 (.05)	
Support*QWL	.94(.07)		.07 (.02)**
Undermining*QWL	−.03 (.15)		−.04 (.05)
Support*Undermining*QWL	−.24 (.08)** η^2 =.04		−.12 (.03)***
Support*SM	−.003 (.05)	.06 (.03)*	
Undermining*SM	−.09 (.10)	.15 (.06)**	
Support*Undermining*SM	−.17 (.06)** η^2 =.04	.08 (.04)* η^2 =.02	
Simple Slopes of Supervisor Undermining for QWL as a moderator			
Low QWL Low Supervisor Support	−.37 (.20)		.03 (.03)
Low QWL High Supervisor Support	.70 (.44)		.20 (.05)***
High QWL Low Supervisor Support	.55 (.28)*		.24 (.10)*
High QWL High Supervisor Support	−.49 (.40)		−.06 (.09)
Simple Slopes of Supervisor Undermining for SM as a moderator			
Low SM Low Supervisor Support	−.23 (.20)	−.06 (.10)	
Low SM High Supervisor Support	.66 (.45)	−.52 (.26)*	
High SM Low Supervisor Support	.26 (.14)	−.02 (.05)	
High SM High Supervisor Support	−.28 (.19)	.21 (.13)	

Standeard Errors are reported in paranthesis; η^2 corresponds to partial eta squared effect size, with 0.01=small; 0.06=medium; 0.14=large (Cohen, 1988).

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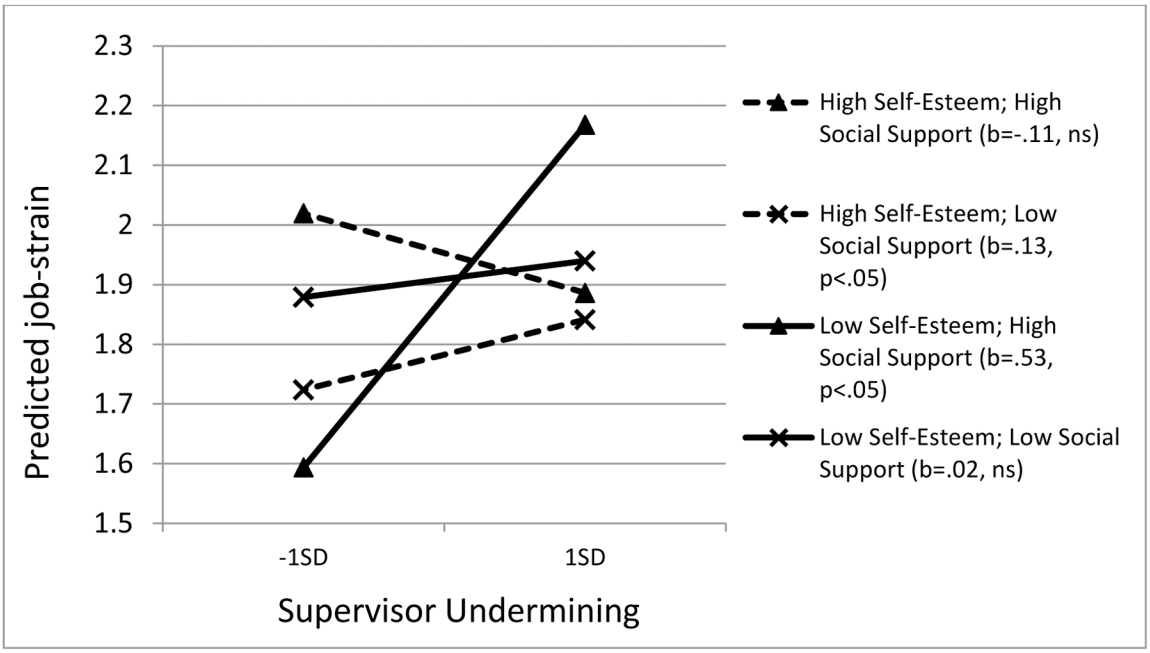

Figure 1a.

Simple slopes analysis for the effect of supervisor undermining on job strain under various conditions of supervisor support and employee self-esteem.

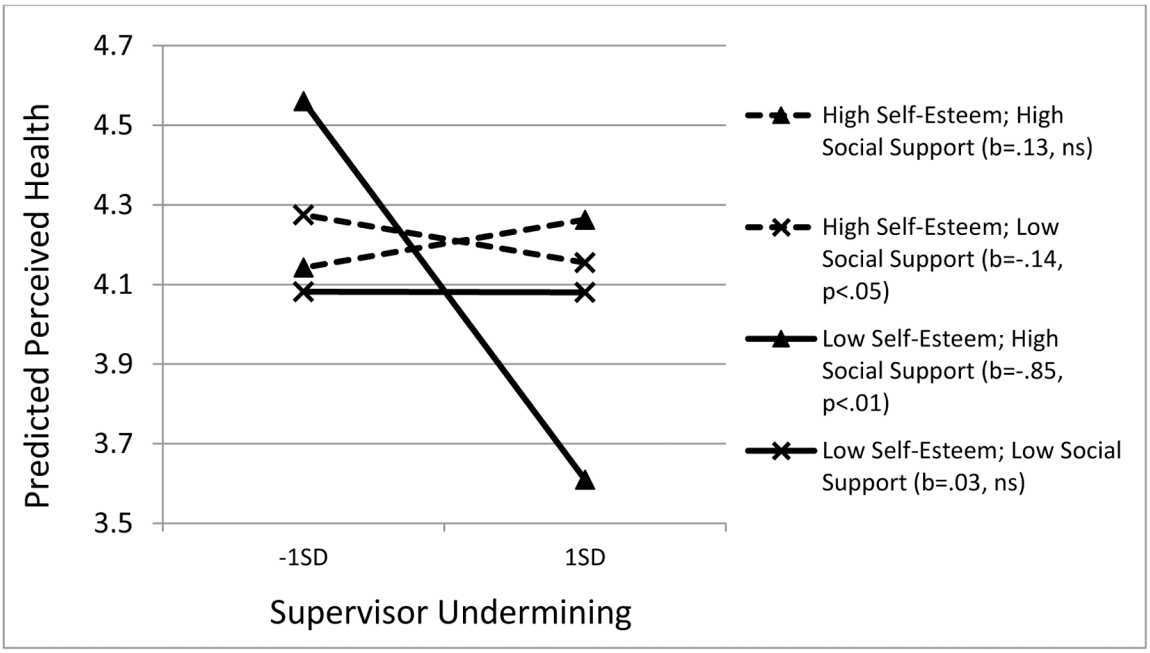

Figure 1b.

Simple slopes analysis for the effect of supervisor undermining on perceived health under various conditions of supervisor support and employee self-esteem.

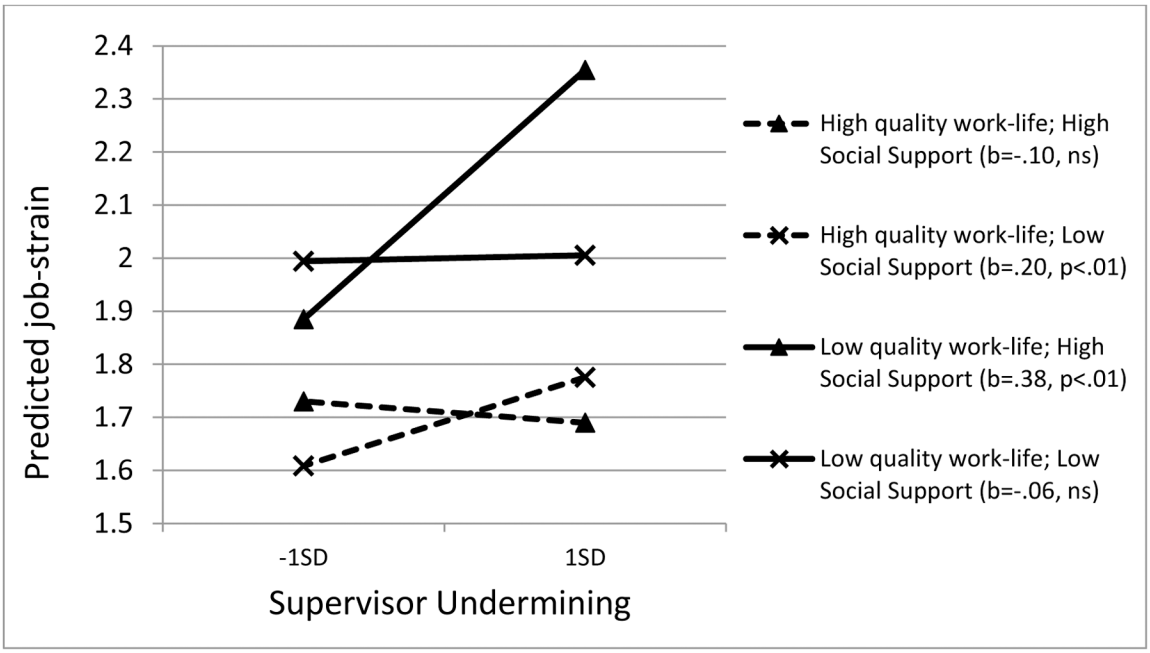

Figure 2.

Simple slopes analysis for the effect of supervisor undermining on job strain under various conditions of supervisor support and employee quality of work-life.

Table 1

Means, Standard Deviations and Correlations among Study Variables

Variable name	**M**	**SD**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1) Supervisor Undermining (Time 1)	1.43	.68												
2) Supervisor Support (Time 1)	3.43	1.09	−.58											
3) General Health (Time 1)	4.15	.63	−.09	.11										
4) General Health (Time 2)	4.11	.69	−.12	. 11	.66									
5) Job Strain (Time 1)	1.81	.55	.47	−.51	−.19	−.19								
6) Job Strain (Time 2)	1.89	.59	.28	−.30	−.23	−.30	.62							
7) Quality of Work-life (Time 1)	5.22	.78	−.34	.46	.25	.23	−.64	−.55						
8) Self-Esteem (Time 1)	4.28	.57	−.09	.19	.24	.24	−.28	−.23	.29					
9) Gender (Male=1, Female=0)	.52	.50	−.02	.04	.05	.04	−.08	−.11	.02	.02				
10) Workload (Time 2)	2.40	.74	.13	−.12	−.08	−.09	.25	.33	−.10	−.04	−.04			
11) Neuroticism Scale (Time 1)	2.21	.51	.14	−.19	−.31	−.28	.39	.30	−.32	−.62	−.20	.08		
12) Deployed past 12 mos (1=yes, 0=no)	.42	.49	−.01	−.01	−.05	.01	−.01	.01	−.03	−.06	.11	.02	−.04	
13) Financial Strain (Time 2)	1.51	.71	.17	−.11	−.27	−.31	.19	.25	−.32	−.19	.03	.10	.14	.03

$^{+}$ r ≥ |.075| $p \leq 0.10$;

* r ≥ |.09| $p \leq 0.05$;

** r ≥ |.11|, $p \leq 0.01$;

*** r ≥ |.15|, $p \leq 0.001$

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Table 2

Employee Self-esteem and Quality of Work-life (QWL) as Moderators of the Interactive Effects of Supervisor Support and Supervisor Undermining on Employee Job Strain

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variable	**b**	**SE**	**b**	**SE**	**b**	**SE**	**b**	**SE**	**b**	**SE**
Intercept	1.08***	.18	1.40***	.20	1.32***	.19	1.48***	.20	1.30***	.19
Perceived Health T2	−.15***	.03	−.12***	.03	−.12***	.03	−.12***	.03	−.12***	.03
Workload T2	.14***	.03	.08**	.03	.15***	.03	.08**	.03	.16***	.03
Neuroticism T1	.03	.04	.01	.05	−.004	.05	−.02	.05	−.02	.05
Deployment in past 12 months T2	.02	.04	.02	.03	.01	.04	.001	.03	.02	.04
Male (=1)	−.07	.04	−.09*	.04	−.09*	.04	−.09**	.03	−.08*	.04
Job Strain T1	.57***	.04	.45***	.05	.44***	.05	.46***	.05	.44***	.05
Supervisor Undermining T1			.003	.04	.08	.05	.11*	.05	.09	.05
Supervisor Support T1			.02	.02	.05*	.02	.04	.02	.04	.02
Support *Undermining					0.06*	.03	.05	.03	.03	.04
QWL T1			−.19***		−.20***	.03	−.17***	.03	−.24***	.04
Self-Esteem T1 (SE)			.003	.04	.002	.04	−.002	.04	−.07	.05
Support *QWL							−.03	.03	−.06*	.03
Undermining *QWL							.08	.05	−.06	.07
Support *Undermining *QWL									−.10**	.04
Support *SE							.07	.04	.03	.04
Undermining *SE							.01	.06	−.16	.10
Support *Undermining *SE									−.16*	.07
R-Square	.44		.46		.49		.49		.52	

*
p<.05;

**
p<.01;

***
p<.001

Table 3

Employee Self-esteem and Quality of Work-life (QWL) as Moderators of the Interactive Effects of Supervisor Support and Supervisor Undermining on Employee Perceived Health

	Model 1		**Model 1**		**Model 3**		**Model 4**		**Model 5**		**Model 6**	
Variable	**b**	**SE**	**b**	**SE**	**b**	**SE**	**b**	**SE**	**b**	**SE**	**b**	**SE**
Intercept	1.83***	.23	1.64***	.25	1.64***	.39	1.59***	.25	1.59***	.25	1.64***	.26
Perceived Health T1	.66***	.04	.66***	.04	.65***	.04	.66***	.04	.65***	.04	.65***	.04
Workload T2	−.02	.03	−.02	.03	−.01	.03	−.02	.03	−.01	.05	−.01	.03
Neuroticism T1	−.11**	.05	−.04	.06	−.05	.06	−.03	.06	−.04	.06	−.04	.06
Deployment in past 12 months T2	.51	.51	.07	.04	.07	.04	.07	.04	.07	.04	.06	.04
Male (=1)	.002	.002	.001	.04	.001	.04	.001	.04	.01	.04	.002	.05
Financial Strain T2	−.13***	.03	−.12***	.03	−.12***	.03	−.12***	.03	−.12***	.03	−.13***	.03
Supervisor Undermining T1			−.08*	.04	−.10	.06	−.13*	.06	−.17**	.07	−.13*	.06
Supervisor Support T1			−.01	.03	−.02	.03	−.03	.03	−.04	.03	−.02	.03
Support *Undermining					−.04	.04	−.02	.04	−.10*	.05	−.09*	.04
QWL T1			.02	.03	.01	.03	.02	.03	−.02	.04		
Self-Esteem T1 (SE)			.08	.05	.07	.05	.08	.05	.20***	.06	.17**	.06
Support *QWL							−.06	.03	−.09**	.04		
Undermining *QWL							−.12*	.05	−.21**	.08		
Support *Undermining *QWL									−.07	.04		
Support *SE							.03	.04	.10*	.05	.07	.05
Undermining *SE							−.002	.08	.31**	.13	.23**	.12
Support *Undermining *SE									.28***	.07	.25**	.08
R-Square	.45		.46	.46	.47		.48		.47			

*p<.05;

**p<.01;

***p<.001