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Examining Ambient Stress Effects on Military Readiness, Attachment, and Well-being

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Abstract

We propose ambient stress as a new group-level stress construct. We compared individual and ambient stressor effects on soldier readiness, attachment, and well-being in a large military sample. Both types of stressors accounted for unique variance in several individual outcomes. We discuss implications for research and military personnel management.

[50 Words]

Examining Ambient Stress Effects on Military Readiness, Attachment, and Well-being

Press Paragraph

The end of the Cold War and foreign policy shifts have produced more frequent and rapid military deployments, both of which may increase stress among military personnel. Our study examines how individual and ambient stressors (collective stress experienced by one's workgroup) affect psychological well-being, military readiness, and attachment of US Army personnel. Higher levels of ambient stressors were associated with higher levels of individual stress. Moreover, both individual and ambient stressors were negatively related to military readiness and organizational attachment. Only individual level stressors were related to psychological well-being. We discuss implications for further research and for military personnel management.

[100 words]

Examining Ambient Stress Effects on Military Readiness, Attachment, and Well-being

Since the early 1990s, the US Army has reduced its forces by one-third. Prior to the recent terrorist attacks in New York, Washington, DC, and Pennsylvania, military observers anticipated further cuts. The reductions reflect a shift away from the Cold-War model that preceded the fall of the Berlin Wall toward anticipated readiness needs such as threats from "rogue" states and terrorist activity. However, during these reductions, there simultaneously has been a dramatic increase in operations tempo (OPTEMPO) manifested by the multitude of peacekeeping, humanitarian, and traditional combat missions over the past decade. Military leaders, policy-makers, and planners have become acutely aware of the OPTEMPO phenomenon as they have seen their personnel, budget, and resources decrease while their military mission demands increase. As a result, military researchers (e.g., Castro & Adler, 1999; Thomas, Adler, & Castro, 2001) have recently begun to systematically examine the effects of OPTEMPO on soldiers and their units.

To understanding the consequences of OPTEMPO, military researchers heavily rely on stress-outcome models developed by occupational stress researchers (e.g., Katz & Kahn, 1978). These models provide a heuristic framework for military researchers to address OPTEMPO issues and enable military researchers to develop a refined focus on stressors relevant to the military. In this present study, we examined how these stressors affect solider readiness, attachment processes, and well-being. The military setting places special significance on the need to address both individual and unit-level issues. Therefore, we developed the concept of ambient organizational stressors and examined the relative influence of ambient and individual stressors on several outcomes of strategic significance to military personnel.

Conceptualizing organizational stress

Few researchers would dispute the critical importance of stress to workplace functioning. Stress has been associated with general declines in health (Sutherland & Cooper, 1990), increased use of cigarettes, alcohol, and illegal drugs (Bray, Fairbank, & Marsden, 1999), emotional exhaustion (Tetrick, Slack, DaSilva, & Sinclair, 2000), impaired decision making (Cannon-Bowers & Salas, 1998; Klein, 1996), and a host of other physiological, cognitive, emotional, social, and performance problems (Salas, Driskell, & Hughes, 1996). Further, work-related stress is related to many organizational outcomes including job satisfaction (Spector, 1987), withdrawal (Chen & Spector, 1992), morale (Bartone, Adler, & Vaitkus, 1998), accidents (e.g., Ironson, 1992), performance (Spector, Dwyer, & Jex, 1988), and aggression (Chen & Spector, 1992). In fact, some authors estimate the costs of stress at around 10% of the US GNP (Ivancevich & Matteson, 1980; Sullivan & Bhagat, 1992).

Most theoretical models organize the effects of stress according to a stress-strain-outcomes model (e.g., Beehr, 1998; Koeske & Koeske, 1993) in which "environmental demands evoke an appraisal process in which perceived demand exceeds resources and results in undesirable physiological, psychological, behavioral, or social outcomes" (Salas et al., 1996, p. 6). Stressors appraised as threatening result in negative physiological, behavioral, and affective responses (e.g., Jex, 1998; Cooper, 1998), which in turn, influence many outcomes of interest to military personnel. This study examines three classes of outcomes previously shown to affect unit performance that we categorize as soldier readiness, attachment, and well-being.

Readiness. In general, readiness refers to the capability of an individual soldier or a unit to perform his/her assigned duties. Though a relevant metric for the military, there is no real consensus on defining and operationalizing readiness. Shamir, Brainin, Zakay, and Popper

(2000), however, offer an interesting multi-measure approach focusing on aspects of group morale and collective efficacy (Bandura, 1986) as indicators of perceived readiness. They contend that morale is a strong motivational component of readiness, and collective efficacy taps into beliefs about a group's ability to perform successfully. Both are critical features of assessing military combat readiness. Additionally, for the military it is important to account for physical readiness. To this end, military researchers often use fitness measures as indicators of readiness (Thomas, Adler, & Castro, 2001).

Attachment. Another very important stress outcome for the military is the affective component of attachment. As in the civilian world, strengthening attachment is central to military recruiting and retention efforts. However, a bolstered sense of military attachment also can be viewed as a necessary condition for proper unit functioning. Previous research has demonstrated that military attachment is linked to stressors and stress outcomes. For instance, Bliese, Ritzer, Thomas, and Jex (2001) found that attachment was positively linked to the leadership effectiveness and negatively linked to interpersonal conflict. Moreover, Thomas (2000) demonstrated that attachment was strongly related to other stress outcomes such as job satisfaction, and organizational citizenship behavior while negatively related to stressor like work-family conflict and role overload. These results are consistent with findings from the civilian literature (cf. Leiter, Clark, & Durup, 1994). For this study, we focused on affective commitment, job engagement and turnover intentions as attachment indicators.

Well-being. Both military leaders and researchers are becoming increasingly interested in well-being issues. For instance, the US Army now carefully assesses the psychological well-being of soldiers prior to, during, and following military deployments (Bartone, Adler, & Vaitkus, 1998; Rosen, Teitelbaum, & Westhuis, 1993; Hourani & Yuan, 1999). Along with the

prevalence of the Army's mandated psychological well-being screening program for deployments, an extensive amount of well-being data is collected along with organizational climate assessments (e.g., Bliese & Halverson, 1996; Thomas, Bliese, & Bullis, 2000). These studies typically find that well-being is negatively associated with stressors while positively related to other important stress outcomes.

Group level stress concepts

As in the general organizational literature (cf. Klein & Kozlowski, 2000), stress researchers have become increasingly interested in multilevel issues in organizational behavior (Bliese et al., 2001; Van Yperen & Snijders, 2000). Further, some researchers are beginning to pay attention to group level stress concepts in military contexts (e.g., Bliese & Britt, 2001; Bliese & Halverson, 1996,). The need to model these effects is based on the premise that occupational stress is a multi-level and cross-level phenomenon and, as a result, group processes influence individuals' responses to environmental and contextual factors (Bliese & Jex, 1999).

The nomothetic approach (Bliese & Halverson, 1996) articulates the importance of modeling stress at the group level. The assumptions underlying the nomothetic approach differ from traditional stress models by examining how groups appraise and react to their work contexts, which can vary on the dimension of stressfulness. In terms of the benefit of cross-level modeling of occupations stress, organizational climate research provides a useful theoretical context for understanding group level stress effects on individual level outcomes (Lindell & Brandt, 2000). Climates have been described as shared perceptions among members of an organization with regard to organizational policies, procedures, and practices (Rentsch, 1990). Extending this concept to work stress implies that stress climates involve shared perceptions about work stress that affect individual behavior above and beyond individual perceptions of the

same concepts. These effects permeate the entire work place and therefore may affect even employees who do not personally feel excessive role demands (Jackson, 1989; Johnson, 1989).

Ambient stress

Our research extends these studies by proposing the concept of ambient stress – a new formulation for examining group level effects. Glomb et al. (1997) developed the concept of ambient sexual harassment, which they defined as a group level measure of harassment that does not include the focal individual's score. Thus, although ambient harassment is a measure of group processes, it disentangles the individual's score from that of his/her group – because the focal individual is not included in calculations of his/her climate scores. This approach therefore assumes that each individual within a work group can experience a different group level context. From a methodological perspective, this method also is appealing because it retains the simplicity and statistical power of individual level data but remains uncontaminated by the common problem of method variance, which occurs from using self-report, single source data.

Glomb et al., found that ambient sexual harassment affected both individuals who were directly exposed to harassment incidents and people who had not previously experienced incidents. We expect these effects to generalize to work-related stress. As in other organizations, there are many meaningful levels of analysis in military units. Because most of the participants were in the lower junior-enlisted ranks, we focused on platoon level stress climate. The platoon level is appropriate because in most military companies, platoons perform highly specialized unit tasks, which differentiate them from other platoons within the company.

Present study

Given the preceding discussion, our study compares individual and ambient conceptualizations of organizational stress with respect to several different outcome measures.

Several studies have examined the connection between individual level stressors and organizational outcomes. Our study contributes to that literature by providing further data on these issues in the military context where stress issues are increasingly important but understudied. As in most previous literature, we expected stressors to be negatively related to the three sets of organizational outcomes. However, we were particularly interested in correlates of ambient stress. We expected ambient stressors to be positively related to their corresponding individual level stressors. Moreover, we expected ambient stressors to explain unique variance in the stress outcomes, after controlling for individual level measures of the same concepts.

Hypothesis 1. Individual stressors are negatively related to readiness, attachment, and well-being.

Hypothesis 2. Ambient stressors are positively related to their corresponding individual level stressors.

Hypothesis 3. Ambient stressors are negatively related to readiness, attachment, and well-being.

Hypothesis 4. Ambient stressors explain variance in readiness, attachment, and well-being once individual level stressors are controlled.

Method

Participants

Through a joint collaboration between the Walter Reed Army Institute of Research and the Center for Army Leadership, participants consented to take part in a survey-based unit climate assessment. All participants signed a consent form agreeing to provide responses to the survey measures under conditions of anonymity. The final sample consisted of 1,489 US Army soldiers nested in 18 companies from a large combat training brigade located in the continental

United States. Nearly all (92%) participants were male, the mean age was 25.4 years, and the distribution of self-identified ethnicity was 51% Caucasian, 18% Hispanic, 16% African-American, 3% Asian, 3% Multi-Racial, and 6% other. Most participants (63%) were junior enlisted (rank E1 -E4), 35% were non-commissioned officers (E5 - E9), and 2% were Officers.

Stress Measures

Given space restrictions, Table 1 provides a detailed summary of the measures used in this study. The general measurement categories are described below.

Individual Stressors. We examined five individual stressors that capture different role demands faced by military personnel. The first was the ratio of sleep hours to hours worked (sleep/hours worked) in the past week. Higher scores indicate that an individual has had proportionally more sleep to hours worked. Lower scores suggest that work demands may be interfering with sleep. Second, we assessed quantitative workload using Cammann, Fichman, and Jenkins' (1983) five-item Work Overload Scale (e.g., "I have so much work to do, I cannot do everything well"). Third, we assessed predictability with a single item developed by the Army ("Not knowing how long your workday will be."). Fourth, we measured work-family conflict with Netemeyer, Boles, and McMurrian's (1996) four-item Work-Family Conflict Scale (e.g., "The demands of my work interfere with my home and family life"). Finally, we assessed interpersonal conflict with Spector and Jex's (1998) four item Interpersonal Conflict at Work Scale (e.g., "How often do people in your unit get into arguments with each other at work?").

Ambient Stressors. We generated the ambient stress measures by calculating an aggregate mean score for each company then removed each focal individual's score from his/her company score. This creates a separate ambient stress score for each individual that is

independent of his/her individual level score and slightly different from the score of other individuals in his/her company.

Outcome measures. We measured three readiness outcomes from individual and ambient stressors. First, we measured collective efficacy with a scale developed for this study consisting of four items (e.g., "If we went to war tomorrow, I would feel good about going with my unit"). Second, we measured morale with a scale developed for this study consisting of five items (e.g., "your personal morale"). Third, we measured physical fitness by asking participants to provide their latest Army Physical Fitness Test score using the following categories: Did not pass, 180-220, 221-260, and 261-300.

We also assessed the effects of stressors on three attachment concepts. First, we assessed affective commitment with a scale developed for this study based on prior literature (e.g., Meyer & Allen, 1995) consisting of four items (e.g., "The Army has a great deal of personal meaning to me). Second, we measured turnover intentions with a single item ("Which of the following best describes your current active-duty Army career intentions?"). Responses were made according to a Likert scale ranging from (1) "Definitely stay until retirement eligible (or longer)" to (6) "Definitely leave upon completion of my current obligation." Third, we measured job engagement with a six item scale developed based on Britt's (1999) Job Involvement Scale (e.g., "I feel responsible for my job performance").

Finally, we evaluated the effects of stressors on three measures of well-being. First, we assessed depression with a scale developed by Mirowsky (1996). The scale consists of seven items (e.g., "Felt sad"), and respondents reported the number of days during the past week that they experienced those feelings. Second, we measured global well-being with Goldberg's (1972) Well-being Scale. The measure consists of 12 items (e.g., "Been able to concentrate on whatever

you're doing"), and respondents were directed to answer items according to the last two weeks. Third, we assessed job satisfaction with a scale developed for this study, which is similar to Hackman and Oldham's (1975) Job Diagnostic Survey General Satisfaction Scale. The measure consists of three items (e.g., "I am very satisfied with my job in the Army").

Results

Table 2 presents the correlations among all variables in the study. As is evident from examination of the table, the relationships between the individual stressors and the concepts of readiness, attachment, and well-being were in the anticipated direction, consistent with Hypothesis 1. The only exception was the negative relationship between the sleep/work ratio and physical fitness indicating that less sleep and more work was associated with higher levels of physical fitness. The results also suggest that the ambient level stressors were positively related to their corresponding individual level stressors, consistent with Hypothesis 2. Hypothesis 3 received partial support. The ambient sleep/work ratio negatively correlated with collective efficacy while ambient predictability and ambient work-family conflict were positively related to physical fitness. Ambient predictability was also positively correlated with collective efficacy.

We performed hierarchical regression analyses to examine whether ambient stressors explained variance in readiness, attachment, and well-being concepts after controlling for the gender, rank, and the individual level stressors (Tables 3-5, respectively). The individual stressors were significant predictors of all the outcomes, providing further support for Hypothesis 1. For readiness concepts, interpersonal conflict was the strongest predictor of collective efficacy ($\beta = -.33$, $p < .01$) while quantitative overload, work-family conflict, and interpersonal conflict were significant predictors of morale ($\beta = -.19$, $-.20$, and $-.26$ respectively, $p < .01$). In addition, the number of hours of sleep to work was the strongest predictor of physical

fitness (β = -.11, p <.01), however, the direction of this relationship was not anticipated. Interpersonal conflict was a strong predictor of all the attachment measures, while work-family conflict was strongly related to commitment and turnover intentions (β = -.12 for both, p <.01). As expected, the sleep/work ratio was positively related to turnover intentions (β = .08, p <.01), but was negatively related to job engagement (β = -.01, p .01). For well-being concepts, quantitative workload, work-family, and interpersonal conflict were strong predictors of depression, global well-being, and job satisfaction. Moreover, predictability predicted depression (β = .06, p <.05) and job satisfaction (β = -.08, p <.01).

Hypothesis 4 received partial support. The ambient stressors accounted for unique variance in collective efficacy (ΔR^2 = .03, p < .01), morale (ΔR^2 = .01, p < .01), and affective commitment (ΔR^2 = .01, p < .01) after controlling for the individual level stressors and demographic variables (Tables 3 and 4). For the readiness concepts, ambient work-family conflict was a strong predictor of collective self-efficacy and morale (β = -.32 and -.23 respectively, p <.01). Although the ambient sleep/work ratio and predictability predicted collective efficacy and morale, the direction of their relationships was not expected. These results are compelling because the individual level results suggested that interpersonal conflict was the strongest predictor of readiness. For attachment concepts, the ambient sleep/work ratio and predictability stressors were related to affective commitment (β = -.10 and .12 respectively, p <.01), however, the directions of these relationships were not anticipated. These results can also be compared to the individual level analyses, which indicated that work-family conflict and interpersonal conflict were negatively related to affective commitment.

Discussion

This study investigated several stress issues in a large sample of US military personnel. We demonstrated that five individual level stressors accounted for unique variance in several stress-related outcomes. Interpersonal conflict was related to all nine outcomes, while quantitative workload and work-family conflict were related to most of the outcomes. Predictability and the sleep work ratio were related to fewer outcomes and not always in intuitively expected directions. We also noted substantial differences in the variance explained by the individual stress measures in the outcomes, which ranged from 2% (fitness) to 30% (well-being). Together, these findings suggest the need for further refinement of the nomological net of these predictors and outcomes such that specific stressors can be linked to specific outcomes.

We drew upon Glomb et al.'s concept of ambient sexual harassment to describe ambient stress climate as a composite measure of stress for all individuals in a person's work group. Therefore, while ambient stress is quite similar across individuals, it differs for each focal person in a work group. Our empirical research examined the importance of both individual and ambient stressors in a large sample of military personnel. After adjusting for the individual stressors, ambient stressors predicted collective efficacy, morale, and affective commitment. Moreover, different stressors predicted the same outcomes when the individual and group –levels were compared. These findings suggest that the effects of stress have different implications depending on whether they are studied at the individual or group level. One interesting direction for further research would be to test various causal models of the relationship between individual and ambient stressors. For example, ambient stress may exert its effects on individual outcomes which then would mediate the ambient stress-outcome relationships. Similarly, various forms of interactions among ambient and individual processes could be explored in further research.

We would like to briefly note a few limitations to the study. These issues provide a foundation for future research on ambient stress and on stress-related issues in the military and other organizations. The unexpected directions between some of the stressors and outcomes deserve further examination. These findings may be linked to the military nature of sample thus, may not generalize to a civilian population. In addition, although the ambient stressors are free from common method variance, the self-report measures used in the study are subjective reports of stress. Examining stressor-outcome relationships using behavioral measures of objective stressors and independently obtained outcomes, such as performance ratings, would provide a more comprehensive understanding of the effects of workplace stressors. Finally, future research should examine whether similar research conclusions are drawn using more sophisticated methods such as hierarchical linear modeling.

Understanding group level influences on organizational stress is particularly important given that group-level interventions may be more effective than individual-level interventions at reducing stress. Unfortunately, few studies have focused on reducing the negative effects of work stress by changing elements of the work situation (Ganster & Murphy, 2000). At least some research suggests that efforts to address group level influences on stress may lead to promising outcomes. For example, reducing the workload requirements for a group may be more efficient than attempting to teach individual group members how to cope with the heavy workload (Bliese & Halverson, 1996). Our results suggest that practitioners implementing interventions should consider the idea that individual outcomes may be affected by different stressors depending on whether the individual's perceptions are shaped more by the contextual features of the environment or his or her interactions with other group or family members.

References

Bandura, A. (1986). *Social foundations of thought and action: A social-cognitive view.* Englewood Cliffs, NJ: Prentice Hall

Bartone, P. T, Adler, A. B, & Vaitkus, M. A. (1998). Dimensions of psychological stress in peacekeeping operations. *Military Medicine, 163,* 587-593.

Beehr, T. (1998). An organizational psychology meta-model of occupational stress. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 6-27). Oxford, England: Oxford University Press.

Bliese, P. D., & Britt, T. W. (2001). Social support, group consensus and stressor-strain relationships: social context matters. *Journal of Organizational Behavior, 22*, 425-436.

Bliese, P. D., & Halverson, R. R. (1996). Individual and nomothetic models of job stress: An examination of work hours, cohesion, and well-being. *Journal of Applied Social Psychology, 26*, 1171-1189.

Bliese, P. D., & Jex, S. M. (1999). Incorporating multiple levels of analysis into occupational stress research. *Work and Stress, 13*, 1-6.

Bliese, P.D., Ritzer, P., Thomas, J.L., & Jex, S.M. (2001). *Supervisory support and stressor-commitment relations: A multi-level investigation.* Paper presented at the Annual conference of the Society for Industrial and Organizational Psychology, San Diego: CA.

Bray, R. M., Fairbank, J. A., & Marsden, M. E. (1999). Stress and substance use among military women and men. *American Journal of Drug and Alcohol Abuse, 25*, 239-256.

Britt, T. W. (1999). Engaging the self in the field: Testing the triangle model of responsibility. *Personality and Social Psychology Bulletin, 25,* 696-706.

Cammann, C., Fichman, M., Jenkins, G. D., & Klesh, J. (1983). Michigan organizational assessment questionnaire. In S. E. Seashore, E. E. Lawler, P. H. Mirvis, & C. Camman (Eds.), *Assessing organizational change: A guide to methods, measures, and practices* (71-138). New York: Wiley.

Cannon-Bowers, J. A., & Salas, E. (1998). Individual and team decision making under stress: Theoretical underpinnings. In J. A. Cannon-Bowers & E. Salas (Eds.), *Making decisions under stress* (pp.17-38). Washington, DC: APA.

Castro, C. A., & Adler, A. B. (1999). OPTEMPO: Effects on soldier and unit readiness. *Parameters, Autumn*, 86-94.

Chen, P.Y., & Spector, P.E. (1992). Relationships of work stressors with aggression, withdrawal, theft, and substance use: An exploratory study. *Journal of Occupational and Organizational Psychology, 65*, 177-184.

Cooper, C.L. (1998). *Theories of organizational stress.* New York: Oxford.

Ganster, D. C., & Murphy, L. (2000). Workplace interventions to prevent stress-related illness: Lessons from research and practice. In C. L. Cooper & E. A. Locke (Eds.), *Industrial and organizational psychology: Linking theory with practice* (pp. 34-51). Malden, MA: Blackwell.

Glomb, T. M, Richman, W. L., Hulin, C. L., Drasgow, F., Schneider, K. T., & Fitzgerald, L. F. (1997). Ambient sexual harassment: An integrated model of antecedents and consequences. *Organizational Behavior and Human Decision Processes, 71*, 309-328.

Goldberg, D. P. (1972). *The detection of psychiatric illness by questionnaire: A technique for the identification and assessment of non-psychotic psychiatric illness.* London: Maudsley Monographs.

Hackman, J. R., & Oldham, G. R. (1975). Development of the Job Diagnostic Survey. *Journal of Applied Psychology, 60,* 159-170.

Hourani, L.L., Yuan, H. (1999). The mental health status of women in the Navy and Marine Corps: Preliminary findings from the Perceptions of Wellness and Readiness Assessment. *Military Medicine, 164*, 174-181

Ironson, G. (1992). Work, job stress, and health. In S. Zedeck (Ed.). *Work, families, and organizations* (pp. 33-69). San Francisco: Jossey-Bass.

Ivancevich, J. M, & Matteson, M. T. (1980). *Stress and work: A managerial perspective.* Glenview, IL: Scott, Foresman and Company.

Jackson, S. E. (1989). Does job control control job stress? In S. L. Sauter, J. J. Hurrell Jr., & C. L. Cooper (Eds.), *Job control and worker health* (pp. 25-53). Chichester: Wiley.

Jex, S.M. (1998). *Stress and job performance: Theory, research, and implications for managerial practice*. Thousand Oaks, CA: Sage.

Johnson, J. V. (1989). Control, collectivity and the psychosocial work environment. In S. L. Sauter, J. J. Hurrell Jr., & C. L. Cooper (Eds.), *Job control and worker health* (pp. 55-74). Chichester, England: Wiley.

Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations* (2nd ed.). New York: Wiley.

Klein, G. (1996). The effect of acute stressors on decision making. In J. E. Driskell & E. Salas (Eds.), *Stress and human performance* (pp.49-88). Mahwah, NJ: Erlbaum.

Klein, K. J. & Kozlowski, S. W. J. (Eds.) (2000). *Multilevel theory, research and methods in organizations: Foundations, extensions, and new directions*. San Francisco: Jossey Bass.

Koeske, G.F., & Koeske, R.D. (1993). A preliminary test of a stress-strain-outcome model for reconceptualizing the burnout phenomenon. *Journal of Social Service Research, 17*, 107-133.

Lindell, M .K., & Brandt, C. J. (2000). Climate quality and climate consensus as mediators of the relationship between organizational antecedents and outcomes. *Journal of Applied Psychology, 85*, 331-348.

Meyer, J.P., & Allen, N.J. (1995). *Commitment in the workplace: Theory, research, and application*. Thousand Oaks: Sage.

Mirowsky, J. (1996). Age and the gender gap in depression. *Journal of Health and Social Behavior, 37*, 363-380.

Netemeyer, R. G., Boles, J. S., & McMurrian, R. (1996). Development and validation of work-family conflict and family-work conflict scales. *Journal of Applied Psychology, 81,* 400-410.

Rosen, L.N., Teitelbaum, J.M, & Westhuis, D.J. (1993). Stressors, stress mediators, and emotional well-being among spouses of soldiers deployed to the Persian Gulf during Operation Desert Shield/Storm. *Journal of Applied Social Psychology, 19*, 1587-1593.

Rentsch, J. R. (1990). Climate and culture: Interaction and qualitative differences in organizational meanings. *Journal of Applied Psychology, 75*, 668-681.

Salas, E., Driskell, J. E., & Hughes, S. (1996). Introduction: The study of stress and human performance. In J. E. Driskell & E. Salas (Eds.), *Stress and human performance* (pp. 1-45). Mahwah, NJ: Lawrence Erlbaum.

Shamir, B., Brainin, E., Zakay, E., & Popper, M. (2000). Perceived combat readiness as collective efficacy: Individual- and group-level analysis. *Military Psychology, 12*, 105-119.

Spector, P. (1987). Interactive effects of perceived control and job stressors on affective reactions and health outcomes for clerical workers. *Work and Stress, 1*, 155-162.

Spector, P., Dwyer, D.J., & Jex, S.M. (1988). Relation of job stressors to affective, health, and performance outcomes: A comparison of multiple data sources. *Journal of Applied Psychology, 73*, 11-19.

Spector, P.E., & Jex, S.M. (1998). Development of four self-report measures of job stressors and strain: Interpersonal Conflict at Work Scale, Organizational Constraints Scale, Quantitative Workload Inventory, and Physical Symptoms Inventory. *Journal of Occupational Health Psychology, 3*, 356-367.

Stuart, J. A., & Halverson, R. R. (1997). The psychological status of U.S. Army soldiers during recent military operations. *Military Medicine, 162*, 737-743.

Sullivan, S. E., & Bhagat, R. S. (1992). Organizational stress, job satisfaction, and job performance: Where do we go from here? *Journal of Management, 18*, 353-374.

Sutherland, V. J., & Cooper, C. L. (1990). *Understanding stress: A psychological perspective for health professionals*. London: Chapman and Hall.

Tetrick, L.E., Slack, K.J., DaSilva, N., & Sinclair, R.R. (2000). A comparison of the stress-strain process for business owners and non-owners: Differences in job demands, emotional exhaustion, satisfaction, and social support. *Journal of Occupational Health Psychology, 5*, 464-476.

Thomas, J.L. (2000). Relationships between 360 degree leadership ratings, unit strains & stressors, and archival unit performance: Preliminary findings and directions for future research. In C. Castro (Chair), *Responding to Modern Militarism--The Psychological Impact on Military Forces.* Symposium presentation at the 108th Annual American Psychological Association Conference. Washington, DC.

Thomas, J.L., Adler, A.A., & Castro, C.A. (2001). It cuts both ways: Differential relations between OPTEMPO and performance. In C. Castro and A. Adler (Chairs), *Soldiering the Load—The impact of Operational Tempo on US Soldiers.* Symposium presentation at the 109th Annual American Psychological Association Conference. San Francisco, CA.

Thomas, J.L., Bliese, P.D., & Bullis, C.R. (2000). Unit climate, leadership and performance: An aggregate-level investigation. *Defense Technical Information Center Report.* Alexandria, VA

Van Yperen, N. W., & Snijders, T. A. B. (2000). A multilevel analysis of the demands-control model: Is stress at work determined by factors at the group level or the individual level? *Journal of Occupational Health Psychology, 5, 182-190.*

Table 1

Detailed summary of measures

Scale	Key Reference	Scale-type	Mean	SD	α
Ratio of sleep/hours worked Single item	Developed for study		1.61	1.39	--
Predictability Single item	Developed for study	Five-point agreement scale (1) Very low (5) Very high (6) Does not apply.	3.07	1.40	
Work Overload Scale 5 items	Cammann, Fichman, and Jenkins' (1983)	Five-point agreement scale (1) Strongly disagree (5) Strongly agree	3.05	.88	.73
Work-Family Conflict Scale 4 items	Netemeyer, Boles, and McMurrian's (1996)	Five-point agreement scale (1) Strongly disagree (5) Strongly agree	2.99	1.11	.92
Interpersonal Conflict at Work Scale 4 items	Spector and Jex (1998)	Five-point agreement scale (1) Strongly disagree (5) Strongly agree	2.97	.92	.89
Combat readiness 4 items	Developed for study	Five-point agreement scale (1) Strongly disagree (5) Strongly agree	3.17	.88	.80
Morale 5 items	Developed for study	Five-point agreement scale (1) Very low (5) Very high	3.24	.89	.88

Physical fitness Single item	Developed for study	Did not pass 180-220 221-260 261-300	3.31	.77	--
Affective commitment 4 items	Developed for study	Five-point agreement scale (1) Strongly disagree (5) Strongly agree	2.88	1.00	.89
Turnover intentions Single item	Developed for study	Six-point agreement scale (1) Definitely stay until retirement (6) Definitely leave upon completion my current obligation	3.95	1.76	--
Job Engagement Scale 6 items	Britt (1999)	Five-point agreement scale (1) Strongly disagree (5) Strongly agree	3.87	.71	.81
Depression 7 items	Mirowsky (1996)	Frequency count of symptoms during the past seven days.	1.73	1.74	.91
Well-being Scale 12 items	Goldberg (1972)	Four-point agreement scale (1) Not at all (4) Very often	2.99	.51	.83
Job Satisfaction 3 items	Developed for study Similar to Hackman and Oldham's (1975) Job Diagnostic Survey General Satisfaction Scale	Five-point agreement scale (1) Strongly disagree (5) Strongly agree	3.13	1.06	.87

Note. -- = single item measure.

Table 2

Intercorrelations among study variables.

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Readiness																		
1. Physical fitness																		
2. Morale	.19																	
3. Collective efficacy	.04	.42																
Attachment																		
4. Affective commitment	.13	.49	.37															
5. Turnover intentions	-.12	-.35	-.12	-.54														
6. Job engagement	.11	.35	.23	.47	-.31													
Well-being																		
7. Depression	-.12	-.53	-.22	-.30	.23	-.21												
8. Global well-being	.14	.61	.29	.36	-.25	.31	-.69											
9. Job satisfaction	.08	.49	.36	.51	-.38	.43	-.30	.38										
Individual stressors																		
10. Sleep/work ratio	-.08	.11	.09	.05	.03	-.04	-.14	.13	.08									
11. Quantitative workload	-.07	-.39	-.18	-.23	.16	-.07	.34	-.44	-.26	-.26								
12. Predictability	-.01	-.24	-.15	-.19	.17	-.04	.27	-.27	-.23	-.15	.33							
13. Work-family conflict	-.05	-.39	-.18	-.25	.20	-.07	.42	-.46	-.28	-.25	.56	.46						
14. Interpersonal conflict	-.07	-.37	-.36	-.31	.22	-.15	.33	-.35	-.30	-.17	.29	.28	.31					

Ambient stressors																		
14. Sleep/work ratio	-.05	.04	-.08	-.04	-.04	-.03	-.08	.05	.10	.18	-.11	-.08	-.16	-.07				
15. Quantitative workload	.04	-.08	.03	.00	.04	.00	.10	-.08	-.09	-.12	.14	.12	.20	.09	-.59			
16. Predictability	.07	-.02	.07	.05	.01	.05	.08	-.06	-.03	-.10	.11	.08	.16	.05	-.45	.74		
17. Work-family conflict	.06	-.09	.02	.01	.04	.02	.11	-.08	-.09	-.15	.16	.13	.20	.09	-.69	.92	.80	
18. Interpersonal conflict	.01	-.07	.01	-.02	.03	.00	.05	-.07	-.09	-.06	.07	.02	.07	.13	-.34	.48	.33	.43

Notes. Pairwise N = 1,398 to 1,481; correlations greater than |.05| significant at $p < .05$; correlations greater than |.06| significant at $p < .01$.

Table 3

Predicting readiness concepts from individual and ambient stressors

	DV = Collective Efficacy			DV = Morale			DV = Physical fitness		
Predictors	Adj R^2	R^2 change	beta	Adj R^2	R^2 change	beta	Adj R^2	R^2 change	beta
Individual stressors	.14	.14**		.26	.26**		.03	.02**	
Sleep/work ratio			.02			-.03			-.11**
Quantitative overload			-.06*			-.19**			-.07*
Predictability			-.01			-.02			.04
Work-family conflict			-.02			-.20**			-.02
Interpersonal conflict			-.33**			-.26**			-.06*
Ambient stressors	.17	.03**		.26	.01**		.03	.01	
Sleep/work ratio			-.19**			-.08*			-.02
Quantitative overload			.13*			.11			-.05
Predictability			.17**			.12**			.07
Work-family conflict			-.32**			-.23**			.04
Interpersonal conflict			.00			-.04			-.02

Note. All analyses control for rank and gender; each of which were entered on a separate first step of the analysis (R^2 = .01, .01, and .02 for collective efficacy, morale, and physical fitness, respectively). * = $p < .05$; ** = $p < .01$.

Table 4

Predicting attachment concepts from individual and ambient stressors

	DV = Commitment			DV = Turnover intentions			DV = Job engagement		
Predictors	Adj R^2	R^2 change	beta	Adj R^2	R^2 change	beta	Adj R^2	R^2 change	beta
Individual stressors	.16	.12**		.14	.07**		.04	.03**	
Sleep/work ratio			-.04			.08**			-.07**
Quantitative overload			-.08*			.04			-.04
Predictability			-.04			.06*			.02
Work-family conflict			-.12**			.12**			-.02
Interpersonal conflict			-.24**			.15**			-.14**
Ambient stressors	.16	.01**		.13	.00		.05	.01	
Sleep/work ratio			-.10**			-.03			-.04
Quantitative overload			.01			.04			-.06
Predictability			.12**			-.03			.09
Work-family conflict			-.10			-.03			-.02
Interpersonal conflict			-.02			.00			.11

Note. All analyses control for rank and gender; each of which were entered on a separate first step of the analysis (R^2 = .04, .07, and .03 for affective commitment, turnover intentions, and job engagement, respectively). * = $p < .05$; ** = $p < .01$.

Table 5

Predicting well-being concepts from individual and ambient stressors

	DV = Depression			DV = Global well-being			DV = Physical fitness		
Predictors	Adj R^2	R^2 change	beta	Adj R^2	R^2 change	beta	Adj R^2	R^2 change	beta
Individual stressors	.26	.24**		.31	.30**		.16	.15**	
Sleep/work ratio			-.01			-.03			-.02
Quantitative overload			.11**			-.24**			-.13**
Predictability			.06*			-.03			-.08**
Work-family conflict			.29**			-.27**			-.13**
Interpersonal conflict			.20**			-.18**			-.20**
Ambient stressors	.25	.00		.31	.00		.17	.01*	
Sleep/work ratio			-.01			-.03			.06
Quantitative overload			.00			-.03			-.02
Predictability			-.03			-.01			.06
Work-family conflict			.04			.01			.00
Interpersonal conflict			-.02			-.03			-.05

Note. All analyses control for rank and gender; each of which were entered on a separate first step of the analysis (R^2 = .02 for depression, well-being, and job satisfaction). * = $p < .05$; ** = $p < .01$.