

## An Empirical Examination of Self-Reported Work Stress Among U.S. Managers

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This study proposes that self-reported work stress among U.S. managers is differentially related (positively and negatively) to work outcomes depending on the stressors that are being evaluated. Specific hypotheses were derived from this general proposition and tested using a sample of 1,886 U.S. managers and longitudinal data. Regression results indicate that challenge-related self-reported stress is positively related to job satisfaction and negatively related to job search. In contrast, hindrance-related self-reported stress is negatively related to job satisfaction and positively related to job search and turnover. Future research directions are discussed.

Work-related stress among managers has been described as reaching epidemic proportions (Marino, 1997). Survey results seem to support this claim. For example, in recent surveys of managers, 88% reported elevated levels of stress (Tillson, 1997) and most reported feeling more pressure than they could ever remember (Cohen, 1997).

Although there is converging evidence that most managers report feeling work-related stress, less clear is the nature of the relationship between managers' self-reported work stress and work outcomes. Recent empirical evidence appears to suggest that there is little or no relationship between managers' self-reported work stress, defined as the subjective evaluation of the level of experienced stress associated with specific stressors, and job dissatisfaction, job search, and other negative work outcomes. For example, in their study examining the job search behavior of employed managers, Bretz, Boudreau, and Judge (1994) failed to find a significant relationship between self-reported work stress and job search. Leong, Furnham, and Cooper (1996) failed to find a significant relationship between self-reported work stress and job satisfaction or intention to quit in a sample of professional and administrative officers of middle management level. Finally, Bogg and Cooper's (1995) examination of the relationship between sources of stress and various outcomes for senior civil servants and private sector executives revealed that although private sector

executives generally perceived more stress from the working environment, they manifested less stress outcomes (job dissatisfaction, mental and physical ill health) than did the senior civil servants, indicating that perceived stress may not necessarily lead to negative work outcomes.

How might these findings of modest or no relationships between self-reported work stress and negative work outcomes be explained? One explanation may be that there actually are no or only modest relationships between managers' self-reported work stress and negative work outcomes. Given the abundance of studies both in the psychological and medical literatures that support a relationship between stress in general and negative outcomes (see Kahn & Byosiére, 1992, and Matteson & Ivancevich, 1987, for reviews), this explanation appears to be too simplistic. An alternative explanation may be that the relationships between managers' self-reported work stress and work outcomes differ by the stressors that are being evaluated. That is, self-reported work stress associated with some stressors may result in negative outcomes, whereas self-reported work stress associated with other stressors may result in positive outcomes. Support for this explanation can be found in recent surveys of managers in which they note that not all stress is bad; stress can result in a competitive edge and force positive changes (Marino, 1997; Merelman, 1997). In addition, several examples exist of managers commenting that certain demanding work situations (situations that are similar to some stressors included in common stress measures, e.g., time pressures) were well worth the discomfort that was involved (e.g., McCall, Lombardo, & Morrison, 1988). Additional support for this explanation is discussed further in the section titled *Categorization of Self-Reported Work Stress*.

A common practice among researchers using self-report measures of stress is to treat evaluations of the level of experienced stress associated with various stressors as representing a unidimensional construct. Bretz et al. (1994) provided a recent application of this approach from the industrial/organizational psychology literature. Using sample relevant items from several common stress measures (i.e., Michigan Diagnostic Survey, Stress Diagnostic Survey, and Job Stress Index), Bretz et al. (1994) asked respondents to indicate their level of stress (e.g., 1 = *no stress*, 5 = *great deal of stress*) associated with each of the stress items or

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stressors. The responses to these items were then summed to create a single self-report stress scale hypothesized to be positively related to job search. Similar procedures have been followed by other researchers (e.g., Daniels & Guppy, 1994; Leong et al., 1996). If managers' self-reported work stress is differentially related to work outcomes depending on the stressors that are evaluated, this practice may mask true relationships between self-reported work stress and work outcomes. That is, the combining of all items into a single scale may potentially cancel out or at a minimum reduce the true effects of self-reported work stress on work outcomes if positive relationships exist between evaluated stress associated with some stressors and work outcomes, and negative relationships exist between evaluated stress associated with other stressors and work outcomes.

It is clear that self-report measures of perceived stress will continue to represent a valuable and often used assessment method for both research and practice because of ease of use and administration (French & Kahn, 1962; Matteson & Ivancevich, 1987). Moreover, it appears plausible that using such scales without adequately distinguishing the two stress dimensions may well mask significant and important effects, but this possibility has not yet been explicitly studied. In this study, it is proposed that managers' self-reported work stress is differentially related (positively and negatively) to attitudinal and behavioral work outcomes depending on the stressors that are evaluated. We focus on self-report measures of work stress that involve an individual's subjective evaluation of the level of experienced stress associated with specific stressors. We begin by discussing our reasons for expecting stress associated with some stressors (termed *challenge-related self-reported stress*) to be related to positive work outcomes and stress associated with other stressors (termed *hindrance-related self-reported stress*) to be related to negative work outcomes and offer specific hypotheses. We then provide empirical evidence of the validity of these two categorizations of self-reported work stress, which includes the results of (a) a content validation procedure using four independent judges, (b) a confirmatory factor analysis and reliability analysis, and (c) an examination of the pattern of correlations between the respective stress measures and external criteria. Finally, we report and discuss the results of hierarchical and logistic regression analyses conducted to test the hypotheses in a sample of 1,886 U.S. managers.

### Categorizations of Self-Reported Work Stress

On the basis of our review, previous empirical research has not examined whether reported levels of stress associated with specific stressors is differentially related to work outcomes. We note, however, that previous research has shown that job demands (i.e., stressors) evaluated by respondents as having a positive or negative impact on their lives generally relate positively or negatively to a variety of outcomes. Lazarus and colleagues (Lazarus, 1981; Lazarus & Folkman, 1984) have been extremely influential in this area of stress research with their studies examining the extent to which particular life events evaluated negatively as hassles (events that annoy or bother you; make you upset or angry) or positively as uplifts (events that make you feel good; make you joyful, glad, or satisfied) are related to health-related symptoms and coping processes. Researchers who have examined the relationship between positively and negatively evaluated job demands and work

outcomes include Bhagat and colleagues and Scheck and colleagues. For example, Bhagat, McQuaid, Lindholm, and Segovis (1985) had participants appraise job demands, which were assumed to involve stress, as positively or negatively affecting their lives ( $-3 = \text{extremely negative impact on life}$ ,  $3 = \text{extremely positive impact on life}$ ) and then examined the relationships between the self-reported level of positively and negatively appraised job demands and job satisfaction, organizational commitment, turnover intentions, and other organizational outcomes. The results indicated that demands self-evaluated as having a negative (positive) impact on one's life tended to have a negative (positive) impact on organizational relevant outcomes. Scheck and colleagues (1995, 1997) followed a similar procedure and had similar results.

One potential limitation of this approach is that it does not provide any empirical basis for assessing the extent to which individuals appraising the demands as positive or negative are actually perceiving stress associated with the demand. A second potential limitation is that the relationship between the self-reported level of positively and negatively appraised demands (which they equated with positive and negative stress) and work outcomes may be inflated because of percept-percept bias. That is, in appraising a particular demand or circumstance (e.g., a promotion) as positive and then evaluating a positive outcome (e.g., job satisfaction), a finding of an association may be inflated as a result of the semantically synonymous items (Crompton & Wagner, 1994).

In contrast to previous research, the present study explicitly focuses on the self-reported level of work stress associated with stressors and does not rely on the respondent to evaluate whether the stress is positive or negative. Therefore, the two limitations noted above are not limitations in the present study.

Why might we expect that self-reported work stress associated with some stressors is related to positive work outcomes? The managerial development literature is replete with examples of managers and executives commenting on certain job demands that, although pressure-laden and stressful, were viewed as rewarding work experiences well worth the discomfort that was involved (e.g., McCall et al., 1988). McCauley and colleagues labeled these job demands *challenges* (McCauley, Ruderman, Ohlott, & Morrow, 1994). **Examples of job demands that have been characterized as challenges include job overload, time pressures, and high levels of responsibility (McCauley et al., 1994).** Managers' reports that challenging job demands or work circumstances produce positive feelings, even though they may be stressful, are consistent with the theoretical distinction that has been made in the general stress literature between *eustress* and *distress*. Briefly, eustress has been defined as stress that creates challenge and feelings of fulfillment or achievement (Selye, 1982). Although the physiological effects of eustress and distress are similar, eustress has been found to be a positive motivating force (Selye, 1982). We define challenge-related self-reported stress as self-reported work stress associated with challenging job demands.

As the preceding discussion indicates, we expect that challenge-related self-reported stress will generally associate with positive work outcomes. We examine three related but distinct outcomes: job satisfaction, job search, and voluntary turnover. Consistent with Locke (1976), job satisfaction is defined as a pleasurable or positive emotional state resulting from an appraisal of one's job or

job experience. Job search includes behavioral search activities such as revising a resume or going to a job interview. Some research reveals that job search is not simply a precursor to voluntary turnover, and at times the processes may be inversely related (Bretz et al., 1994; Hom & Griffeth, 1991). Voluntary turnover is actual separation from the organization. We hypothesize the following:

Hypothesis 1a: Challenge-related self-reported stress will be positively related to job satisfaction.

Hypothesis 1b: Challenge-related self-reported stress will be negatively related to job search.

Hypothesis 1c: Challenge-related self-reported stress will be negatively related to voluntary turnover.

In contrast to challenge-related self-reported stress, stress associated with job demands or work circumstances that involve excessive or undesirable constraints that interfere with or hinder an individual's ability to achieve valued goals (demands that produce distress) is called hindrance-related self-reported stress. Distress is not accompanied by challenge or feelings of fulfillment or achievement (Selye, 1982). Examples of this category of self-reported work stress include organizational politics, red tape, and concerns about job security (Ivancevich, 1986; Ivancevich, Matteson, & Preston, 1982). We expect that hindrance-related self-reported stress will generally associate with negative work outcomes (i.e., decreased job satisfaction, increased job search, and voluntary turnover). These expectations are reflected in the following hypotheses:

Hypothesis 2a: Hindrance-related self-reported stress will be negatively related to job satisfaction.

Hypothesis 2b: Hindrance-related self-reported stress will be positively related to job search.

Hypothesis 2c: Hindrance-related self-reported stress will be positively related to voluntary turnover.

## Method

### Sample and Procedure

Surveys were sent to 10,000 high-level managers listed in the database of a large executive search firm as part of a larger project investigating mobility. Respondents were mostly men (91%), White (96%), and married (86%). The average age was 47. The managers worked an average of 56 hr per week, spent 3.4 years in their current position, and had received 7.9 promotions in their career. The average respondent was two levels below the CEO, and their average total compensation (including bonuses) was \$164,618 per year. The respondents came from companies averaging \$1.5 billion in sales per year and 10,140 total employees. The first survey was sent to the participants in June 1995 by the search firm. Participants were instructed to return the survey (business reply envelope included) directly to the researchers. Of the 10,000 surveys sent out, 1,886 surveys were returned (19% response rate). To determine whether respondents were representative of the full target sample, we compared respondents and nonrespondents on information contained in the search firm's database (e.g., demographics). Respondents were similar to nonrespondents in terms of salary, job level, tenure, gender, race, and organizational size. However, they were significantly more likely to be married ( $M_r = 86\%$ ,  $M_{nr} = 77\%$ ), to be older ( $M_r = 47.2$ ,  $M_{nr} = 45.4$ ), and to have had more children ( $M_r = 1.8$ ,  $M_{nr} = 1.5$ ). We were unable to determine whether the respondents and nonrespondents were similar on the substantive variables (e.g.,

challenge- and hindrance-related self-reported stress, job satisfaction, job search, and personality).

In July 1996, a follow-up survey we used to assess turnover was sent to each manager who had responded to the original questionnaire. Forty-five percent of the original survey respondents returned the follow-up survey (841 of 1,886). We compared respondents to the follow-up survey with those that only responded to the initial survey. Because data were available for both samples from the first survey, we were able to compare the samples on the substantive variables as well as demographics. No differences between these two samples were found.

### Challenge- and Hindrance-Related Self-Reported Stress Measures

**Overview of measure development.** The following steps were taken to develop and assess the construct validity of the challenge- and hindrance-related self-reported stress measures (Schwab, 1980): (a) Content validity was assessed through the use of four independent judges; (b) the two-factor structure of the stress items was tested using LISREL 8 (Jöreskog & Sörbom, 1993) confirmatory factor analysis; (c) internal consistency was assessed using Cronbach's alpha; and (d) the pattern of correlational relations between the challenge- and hindrance-related self-reported stress scales and external criteria were examined. Steps 1 through 3 are discussed below; Step 4 is discussed in the Results section.

**Evidence of content validity.** We assessed challenge- and hindrance-related self-reported stress by using previously developed sample-relevant items (Judge, Boudreau, & Bretz, 1995). In particular, Judge and colleagues included a total of 16 items from the Job Demands and Worker Health Study (Caplan, Cobb, French, Harrison, & Pinneau, 1975; also referred to as the Michigan Diagnostic Scales in Matteson & Ivancevich, 1987), the Stress Diagnostic Survey (Ivancevich & Matteson, 1983), and the Job Stress Index<sup>1</sup> (Sandman, 1992), on the basis of their appropriateness for managers (Bretz et al., 1994; Judge et al., 1995). Participants were asked to respond to how much stress each of the 16 work-related items was causing them using a Likert scale ranging from 1 (*produces no stress*) to 5 (*produces a great deal of stress*).

On the basis of the previous discussion of the two categorizations of self-reported work stress (i.e., self-reported work stress associated with challenge stressors and hindrance stressors), we viewed the measure used in Bretz et al. (1994) and Judge et al. (1995) as including items that assessed challenge- and hindrance-related self-reported stress. Therefore, items from the original scale were selected for use in constructing separate challenge- and hindrance-related self-reported stress measures using the following procedure. As a preliminary step, Cavanaugh, Boswell, and Roehling jointly evaluated the content of each of the original 16 items and made a judgment as to whether the item stem described a challenge stressor, a hindrance stressor, or neither/both. Six items were categorized as challenge stressors, five were categorized as hindrance stressors, and five as not falling clearly within either category (see the Appendix for a complete listing of the item stems). The latter items were removed from further analysis as a result of their ambiguity (e.g., contextual information is needed to ascertain whether "The amount of time I spend in meetings" is a challenge stressor [involving productive engagement] or a hindrance stressor [involving unproductive conflicts]).

To obtain independent evidence of the content validity of the respective scales, we provided four individuals (three graduate students and one professor) who were unrelated to the research project with the 11 stress item stems categorized earlier by Cavanaugh, Boswell, and Roehling as clearly falling in one category or the other and asked them to categorize each item stem as describing a challenge stressor, hindrance stressor, or

<sup>1</sup> The publisher and copyright holder of the Job Stress Index is Bonnie A. Sandman, Ph.D., Management and Human Resources Consulting, 2173 Hycroft Drive, Pittsburgh, Pennsylvania 15241.

neither/both according to the following definitions: Challenge stressors were defined as work-related demands or circumstances that, although potentially stressful, have associated potential gains for individuals; hindrance stressors were defined as work-related demands or circumstances that tend to constrain or interfere with an individual's work achievement and that do not tend to be associated with potential gains for the individual. The evaluators were allowed to refer to the definitions during the sorting task. The evaluators' categorization of the items agreed with the a priori categorization in 93% (41 of 44) of the cases (each assignment of an item to a category by one evaluator representing one case). At least three of the four evaluators agreed with the a priori categorization of each item. Thus, the final classification included six challenge-related self-reported stress items and five hindrance-related self-reported stress items as listed in the Appendix.

**Testing the two-factor structure and evidence of internal consistency.** To investigate the hypothesized factor structure, we conducted a confirmatory factor analysis (CFA). The CFA provided modest support for the two-factor model,  $\chi^2(43, N = 1,769) = 540.71, p < .00$  (comparative fit index [CFI] = .90, Non-normed fit index [NNFI] = .87; Bentler & Bonett, 1980). Table 1 provides the factor loadings of the two-factor model. A one-factor model was also tested. However, the fit of this alternative model was inferior,  $\chi^2(44, N = 1,769) = 991.59, p < .00$  (CFI = .81, NNFI = .77). Internal consistency of the challenge and hindrance scales was also demonstrated ( $\alpha = .87$  and  $.75$ , respectively). Given these findings, mean composite measures were created for challenge- and hindrance-related

self-reported stress. Further empirical evidence supporting the scales' construct validity is presented in the Results section. Specifically, we assessed evidence of discriminant validity by examining the scales' respective patterns of correlations with third variables (e.g., personality variables) and by testing the scales' predicted differential relationships to the focal outcome variables (job satisfaction, job search, and voluntary turnover).

### Other Measures

**Job satisfaction.** We measured overall job satisfaction with the three items used by Judge et al. (1995)—Gallup Poll measure of job satisfaction, the nongraphic version of the G. M. Faces Scale (Scarpello & Campbell, 1983), and an adapted version of the Fordyce Percent Time Satisfied Item (Diener, 1984). Because the three items used different response formats, they were standardized before computation of the composite measure ( $\alpha = .83$ ).

**Job search behavior.** Job search behavior was measured with 10 items from the Job Search Behavioral Index (JSBI; Kopelman, Rovenpor, & Millsap, 1992). Respondents were asked whether they had engaged in different search activities over the past year (1 = yes, 0 = no). Examples of items include revised resume, gone to a job interview, and initiated contact with an executive search firm. Consistent with previous research using this measure (e.g., Bretz et al., 1994), we summed items to create one job search index. A high number on this index indicates more search activity.

**Voluntary turnover.** Voluntary turnover was measured on the follow-up survey (approximately 1 year after the initial survey) with a question that asked whether the respondent was in the same position that he or she occupied at the time of the initial survey. Circumstances surrounding the separation were also assessed. Voluntary turnover occurred if the respondent was in a new position with a different company and left on his or her own accord. We excluded from the analysis those respondents whose turnover was not voluntary. One hundred forty-five (20%) of the respondents indicated they had left the organization voluntarily (1 = turnover, 0 = did not turnover).

**Control variables.** Previous research has shown that certain personality variables relate to the appraisal, reported frequency, and effects of stressful events. Gallagher (1990) found that individuals high in extraversion reported experiencing higher challenge-related stress and those high in neuroticism reported higher threat-related and lower challenge-related stress. This finding was further supported by Hemenover and Dienstbier (1996), who found that neuroticism was positively and extraversion negatively related to appraisal of stress as threatening. Previous research has also considered the role of conscientiousness in job stress and outcomes (e.g., Huebner & Mills, 1994; Jelinek & Morf, 1995; O'Brien & DeLongis, 1996). Specifically, Huebner and Mills (1994) found that low levels of conscientiousness as well as low levels of extraversion were associated with high levels of burnout for school psychologists. Previous research, therefore, suggests that extraversion, neuroticism, and conscientiousness may influence the relationships between job stress, attitudes, and behaviors and should, therefore, be considered in studies of stress. Thus these personality variables are controlled for in the present study. Neuroticism, extraversion, and conscientiousness were each measured with 12 items from the NEO Personality Inventory (Costa & McCrae, 1992;  $\alpha = .82, .77$ , and  $.80$ , respectively). Examples of items are as follows: "I often feel tense and jittery" (neuroticism), "I really enjoy talking to people" (extraversion), and "I work hard to accomplish my goals" (conscientiousness).

Research has also shown that men and women vary in reported severity and frequency of stress (Spielberger & Reheiser, 1994; Xie & Johns, 1995), are influenced by different stress factors that have different effects on variables such as career commitment (Wolfgang, 1995), and may differ in their appraisal of job stressors and symptoms of stress (Geller & Hobfoll, 1994; Murphy, Beaton, Cain, & Pike, 1994). Specifically, women have been shown to report higher levels of job demands (Hochwarter, Perrewe,

Table 1  
Confirmatory Factor Analysis of the Stress Item Stems

Item stems	Factor loadings	
	Challenge stressor	Hindrance stressor
The number of projects and/or assignments I have <sup>a</sup>	.81**	
The amount of time I spend at work <sup>a</sup>	.78**	
The volume of work that must be accomplished in the allotted time <sup>b</sup>	.87**	
Time pressures I experience <sup>c</sup>	.84**	
The amount of responsibility I have <sup>c</sup>	.71**	
The scope of responsibility my position entails <sup>c</sup>	.70**	
The degree to which politics rather than performance affects organizational decisions <sup>b</sup>		.69**
The inability to clearly understand what is expected of me on the job <sup>b</sup>		.64**
The amount of red tape I need to go through to get my job done <sup>c</sup>		.68**
The lack of job security I have <sup>b</sup>		.65**
The degree to which my career seems "stalled" <sup>b</sup>		.60**

<sup>a</sup> From *Job demands and worker health: Main effects and worker health*, by R. D. Caplan, S. Cobb, J. R. P. French, Jr., R. V. Harrison, and S. R. Pinneau, Jr., 1975, Washington, DC: U.S. Government Printing Office. Reprinted with permission.

<sup>b</sup> From *Stress Diagnostic Survey*, by J. M. Ivancevich and M. T. Matteson, 1983, Houston, TX: Stress Research Systems. Copyright 1983 by J. M. Ivancevich. Reprinted with permission.

<sup>c</sup> From "The measurement of job stress: Development of the Job Stress Index," by B. A. Sandman, 1992, in C. J. Cranny, P. C. Smith, and E. F. Store (Eds.), *Job satisfaction: How people feel about their jobs and how it affects their performance*, p. 246, New York: Lexington Books. Copyright 1992 by Lexington Books. Reprinted with permission.

\*\*  $p < .01$ .

Table 2  
Descriptive Statistics and Correlations Between Variables

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Hindrance-related self-reported stress	1,886	2.80	0.81	—								
2. Challenge-related self-reported stress	1,886	2.71	0.76	.28	—							
3. Job satisfaction	1,884	0.00	2.60	-.52	-.03	—						
4. Job search	1,879	5.36	2.97	.35	.03	-.39	—					
5. Voluntary turnover	713	0.20	0.40	.21	.01	-.27	.26	—				
6. Gender ( <i>male</i> = 1)	1,883	0.90	0.30	.00	-.09	-.01	-.04	.00	—			
7. Neuroticism	1,886	25.27	6.16	.31	.29	-.22	.12	.01	-.06	—		
8. Extraversion	1,886	45.90	5.21	-.11	-.08	.15	.00	.06	-.05	-.42	—	
9. Conscientiousness	1,886	49.48	4.98	-.02	-.11	.01	-.03	.02	-.02	-.35	.29	—

Note. Decimals omitted from correlations. Correlations greater than |.7| are significant at  $p < .01$ ; those greater than |.05| are significant at  $p < .05$ . Listwise deletion yielded  $n = 1,875$  for correlational analysis except for those with voluntary turnover (listwise deletion yielded  $n = 663$ ; correlation with search, job satisfaction, and hindrance-related self-reported stress significant at  $p < .01$ ).

& Dawkins, 1995) and experience more job distress (i.e., physical, emotional, and mental exhaustion, Geller & Hobfoll, 1994). Other research, however, has found no differences between men and women on reported levels of work-related tension (Hochwarter et al., 1995) or total job stressors (Murphy et al., 1994). Consistent with previous research (e.g., Xie, 1996; Xie & Johns, 1995), gender (1 = *male*, 0 = *female*) was also used as a control in the analyses.

## Results

### Additional Evidence of Construct Validity of the Self-Reported Work Stress Scales

Descriptive statistics and correlations are shown in Table 2. To assess evidence of discriminant validity, we examined the two scales' respective patterns of correlations with external criteria. As shown in Table 2, both challenge-related self-reported stress and hindrance-related self-reported stress were positively related to neuroticism and negatively related to extraversion. This result is consistent with findings that hardy individuals (those individuals low on neuroticism and high on extraversion; Niehouse, 1984) tend to experience less stress. However, challenge-related self-reported stress was negatively related to gender (women reporting higher levels) and conscientiousness, whereas hindrance-related self-reported stress was not significantly related to these variables.

The divergent relationships along with the CFA provide evidence of the discriminant validity of the stress categorizations. In addition, the relatively low correlation (.28) between the challenge- and hindrance-related self-reported stress scales argues for their discriminant validity.

### Test of Hypotheses

We used hierarchical regression to test Hypotheses 1a, 1b, 2a, and 2b. In each analysis the control variables were entered into the model first and hindrance- and challenge-related self-reported stress were entered second. Incremental  $R^2$  values are shown in the tables. Table 3 shows the results for job satisfaction. It was hypothesized that challenge-related self-reported stress would have a positive and hindrance-related self-reported stress would have a negative relationship with job satisfaction (Hypotheses 1a and 2a, respectively). Controlling for gender and the personality variables, hindrance-related self-reported stress negatively and challenge-related self-reported stress positively predicted job satisfaction ( $\beta = -.52$ ,  $p < .01$ ;  $\beta = .14$ ,  $p < .01$ , respectively). Hypotheses 1a and 2a were supported.

Table 4 shows the results for job search, which was hypothesized to have a negative relationship with challenge-related self-

Table 3  
Results of Regression Analysis for Job Satisfaction

Variable	Step 1	Step 2
Gender ( <i>male</i> = 1)	-.02	.00
Neuroticism	-.21**	-.07**
Extraversion	.08**	.08**
Conscientiousness	-.09**	-.04
Hindrance-related self-reported stress		-.52**
Challenge-related self-reported stress		.14**
Change in $R^2$		.23**
$R^2$	.06	.29
Adjusted $R^2$	.06	.29
$F(df)$	28.29 (4, 1877)**	128.31 (6, 1875)**

Note. Standardized coefficients are shown;  $n = 1,882$ .

\*\*  $p < .01$ .

Table 4  
Results of Regression Analysis for Job Search

Variable	Step 1	Step 2
Gender ( <i>male</i> = 1)	-.03	-.04
Neuroticism	.14**	.04
Extraversion	.05*	.05*
Conscientiousness	.00	-.04
Hindrance-related self-reported stress		.36**
Challenge-related self-reported stress		-.09**
Change in $R^2$		.11**
$R^2$	.02	.13
Adjusted $R^2$	.02	.13
$F(df)$	8.15(4,1872)**	46.97(6,1870)**

Note. Standardized coefficients are shown;  $n = 1,877$ .

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

reported stress (Hypothesis 1b) and a positive relationship with hindrance-related self-reported stress (Hypothesis 2b). As hypothesized, challenge-related self-reported stress negatively and hindrance-related self-reported stress positively predicted job search behaviors ( $\beta = -.09, p < .01$ ;  $\beta = .36, p < .01$ , respectively). Therefore, Hypotheses 1b and 2b were supported.

To examine the relation between the different categorizations of self-reported work stress and voluntary turnover, Hypotheses 1c and 2c, we specified a logistic regression model with voluntary turnover as the dichotomous dependent variable (see Table 5). Specifically, we hypothesized that challenge-related self-reported stress would have a negative and hindrance-related self-reported stress would have a positive relationship with voluntary turnover. Results indicate that hindrance-related self-reported stress positively predicted voluntary turnover as hypothesized ( $\beta = .74, p < .01$ ), and challenge-related self-reported stress was in the hypothesized negative direction but was not significant ( $\beta = -.11, ns$ ). Hypothesis 2c was supported, and Hypothesis 1c was not.

### Discussion

In this study, we proposed that self-reported work stress is differentially related to attitudinal and behavioral work outcomes depending on the stressors that are evaluated. On the basis of that proposition, we derived and tested specific hypotheses regarding the relationship between two categorizations of self-reported work stress, challenge- and hindrance-related self-reported stress, respectively, and job satisfaction, job search, and voluntary turnover. In this section, we review the substantive issues addressed in the study and briefly discuss relevant measurement and design issues in work stress research.

#### Challenge- and Hindrance-Related Self-Reported Stress

On balance, the results provide evidence that self-reported work stress is differentially related to attitudinal and behavioral work outcomes depending on the stressors that are evaluated, and self-reported work stress can be categorized into what we call challenge- and hindrance-related self-reported stress. The results of a content validation procedure where four independent judges sorted the items with 93% agreement with the a priori categorization were confirmed by data provided by 1,886 U.S. managers.

Table 5  
*Logistic Regression Results of Voluntary Turnover*

Variable	Step 1	Step 2
Gender (male = 1)	.11	.02
Neuroticism	.02	-.01
Extraversion	.04	.04*
Conscientiousness	.01	-.01
Hindrance-related self-reported stress		.74**
Challenge-related self-reported stress		-.11
Constant	-4.03*	-4.65**
$\chi^2(8, N = 671)$	4.11	37.80**
Change in $\chi^2$		33.69**
-2 Log likelihood	715.62	681.93

Note. Maximum likelihood estimates are shown;  $N = 671$ .

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

The confirmatory factor analysis, reliability analysis, and correlational analyses with external criteria all supported the proposition that challenge- and hindrance-related self-reported stress are two distinct phenomena.

Perhaps most compelling, however, are the findings that challenge- and hindrance-related self-reported stress were both related to the work outcomes in question, but in opposite directions. Challenge-related self-reported stress was significantly positively related to job satisfaction and significantly negatively related to job search. In contrast, hindrance-related self-reported stress was significantly negatively related to job satisfaction and significantly positively related to job search and voluntary turnover. The finding that challenge- and hindrance-related self-reported stress are both related to the work outcomes but in opposite directions is not easily attributed to methodological artifacts.

The present findings strongly suggest that there is need for further consideration of the categorizations of self-reported work stress. As previously noted, researchers investigating similar evaluations of self-reported work stress have treated self-report levels of stress associated with various stressors as measuring a single, unidimensional stress construct (e.g., Bretz et al., 1994).

To illustrate the significance of the findings of this study, we obtained the data (a sample of 1,388 managers collected in 1992), with permission, from the Bretz et al. (1994) study and reanalyzed it using the challenge- and hindrance-related self-reported stress categorization that was supported by the findings of the present study. In contrast to the nonsignificant findings yielded when challenge- and hindrance-related self-reported stress items were aggregated in a single measure (with five additional items), the findings of the reanalysis indicate a significant positive relationship between hindrance-related self-reported stress and job search ( $\beta = .13, p < .01$ ) and a significant negative relationship between challenge-related self-reported stress and job search ( $\beta = -.06, p < .05$ ), further supporting the need for the consideration of the categorizations of self-reported work stress.

Although the present findings indicate that evaluations of work stress associated with certain stressors are not a unidimensional construct, we do not rule out the possibility that there are other meaningful dimensions (or concepts within dimensions) of self-reported work stress. The specific focus on the challenge-hindrance distinction grew out of our interest in the challenge and development literature (Berlew & Hall, 1966; Davies & Easterby-Smith, 1984; McCall et al., 1988; McCauley, Cavanaugh, & Noe, 1996; McCauley et al., 1994). The dimensionality of the self-reported work stress construct is in need of further theorizing and empirical investigation.

An issue that this study does not address is the nature of the mechanism by which challenge-related self-reported stress is related to positive outcomes and hindrance-related self-reported stress is related to negative outcomes. We speculated that challenge-related self-reported stress may be related to positive feelings (e.g., eustress, challenge) and hindrance-related self-reported stress may be related to negative feelings (e.g., distress, frustration), which then results in positive or negative work outcomes. However, we were not able to specifically test these relationships. It would be instructive to examine the relationship between challenge- and hindrance-related self-reported stress and the feelings associated with the experienced stress. For example,



do managers who report high levels of challenge-related self-reported stress also report higher levels of felt challenge and lower levels of frustration? If this is the case, research conducted by McCauley and her colleagues on the relationship between felt challenges and on-the-job development (McCauley et al., 1994; McCauley et al., 1996) would suggest that the causal relation between challenge-related self-reported stress and the outcomes investigated in this study would include felt challenge and development as mediating variables (i.e., managers experiencing challenge-related stress feel more challenged and thus are developing in their roles, which leads to greater job satisfaction and less job search). Future research is needed to investigate these causal linkages.

### *Measurement and Design Issues in Work-Stress Research*

A number of measurement and design issues were raised or highlighted by the present study. We identify and briefly discuss two of these issues. Personality may strongly influence reports of stress, as well as reports of attitudinal variables (McCrae, 1990). As indicated by the patterns of correlations, the personality variables were generally significantly related to both challenge- and hindrance-related self-reported stress and the attitudinal outcome variable (job satisfaction). However, the appropriateness of controlling for personality in stress research is currently under debate. Spector, Zapf, Chen, and Frese (in press) noted that controlling for personality, more specifically negative affectivity, in stress research is only appropriate if people with higher levels of negative affectivity (in our study, higher values of neuroticism, for example) report higher levels of stress than what exists. This situation is most likely to occur when the items are affective or evaluative as opposed to descriptive or nonaffective. In contrast, if people with higher levels of negative affectivity actually experience higher levels of stress, then partialling is not appropriate (i.e., the effects of the variable of interest are removed). To determine whether the personality controls affected our results, we reran the analyses without personality controlled. The findings were not appreciably different. These findings suggest that future research should continue to address the circumstances under which personality controls are necessary in stress research.

Lastly, the correlation matrix revealed no significant relationships between challenge-related self-reported stress and the outcome variables. This pattern of no significant correlations between challenge-related self-reported stress and the outcomes and the findings of the significant relationships between challenge-related self-reported stress and job satisfaction and job search in the regression analyses is consistent with statistical suppression.<sup>2</sup> Additional regression analyses were conducted to determine the source of the suppression (Smith, Ager, & Williams, 1992). The results revealed that hindrance-related self-reported stress is the suppressor (i.e., when job satisfaction and job search were regressed on challenge- and hindrance-related self-reported stress only, challenge-related self-reported stress was significant; when job satisfaction and job search were regressed on challenge-related self-reported stress and the covariates, challenge-related self-reported stress was not significant). This finding suggests that unless the variance common to both challenge- and hindrance-related self-reported stress is controlled, the relation between challenge-related self-reported stress and the outcomes examined

in this study may not be identified. Thus, to adequately test the relationships between challenge-related self-reported stress and job satisfaction and job search, researchers must control hindrance-related self-reported stress (the suppressor).

### *Practical Implications*

The findings suggest that organizations interested in addressing self-reported work stress to improve job satisfaction and reduce employee turnover need to be discriminating in their measurement and interpretation of self-reported levels of work stress and should focus on eliminating hindrance-related self-reported stress. Unfortunately, it appears that it may not be possible to address hindrance-related self-reported stress with readily implemented stress-reduction programs. Reducing the stress associated with job insecurity or the political nature of the workplace may require more systemic changes in the organization's culture, state of employee relations, or both.

Less clear are the practical implications of the challenge-related self-reported stress findings. The results indicated a positive relationship between challenge-related self-reported stress and job satisfaction and a negative relationship with job search. This finding is consistent with claims being made about the relationship between challenging job demands and positive work outcomes (McCauley et al., 1996; McCauley et al., 1994). What we do not know are the physical effects of challenge-related self-reported stress. Individuals who are experiencing stress associated with challenges for lengthy time periods may be at a greater risk for heart attacks or other physical ailments. Additional research is needed to examine these effects before recommendations are provided.

Also unclear is the extent to which the study's findings generalize to other samples drawn from the same and other occupations. There are at least four reasons to expect that the generalizability may be limited. First, our response rate is not as high as one would like (19%). Although we made every effort to determine the representativeness of our sample by comparing respondents to nonrespondents on the variables we had available (i.e., comparing initial respondents to nonrespondents on salary, industry, demographics; comparing respondents to both the first and follow-up surveys with respondents who responded only to the first survey on the substantive variables), we are unable to rule out the possibility that our initial sample is biased with respect to the substantive variables. The second involves the personality profiles of managers who have been described as hardy (Niehouse, 1984) and as achievement oriented (Scott, Moore, & Miceli, 1997). If the present sample is more hardy and achievement oriented than samples from other occupations, our findings may not generalize to these other samples. The third reason is that although the demographics (i.e., primarily White and male participants) of our sample reflect the executive population (U.S. Census Bureau, 1998), our findings may not generalize to more demographically diverse occupational groups.

The fourth reason to expect that the generalizability of the findings may be limited involves the nature of managerial jobs and managers' relatively high degree of job control. Karasek's (1979)

<sup>2</sup> We thank an anonymous reviewer for calling this to our attention.

job-demands–decision-latitude model explicates the importance of job control when examining the relationship between job demands and mental strain. Essentially, the model posits that the level of job demand and the amount of job control interact to form a  $2 \times 2$  matrix of potential outcomes. According to the model, the least desired situation is high-demand–low-decision latitude (high-strain situation) and the most desired situation is high-demand–high-decision latitude (active situation).

Although issues of job control may limit the generalizability of the study's findings, it is not a substantial threat to the internal validity of the findings. According to Karasek, managerial positions can be categorized as a high-demand–high-decision latitude occupation (Karasek, 1979, 1989). In using a sample that is limited to managers, relevant differences in job control are held constant (i.e., job control is controlled for because the sample includes participants who all fall in the high-demand–high-decision latitude category). However, job control may be a useful framework for examining the relationships between challenge and hindrance related reported stress and various outcomes when samples include individuals at different levels within the organization (e.g., lower levels where individuals have less control of their job and work environment). Future research should extend the examination of challenge- and hindrance-related self-reported stress to workers beyond managers.

In conclusion, this study proposed that managers' self-reported work stress is differentially related (positively and negatively) to attitudinal and behavioral work outcomes depending on the stressor being evaluated. The results support this proposition: challenge- and hindrance-related self-reported stress differentially related to important organizational outcomes (job satisfaction, job search, and voluntary turnover). These findings suggest that distinguishing between challenge- and hindrance-related self-reported stress will increase our understanding of self-reported work stress.

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(Appendix follows)

## Appendix

Stress Item Stems and Categorization as Challenge Stressors, Hindrance Stressors, or Other  
(Not Clearly Falling in Either Category)

## Challenge Stressors

1. The number of projects and or assignments I have.<sup>a</sup>
2. The amount of time I spend at work.<sup>a</sup>
3. The volume of work that must be accomplished in the allotted time.<sup>b</sup>
4. Time pressures I experience.<sup>c</sup>
5. The amount of responsibility I have.<sup>c</sup>
6. The scope of responsibility my position entails.<sup>c</sup>

## Hindrance Stressors

1. The degree to which politics rather than performance affects organizational decisions.<sup>b</sup>
2. The inability to clearly understand what is expected of me on the job.<sup>b</sup>
3. The amount of red tape I need to go through to get my job done.<sup>c</sup>
4. The lack of job security I have.<sup>b</sup>
5. The degree to which my career seems "stalled."<sup>b</sup>

## Other

1. The amount of time I spend in meetings.<sup>a</sup>
2. The number of phone calls and office visits I have during the day.<sup>a</sup>
3. The extent to which my position presents me with conflicting demands.<sup>b</sup>
4. The opportunities for career development I have had.<sup>b</sup>
5. The amount of traveling I must do.<sup>b</sup>

<sup>a</sup> From *Job demands and worker health: Main effects and worker health*, by R. D. Caplan, S. Cobb, J. R. P. French, Jr., R. V. Harrison, and S. R. Pinneau, Jr., 1975, Washington, DC: U.S. Government Printing Office. Reprinted with permission.

<sup>b</sup> From *Stress Diagnostic Survey*, by J. M. Ivancevich and M. T. Matteson, 1983, Houston, TX: Stress Research Systems. Copyright 1983 by J. M. Ivancevich. Reprinted with permission.

<sup>c</sup> From "The measurement of job stress: Development of the Job Stress Index," by B. A. Sandman, 1992, in C. J. Cranny, P. C. Smith, and E. F. Store (Eds.), *Job satisfaction: How people feel about their jobs and how it affects their performance*, p. 246, New York: Lexington Books. Copyright 1992 by Lexington Books. Reprinted with permission.

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