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A META-ANALYTIC TEST OF THE CHALLENGE STRESSOR–HINDRANCE STRESSOR FRAMEWORK: AN EXPLANATION FOR INCONSISTENT RELATIONSHIPS AMONG STRESSORS AND PERFORMANCE

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This article reports a meta-analytic test of a two-dimensional work stressor framework with respect to stressors' relationships with strains, motivation, and performance. Hindrance stressors had a negative direct effect on performance, as well as negative indirect effects on performance through strains and motivation. Challenge stressors had a positive direct effect on performance, as well as offsetting indirect effects on performance through strains (negative) and motivation (positive). Results suggest research and practice could benefit by distinguishing among challenge and hindrance stressors.

Research has yet to reach a consensus on the relationship between stress and performance at work, and accounting for this inconsistency is crucial for theoretical and practical reasons (Jex, 1998). From a theoretical perspective, knowledge regarding stress will be deficient until its relationship with performance, a criterion of central interest to management scholars, is clarified. From a practical perspective, organizations expend a large amount of resources in attempts to manage stress (Cooper, Dewe, O'Driscoll, 2001), and better knowledge of stress effects should be useful in guiding efforts intended to enhance the usefulness of stress management practices.

Accordingly, the purpose of the research presented in this article was to develop and test theory that may help scholars and managers better understand the relationship between stress and performance. We drew on the work of Lazarus (e.g., Lazarus & Folkman, 1984) as a basis for suggesting that work stressors (stimuli that place demands on individuals) are appraised as hindrances (e.g., role ambiguity, role conflict, hassles, red tape, etc.) or challenges (e.g., workload, job demands, and job complexity), and we extended this research perspective using expectancy theory (Vroom, 1964) to suggest that the results of this appraisal translate to differing effects on performance indirectly, through effects on strains and motivation. We organized the existing body of work stressors research around this two-dimensional stressor framework and performed meta-analyses to assess a set of theoretically derived hypotheses.

Before moving on, we note that this study employed the stressors and strains perspective. *Stressors* are conditions that cause *strains;* strains include anxiety, exhaustion, depression, and burnout (Jex, 1998). This perspective suggests that stressors are the stimuli that evoke the stress process, and strains are the outcomes in this process. We acknowledge that responses to stressors vary somewhat as a function of individual differences that influence the way individuals appraise and cope with stressors (e.g., Lazarus & Folkman, 1984). However, as Brief and George (1995) argued, work contexts have a fairly consistent economic meaning for the individuals who experience them, and as a result, they tend to appraise and react to the particular work stressors in those contexts in fairly consistent ways. Accordingly, we heeded Brief and George's recommendation that it is necessary and useful for researchers to focus on identifying those particular conditions at work (stressors) that stimulate particular patterns of appraisals and coping in most individuals who are exposed to them.

A TWO-DIMENSIONAL MODEL OF STRESSORS AND PERFORMANCE

One explanation for inconsistent findings on stress-performance relationships is that there is "good" stress as well as "bad" stress, and it is this good stress that is associated with high perfor-

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mance. Most often, good stress has been conceptualized as stress that is not too high, or stress on the upward-sloping part of the assumed inverted U-shaped relationship between stress and performance (e.g., Quick, Quick, Nelson, & Hurrell, 1997). However, Selye (1976, 1982), the originator of the distinction between "eustress" (good stress) and distress (bad stress), did not conceptualize stress this way. Rather, Selye suggested that distinctions among types of stress should be based on the *type* of demand (i.e., the type of stressor), not on the *level* of demand. Moreover, Selye focused his attention on the physiological effects of distress. He never examined relationships with job performance, and he discussed eustress briefly in his work to account for stressors that appeared to be healthful and to cause positive emotions. Finally, although the possibility that there is an inverted U-shaped relationship between stress and performance is intuitively appealing, tests have not been supportive (Lienert & Baumler, 1994; Teigen, 1994; Westman & Eden, 1996). Although the good stress/bad stress idea remains popular today, theories that account for the distinction have not been developed, and only recently have scholars begun to consider relationships between good stress and work criteria.

In one such study, Cavanaugh, Boswell, Roehling, and Boudreau (2000) found two factors underlying scores on items from several popular measures of stress. One factor included demands such as high workload, time pressure, job scope, and high responsibility. This factor was labeled "challenge stressors" because it included stressful demands viewed by managers as obstacles to be overcome in order to learn and achieve. The other factor included demands such as organizational politics, red tape, role ambiguity, and concerns about job security. This factor was labeled "hindrance stressors" because it included stressful demands viewed by managers as unnecessarily thwarting personal growth and goal attainment. Importantly, regression analysis results indicated that whereas challenge stressors were positively associated with job satisfaction and negatively associated with job search, hindrance stressors were negatively associated with job satisfaction and positively associated with job search. Boswell, Olson-Buchanan, and LePine (2004) replicated the underlying two-dimensional factor structure of the stressor items in the context of lower-level employees, and they also found that the two types of stressors had differing relationships with several retention criteria. Although this research demonstrated that people distinguish challenge stressors from hindrance stressors and that the two types of stressors have differing relationships with important occupational criteria, this research did not provide a theoretical explanation for the dimensions or examine relationships with performance. However, by extending the research of Lazarus (e.g., Lazarus & Folkman, 1984) using concepts from expectancy theory (Vroom, 1964), it becomes possible to account for the distinction among stressors and also to predict differing relationships with performance.

Lazarus and Folkman (1984) posited that people appraise stressful situations as either potentially threatening or potentially promoting mastery, personal growth, or future gains. This distinction among stressors is similar to the distinction that Cavanaugh and colleagues (2000) made, albeit Lazarus and Folkman used the labels "threats" and "challenges." The outcome of this initial appraisal process influences emotions, which in turn influence how a person copes with stressors. Challenge stressors, because they are appraised as having the potential to promote personal gain or growth, trigger positive emotions and an active or problem-solving style of coping (e.g., increasing effort). Threatening or hindering stressors, because they are appraised as having the potential to harm personal growth or gain, trigger negative emotions and a passive or emotional style of coping (e.g., withdrawing from the situation, rationalizing).

Although Lazarus and Folkman (1984) did not address how stressors influence work motivation directly, the appraisal and coping process they described can be viewed in terms of expectancy theory (Vroom, 1964). When this is done, it is possible to understand how challenge and hindrance stressors might be differently related to motivation (i.e., the direction, level, and persistence of effort toward work), and through motivation, to performance. In essence, through direct experience and social learning, challenge and hindrance stressors may come to be associated with cognitions identified in expectancy theory. First, stressors are likely to be associated with beliefs regarding the relationship between levels of effort expended on coping with a demand and the probability of success in meeting the demand (expectancy). Second, stressors are likely to be associated with beliefs regarding the relationship between success in meeting the demand and obtaining outcomes (instrumentality) with some associated degree of value or attractiveness (valence). Challenge stressors should be associated with high motivation because people are likely to believe that there is a positive relationship between effort expended on coping with these demands and the likelihood of meeting the demands, and also likely to believe that if these demands are met, valued outcomes will occur. For example,

people are likely to believe that time pressure in the work context can be met with coping in the form of increased effort, and that if they cope successfully with this demand in this manner they will experience a sense of personal accomplishment and perhaps receive formal recognition. Hindrance stressors should be associated with low motivation because people are not likely to believe that there is a relationship between effort expended on coping with these demands and the likelihood of meeting them. In fact, because people are likely to believe that no reasonable level of effort will be adequate to meet these types of demands, they will tend to have low motivation to expend effort on coping, regardless of any desire to cope based on the subjective value of potential outcomes. For example, individuals who face conflicting role demands likely recognize that they cannot simultaneously satisfy both demands with any amount of effort. Moreover, any effort expended to cope with the demands would likely be viewed as sapping resources that could otherwise be focused on demands associated with valued outcomes that could be met. The degree to which challenge stressors should be positively associated with motivation and hindrance stressors should be negatively associated with motivation is important because motivation is a proximal antecedent of performance. That is, challenge stressors and hindrance stressors should be indirectly (and differently) related to performance through motivation.

Unfortunately, specifying relationships among the two types of stressors and performance is complicated by a second underlying mechanism. Specifically, emotional and cognitive effort associated with the appraisal and coping processes (Cooper et al., 2001; Lazarus & Folkman, 1984) results in strains such as fatigue and exhaustion, which in turn detract from performance because they reduce energy that could be used to perform tasks (Cohen, 1980). Accordingly, both types of stressor should have negative, indirect relationships with performance through strains. Overall, therefore, hindrance stressors should be negatively related to performance because indirect effects through both motivation and strains should be negative. The relationship between challenge stressors and performance is more complex because the indirect effects on performance should be offsetting (positive through motivation and negative through strains). However, whereas motivationally relevant cognitions are proximally related to the initial appraisal of stressors (Perrewé & Zellars, 1999), strains accrue more slowly as a function of repeated or prolonged exposure to stressors (Maslach & Schaufeli, 1993), and thus should be more distally related to the stressors. Accordingly, we expect the positive, indirect effect of challenge stressors through motivation to be stronger than the negative indirect effect of challenge stressors through strains, and following from this, we expect an overall positive relationship between challenge stressors and performance. To summarize, we hypothesize:

Hypothesis 1. Challenge stressors and hindrance stressors have positive relationships with strains.

Hypothesis 2. Challenge stressors have a positive relationship with motivation, and hindrance stressors have a negative relationship with motivation.

Hypothesis 3. Challenge stressors have a positive relationship with performance, and hindrance stressors have a negative relationship with performance.

Hypothesis 4. Challenge stressors have offsetting indirect relationships with performance. The indirect relationship through motivation is positive, and the indirect relationship through strains is negative.

Hypothesis 5. Hindrance stressors have negative indirect relationships with performance through both motivation and strains.

METHODS

To test our hypotheses, we used Hunter and Schmidt's (1990) method of meta-analysis. Accordingly, we estimated true population correlations among variables by sample-weighting correlations from primary studies and by applying formulas that account for sampling and measurement error in both predictor and criterion. We searched the PsychINFO and Web of Science databases through June 2004 for articles with meta-analyzable results. To keep the search manageable, we focused on 22 journals that we believed would include work stressor–performance relationships. The Appendix lists these journals. We used the keyword "performance" together with keywords describing work stressors (e.g., "challenge," "distress," "eustress," "hassles," "hindrance," "obstacles," "overload," "politics," "responsibilities," "role ambiguity," "role conflict," "stress," "stressor," "threat," "workload"). To be considered, studies needed to include an individual-level performance criterion applicable to management in work settings. To identify additional studies, we examined the reference sections of meta-analyses, narrative reviews, book chapters, and conceptual articles. We contacted 30

scholars who have published in the stress domain and asked for unpublished papers/data. Finally, we included additional manuscripts that were in our possession or were identified by friendly reviewers. The final database included 82 manuscripts and articles reporting relationships from 101 samples.

We then categorized stressor measures on the basis of how their content mapped onto items included in the previously validated challenge stressor–hindrance stressor measures (Cavanaugh et al., 2000). Challenge stressors included measures of job/role demands, pressure, time urgency, and workload. Hindrance stressors included measures of constraints, hassles, resource inadequacy, role ambiguity, role and interpersonal conflict, role dissensus, role interference, role strain (items similar to role ambiguity), role clarity (reverse-coded), role overload, supervisor-related stress, and organizational politics. When there was doubt as to the appropriate category for a particular measure, we examined the content of the measure and reached a consensus using Lazarus and Folkman's (1984) theory. We verified our judgments using four independent raters who categorized 30 example items from the measures identified in our search as to whether the item referred to a hindrance or a challenge. The raters agreed with one another as to the appropriate category for the items (ICC1 = .73, $p < .05$), and their ratings corresponded to ours at an acceptable level ($r = .77$, $p < .05$). We note that our search identified studies with measures of stress that combined hindrances and challenges (e.g., Bhagat & Allie, 1989) or were difficult to classify for other reasons (e.g., Westman & Eden, 1992). Although we do not report meta-analyses that included effect sizes from these measures, they are available from the first author upon request.

In order to verify our contention that despite individual differences, there is consistency in the way people appraise stressors, we gathered some data from a small sample of part-time MBA students ($n = 43$). These students indicated the extent to which they believed that certain job demands promote (act as challenge stressors) and threaten (act as hindrance stressors) personal goal accomplishment, growth, and learning (1, "strongly disagree"; 7, "strongly agree"). For demands reflecting variables we had categorized as challenge stressors, the students rated the demand as significantly more challenging than hindering (mean challenge score = 5.77, mean hindrance score = 2.66, all p's $< .001$). For demands reflecting variables we had categorized as hindrance stressors, students rated the demands as significantly more hindering than challenging (mean hindrance score = 5.49, mean hindrance score = 2.82, all p's $< .001$). We also note that the students rated the challenging and hindering job demands approximately the same on how much stress the demands caused them to feel (4.86 and 4.67, respectively, on a 7-point scale; difference = .19, $p > .05$).

The performance measures from the primary studies varied primarily with respect to the sources of ratings, which included objective assessments, supervisors, peers/coworkers, and self. The majority of the measures reflected overall job performance, but there were measures of narrow aspects of performance as well (for instance, quality or quantity of output, performance in a learning environment). Although we limited the scope of our search to studies investigating work stressor–performance relationships to ensure comparability across the full set of predictor-criterion relationships, the database included a subset of studies that included relationships with measures of strains and motivation. Measures of strains included anxiety, depersonalization, depression, emotional exhaustion, frustration, health complaints, hostility, illness, physical symptoms, and tension. Measures of motivation included job/work motivation, effort, persistence, felt challenge, learning motivation, and expectancy. In studies with multiple measures of a construct, we calculated correlations of variables with composites (or correlations of composites and other composites) as well as the reliability of the composites.

RESULTS

Table 1 reports the results of the meta-analyses among the study constructs, giving the sample-weighted correlation *(r),* the estimated true correlation corrected for sampling error and unreliability (r_c), the 90% confidence interval around the estimated true correlation (90% CI), the number of correlations *(K),* and the combined sample size *(N).*

Because challenge stressors and hindrance stressors were moderately related ($r_c = .33$, $p < .05$), we included both predictors in the same model to estimate their independent effects. To do so, we used matrices of the relevant estimated true correlations and the harmonic means of the cells as input for regressions of strains, motivation, and performance, with both challenge stressors and hindrance stressors as predictors. Results in Table 2 for regression model 1 indicate that challenge stressors and hindrance stressors explain 39 percent of the variance in strains; and supporting Hypothesis 1, both regression weights are significant and positive (βs = .23 and .50, respectively). Results of regression model 2 show that the stressors explain 6

TABLE 1
Meta-Analytic Results for the Relationships among Stressors, Strains, Motivation, and Performance[a]

	1. Challenge Stressors					2. Hindrance Stressors					3. Strains					4. Motivation				
Variable	***r***	r_c	**90% CI**	***K***	***N***	***r***	r_c	**90% CI**	***K***	***N***	***r***	r_c	**90% CI**	***K***	***N***	***r***	r_c	**90% CI**	***K***	***N***
1. Challenge stressors																				
Average reliability			.79																	
2. Hindrance stressors	.26	.33	(.19, .48)	10	4,177															
Average reliability			.69																	
3. Strains	.33	.40	(.30, .51)	16	3,080	.37	.58	(.48, .67)	27	5,586										
Average reliability			.79																	
4. Motivation	.13	.16	(.04, .28)	7	2,274	−.11	−.12	(−.28, .05)	11	3,187	−.08	−.09	(−.19, −.00)	7	1,788					
Average reliability			.75																	
5. Performance	.09	.12	(.01, .23)	20	3,465	−.14	−.20	(−.23, −.16)	73	14,943	−.17	−.21	(−.27, −.16)	30	6,769	.31	.44	(.31, .56)	6	1,811
Average reliability			.83																	

[a] *r* is the sample-weighted correlation; r_c is the estimated true correlation corrected for sampling error unreliability; 90% CI is the 90% confidence interval around the estimated true correlation; *K* is the number of correlations used for the meta-analysis; and *N* is the combined sample size for the meta-analysis.

TABLE 2
Results of Meta-Analytic Regression Analysis[a]

	Model 1: Strains		Model 2: Motivation		Model 3: Performance		Model 4: Performance[b]		
Predictors	R^2	β	R^2	β	R^2	β	ΔR^2	$\beta_{\text{step 1}}$	$\beta_{\text{full model}}$
Motivation							.22	.43	.39
Strains								−.17	−.18
Challenge stressors		.23		.22		.21	.03		.17
Hindrance stressors		.50		−.19		−.27			−.10
Total R^2	.39		.06		.08		.25		

[a] Harmonic means ranged from 3,021 to 5,042. All estimates were significant at the $p < .01$ level.
[b] Hierarchical regression; step 1 included motivation and strains, and step 2 included challenge stressors and hindrance stressors.

percent of the variance in motivation. Supporting Hypothesis 2, the relationship with challenge stressors is positive ($\beta = .22$, $p < .05$), and the relationship with hindrance stressors is negative ($\beta = -.19$, $p < .05$). Finally, results of regression model 3 show that the stressors explain 8 percent of the variance in performance. In support of Hypothesis 3, the relationship with challenge stressors is positive ($\beta = .21$, $p < .05$), and the relationship with hindrance stressors is negative ($\beta = -.27$, $p < .05$).

In order to test Hypotheses 4 and 5, we followed the recommendations and procedures outlined by scholars who have recently published reviews of research using path analyses of meta-analytic estimates (e.g., Shadish, 1996; Viswesvaran & Ones, 1995). Regression models 1 and 2 predict strains and motivation with the two types of stressors and, therefore, to obtain the remaining information needed to assess the hypothesized indirect effects, we conducted a hierarchical regression of performance with strains and motivation entered in step 1, and the two types of stressors entered in step 2.

Results of this regression (model 4) first illustrate that motivation and strains together explain 22 percent of the variance in performance. In keeping with our expectations, motivation has a positive relationship with performance, and strains has a negative relationship with performance. The regression weights for motivation and strains in step 1 (βs = .43 and −.17, respectively) are significant and similar in magnitude to the regression weights for motivation and strains obtained in the full model, which also includes the two types of stressors as predictors (βs = .39 and −.18, respectively). In step 2 of model 4, challenge and hindrance stressors explain an additional 3 percent of the variance in performance after relationships with motivation and strains are considered. Because the two types of stressors explain 63 percent less variance in performance than they do when motivation and strains are also included in the same model (variance explained goes from 8 percent in model 3 to 3 percent in model 4), there is preliminary support for our contention that motivation and strains at least partially explain the relationship between the two types of stressors and performance. Although the regression weights for the two types of stressors are lower in model 4 than in model 3, both remain statistically significant, indicating the presence of residual direct effects on performance. A straightforward interpretation of the reduction in the regression weight for challenge stressors is not obvious, because the indirect effects through strains and motivation differ in direction, and thus they suppress one another (Cohen, Cohen, West, & Aiken, 2003).

We then calculated the indirect effects using the product of the appropriate beta weights (from models 1, 2, and 4, the full model), and we assessed the statistical significance of these indirect effects using Sobel's (1982) test. In support of Hypothesis 5, the indirect effect of challenge stressors through motivation is significant ($p < .05$) and positive:

$$\beta_{\text{challenge stressors to motivation}} \times \beta_{\text{motivation to performance}} = .09.$$

The indirect effect of challenge stressors through strains was significant ($p < .05$) and negative:

$$\beta_{\text{challenge stressors to strains}} \times \beta_{\text{strains to performance}} = -.04.$$

Similarly, Hypothesis 6 was supported in that indirect effects of hindrance stressors through motivation and strains were both significant ($p < .05$) and negative:

$$\beta_{\text{hindrance stressors to motivation}} \times \beta_{\text{motivation to performance}} = -.07.$$

$$\beta_{\text{hindrance stressors to strains}} \times \beta_{\text{strains to performance}} = -.09.$$

DISCUSSION

Theoretical Implications

At the most general level, our research contributes to the literature on stress by offering support for a distinction among types of stressors. The results of our meta-analysis indicated that although there was a nontrivial relationship among challenge and hindrance stressors (perhaps organizational cultures vary in terms of the overall level of demands they place on individuals), there were differing relationships with criteria that were consistent with theory. Although one might question the importance of these findings—given that the good stress/bad stress distinction has been previously articulated—the primary studies we examined did not for the most part include hypotheses about differing relationships with criteria when both types of stressor were considered as predictors. Although we cannot say for sure, this tendency to treat stressors as if they were all the same could be attributed to the lack of theory and research that could guide decisions as to which particular stressors comprise the broader stressor dimensions.

At a more specific level, our research contributed to theory by offering and testing a theoretical model that explains why challenge and hindrance stressors have different relationships with performance. This contribution is important, given that performance is a central concept in management research, and the popular explanation for variability in stress–performance relationships (that there is an inverted U-shaped relationship between level of stress and performance) has not been well supported (Teigen, 1994; Westman & Eden, 1996). Moreover, because the theoretical model integrated theories of motivation and stress, it may impel additional research in this vein. Although others discussed the great potential of research that integrates theories of stress and motivation (e.g., Perrewé & Zellars, 1999; Van Yperen & Hagedoorn, 2003), such research has been exceedingly rare.

Practical Implications

Although our research does not identify any new stress management practices per se, our research does illustrate the potential utility of diagnosing stressors as challenges or hindrances, and then applying well-known remedies selectively. On the one hand, managers could attempt to reduce or eliminate hindrances, because these types of demands do not seem to have any positive effects. We note that this idea stands in sharp contrast to implications of the inverted-U perspective, which suggests to managers that up to some point, all types of stressors at work are good. On the other hand, instead of reducing or eliminating challenge stressors (because of the positive associations with motivation and performance), managers could actually increase levels of challenge stressors as long as they also used practices that reduced or buffered the associated strains. For example, managers could implement strain-reducing activities such as allowing and encouraging time off for exercising or socializing. Or managers could provide training intended to help employees navigate challenges, such as training in prioritizing tasks. This approach to managing stress may be especially relevant to managers who view high levels of challenge as uniformly good. For example, job design and development practices that "stretch" the individual could include elements such as the ones we mention here to buffer the often-ignored costs of challenges to individuals' long-term health.

Implications for Future Research

Given the nature of the primary research, we were not able to assess the underlying mechanism that links stress and motivation. Future research could address this issue by verifying our expectation that challenge and hindrance stressors influence motivation because they are associated with specific patterns of expectancies, instrumentalities, and valences. Scholars should also assess the relative validity of other theories of motivation that support relationships between the two types of stressors and motivation. Two theories that might be particularly relevant are social learning theory (Bandura, 1986) and attribution theory (Weiner, 1985).

According to social learning theory, individuals tend to be motivated to perform specific tasks (engage in a certain behavior) when they perceive that they have the ability to do so. Such perceptions, referred to as self-efficacy, may play a role in explaining the motivational effects of challenge and hindrance stressors in that these perceptions form as a result of direct experience and observing others in similar or logically related circumstances. In essence, perhaps individuals develop higher coping self-efficacy with challenge stressors because of more opportunities to directly experience and observe others' successful coping with these types of stressors.

Similarly, Perrewé and Zellars (1999) used attribution theory to propose relationships between stressors and motivation that seem consistent with our hypotheses. They suggested that stressors are associated with cognitions of motivational incon-

gruence (which is similar to expectancy) and relevance (which is similar to instrumentality) and that these cognitions ultimately influence the degree to which individuals attempt to cope with stressors either in an active/problem-solving mode or in a passive/emotion-based mode. Stressors perceived to be controllable for which a coping strategy is obvious (e.g., challenge stressors such as time pressure and high workload) are likely to be met with an active/problem-solving mode of coping (e.g., increase in effort). Demands perceived to be uncontrollable or without an obvious coping strategy (e.g., hindrance stressors such as role ambiguity and politics) are not likely to be met with an increase in effort, but with withdrawal and cognitive distancing.

Limitations

As with all studies, limitations in our work exist. First, the primary research did not allow us to assess alternative explanations for the differing effects. For example, perhaps the scaling of the challenge stressors reflected lower levels of stress, whereas the opposite was true of hindrance stressors. Second, the primary studies were predominantly cross-sectional, and thus we could not make strong inferences with respect to causality. Experimental designs would facilitate causal inferences and would promote understanding of relationships among aspects of the stress process that are proximally related (e.g., appraisals and expectancies). Longitudinal designs would also be particularly suited to investigating the possibility of a stressor–performance "spiral." That is, perhaps challenging job demands promote motivation and performance, which in turn increase challenging job demands. Finally, for almost all the estimates, there was a significant amount of variability left to explain after sampling and measurement error were taken into account. This remainder is typical in meta-analyses, and it suggests that unidentified factors may influence the estimated true correlations. We did conduct several moderator analyses and found that the estimates were not appreciably dependent on the nature of the study sample, study setting, or variables used by researchers to indicate the broader concepts. It would be consistent with Lazarus's transactional theory (Lazarus & Folkman, 1984), however, if individual differences explained some of this variability. Indeed, traits such as goal orientation, core self-evaluations, and achievement orientation may play a role in the ways people respond to stressful work demands.

Conclusion

The findings reported here support the challenge stressor–hindrance stressor framework and also illuminate important implications for future research and practice. One logical extension of our findings, for example, is that managers can increase employee motivation and performance by both decreasing hindrance stressors and increasing challenge stressors. Moreover, as long as the increase in strains associated with the increase in challenge stressors is more than offset by the decrease in strains associated with the decrease in hindrance stressors, overall employee well-being may benefit from this strategy as well. Although this line of reasoning needs to be directly examined in future research, such effort may prove to be worthwhile, both to individual employees and to organizations.

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APPENDIX

Journals Included in the Literature Search

Academy of Management Journal
Academy of Management Review
Administrative Science Quarterly
Group and Organization Management
Human Performance
Human Relations
Journal of Applied Behavioral Science
Journal of Applied Psychology
Journal of Applied Social Psychology
Journal of Educational Psychology
Journal of Human Stress
Journal of Management
Journal of Personality and Social Psychology
Journal of Occupational Psychology (Journal of Occupational and Organizational Psychology)
Journal of Organizational Behavior
Journal of Vocational Behavior
Organizational Behavior and Human Decision Processes
Personality and Social Psychology Bulletin
Personnel Psychology
Psychological Bulletin
Small Groups Research
Work and Stress

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