

Challenge, Hindrance, and Threat Stressors: A Within- and Between-Persons Examination of General and Specific Stressor Appraisal Tendencies and *A Priori* Categorizations

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Abstract

Within the occupational stress literature, researchers have often identified stressors as being inherently challenging or hindering, based on previous classifications or on the outcomes usually associated with each. Although the challenge-hindrance model is based on the transactional theory of stress (Lazarus & Folkman, 1984), which emphasizes the importance of an individual's cognitive appraisal of stimuli, much of the research on this framework has failed to measure an individual's direct appraisal of stimuli in the environment as challenging, hindering, and threatening, which can be problematic when attempting to understand and predict occupational stress. In the present study we identify and share a taxonomy of common workplace stressors, contrast actual appraisal patterns with how researchers in this area tend to position each stressor, and reveal the pattern of appraisal tendencies associated with each of the 17 stressors. The results indicate that *a priori* classifications of stressors are not always accurate between or within individuals. We discuss implications for future research, which include re-evaluating *a priori* classifications, measuring appraisals, understanding complex stressors, and the possibility of appraisal tendencies.

Keywords: *occupational stress, stressors, appraisal, challenge, hindrance, threat*

In a work environment, individuals can encounter *perceived (psychological) stressors* or *experienced (environmental) stressors*. While experienced stressors may lead directly to the stress experience and subsequent outcomes (e.g., strain), perceived stressors are different in that individuals first appraise and cognitively/emotionally process these stressors before they trigger a stress response on the part of the individual. According to Lazarus and Folkman's (1984) transactional theory of stress, an individual's cognitive appraisal of a stressor is important because it mediates the effect(s) of stressors. Lazarus and Folkman (1984) identify two main types of cognitive appraisal: 1) primary appraisal, which involves the initial evaluation of a transaction, and 2) secondary appraisal, which involves the evaluation of one's capacity to cope with the situation. The focus of the present study is on primary appraisal, which can take at least three forms: (1) harm or loss already experienced, (2) threat of future harm or loss (threat appraisal), or (3) potential for mastery and gain (challenge appraisal).

Based on the transactional theory of stress, Cavanaugh, Boswell, Roehling, and Boudreau (2000) developed the challenge-hindrance stressor framework. Within this framework, work-related stressors associated with positive outcomes are labelled *challenges*, and those associated with negative outcomes are labelled *hindrances* (Cavanaugh et al., 2000). In the occupational stress literature, researchers often utilize this framework and label stressors as being inherently challenging or hindering, based on previous classifications (e.g., those recognized by Cavanaugh et al., 2000). Despite the popularity of the challenge-hindrance perspective and its usefulness in providing a broad classification of common organizational stressors, questions linger about its theoretical foundation and functional utility (Mazzola & Disselhorst, 2019).

The main theoretical issue with the challenge-hindrance framework is that Cavanaugh et al. (2000) and other researchers since either explicitly or implicitly assert that all individuals will make the same appraisal of certain stressors across varying situations. However, the logic of this assertion is inconsistent with Lazarus and Folkman's (1984) transactional model, which emphasizes an individual's cognitive appraisal in the stress process. With few exceptions (e.g., Bhagat, McQuaid, Lindholm, & Segovis, 1985; Scheck, Kinicki, & Davy, 1995; 1997), researchers tend not to actually measure participants' stressor appraisals (Crawford, LePine, & Rich, 2010; Podsakoff, Podsakoff, & LePine, 2007; Webster, Beehr, & Love, 2011), but instead categorize stressors *a priori* based on theory or stressors' known relationships with certain outcomes. This approach perpetuates a theoretically, rather than empirically derived

understanding of stressors and their impacts on workers, and it limits our understanding of how stressors may be appraised in a complex, multidimensional way.

In addition to theoretical issues, the challenge-hindrance framework also lack functional utility. Results of a recent meta-analysis that examined the relationship between challenge and hindrance stressors and important personal/organizational variables reveals a lack of empirical support for the framework (Mazzola & Disselhorst, 2019). Specifically, Mazzola and Disselhorst suggested that, regardless of how we appraise stressors, stress (challenging or hindering) has negative physiological outcomes. The implications are that the challenge-hindrance framework limits our understanding of at least two important aspects of the stress process: 1) the complex, multidimensional way in which stressors are appraised, and 2) the extent to which certain types of stressors are or are not likely to lead to certain stress experiences and related outcomes.

Although the theoretically derived insights we have gained from the challenge-hindrance framework have been useful in advancing research in this area, there is mounting evidence that *a priori* classifications do not always accurately represent an individual's appraisal. For example, extant research indicates that individuals perceive some common work-related stressors (e.g., workload) as a challenge (e.g., Cavanaugh et al., 2000), hindrance (e.g., Bakker & Sanz-Vergel, 2013; Drach-Zahavy & Freund, 2007), and as both a challenge and hindrance simultaneously (e.g., Webster et al., 2011; Widmer, Semmer, Kalin, Jacobshagen, & Meier, 2012). Other stressors (e.g., time pressure) also can be appraised as both a challenge and a hindrance (Widmer et al., 2012). Moreover, researchers have proposed the existence of an additional appraisal dimension: threat appraisal (Michel, Turgut, Hoppe, & Sonntag, 2016; Tuckey, Searle, Boyd, Winefield, & Winefield, 2015; Tuckey et al., 2017), which refers to an individual's appraisal of a stressor as personally threatening.

In the present study, we explored whether individuals appraise common work-related stressors in different ways – either within and/or between people. If so, then we should not assume that *a priori* categorizations of stimuli accurately reflect an individual's direct appraisal of those stimuli. Our driving hypotheses were:

H1: Common job stressors may be simultaneously appraised as a challenge, hindrance, and a threat, at both the (a) sample level, and (b) person level.

H2: Individuals' appraisal ratings of stressors as challenges, hindrances, and threats are positively aligned with *a priori* categorizations of common job stressors.

H3: An individual's general appraisal tendency is positively associated with his/her average appraisal score for (a) challenge, (b) hindrance, and (c) threat.

Method

Participants and Procedure

Participants included non-student adults employed full-time and graduate students with paid work. Data were gathered via internet survey, which included both specific measures of stressor appraisals and a general measure of stressor appraisal tendencies. Recruitment efforts were conducted via internet and in a southeastern part of the United States. Participants were recruited via (1) emails to graduate students at a medium-sized public American university, (2) emails to members of community groups, and (3) personal appeal through social networking groups.

In total, 859 of 1876 individuals at least partially responded to the survey (45.8% response rate). After excluding respondents who did not meet inclusion rules, who completed less than 50% of the survey, and/or who did not necessary demographic information, the final sample included 591 participants. The sample included 86% full-time workers, 22% full-time graduate students, 34% single adults, and 68% female; 97% identified as non-Hispanic, 90% Caucasian, 4.7% African-American, 1.2% Asian, 1% Middle Eastern/Arab, 0.3% American Indian/Alaskan Native, and 2.7% were two or more races; 40% had at least one child, 36% had at least one dependent, and 45% reported that they function as a supervisor; 40% worked in the Education and Health Services industry, 15% worked in Professional and Business Services, and 88% had obtained at least a Bachelor's degree.

Measures

The survey included the measures below. To capture stressor appraisal, we used two different measures: 1) participants' specific stressor appraisal ratings, in response to 17 common stressors presented, and 2) participants' general stressor appraisal tendencies.

Common stressor appraisal ratings. Although the research on work-related stress is vast, there is a subset of common or universal stressors that exists in a majority of work environments and appears in most research in this area (Wiegand et al., 2012). The National Institute for Occupational Safety and Health's (NIOSH) field investigations involving *Health Hazard Evaluations* prompted a revision of the measurement of psychosocial workplace

stressors. To do so, NIOSH utilized a consensus model involving an expert panel, whose members developed a taxonomy of psychosocial workplace stressors (see Wiegand et al., 2012). The subject matter experts identified established measures for each of these stressors (Wiegand et al., 2012), which are listed in Table 1. In the process for NIOSH, measures were selected on the basis of the following criteria: validity, practicality, brevity, availability of existing data, and lack of confounds between psychosocial constructs and outcomes. A stressor was included in the present study if it: 1) applied to the job-level, organizational-level, and interpersonal-level (i.e., co-worker and supervisor) and 2) was commonly included as a stressor in studies utilizing the challenge-hindrancel stressor framework.

In this study, the survey was worded such that participants read the *definition*, rather than the name, of each of the common stressors. This definition was the target stimuli to which participants indicated: (a) the extent to which each stressor was prevalent in their work environment, and the extent to which they would perceive each stressor as (b) a challenge, (c) a hindrance, and (d) a threat. Individuals responded using a sliding bar to indicate their level of agreement, ranging from 0 = “Not at all” to 100 = “Completely”.

General stressor appraisal tendencies. In addition to measuring individuals’ appraisal ratings of specific stressors, we used a general measure of stressor appraisal tendency to capture an individual’s propensity to appraise stimuli in a certain way (e.g., challenge, hindrance, or threat). The measure of general stressor appraisal tendency included four items each for challenge and hindrance appraisal tendency (adapted from Searle & Auton, 2015), and three items for threat appraisal tendency (adapted from Feldman, Cohen, Hamrick, & Lepore, 2004). Participants were first provided with the definition of stressors (cf., Jex & Britt, 2014) as “stimuli in the work environment that require some adaptive response on your part; e.g., a work interruption or a difficult coworker.” Participants then received the following prompt: “Please assess how encountering stressors (as defined above) in your work environment is likely to affect you.” Examples of a challenge, hindrance, and threat item, respectively, are: “They will help me to develop my skills” (challenge); “They will restrict my capabilities” (hindrance); “They will have a negative impact on me” (threat).

In previous research, these appraisal scales were framed in relation to an event and/or time frame, and responses were indicated using a five-point Likert scale from 1 = Strongly disagree to 5 = Strongly agree (Tuckey et al., 2015). For the present study, we adapted this

response scale slightly to improve the sensitivity of the measure. Specifically, participants responded to a seven-point Likert scale (1 = Disagree strongly to 7 = Agree strongly) regarding how encountering “stressors in their work environment” was likely to affect them. For these 11 appraisal items, specific stressors were not pre-identified, but participants were asked to indicate the extent to which they would appraise work stressors in general. Higher scores on any of the three appraisal dimensions indicate greater tendency to appraise work-related stressors in that way. In the present study, the internal consistencies for challenge, hindrance, and threat appraisals were $\alpha = .84, .89, \text{ and } .81$, respectively.

Analyses and Results

To test Hypothesis 1a (H1a), that common job stressors may be simultaneously appraised as a challenge, hindrance, and a threat at the *sample level*, we examined the median and interquartile range (IQR) data of the 17 stressors, for each appraisal category. The median score reflects the median for the dominantly appraised category. The results, presented in Table 2, indicate that common work-related stressors are simultaneously appraised as challenges, hindrances, and threats, supporting H1a.

To test Hypothesis 1b (H1b), that common job stressors may be simultaneously appraised as a challenge, hindrance, and a threat at the *person level*, was tested by examining the number of individuals who indicated appraising each stressor with ratings of at least 50 out of 100 on two or more of the three forms of appraisal. The results, presented in Table 3, reveal that 11 of the 17 common stressors (64.7%) were associated with some combination of challenge, hindrance, and/or threat appraisal rating (of 50 or more) by at least 25% of respondents.

The second hypothesis (H2), was that individuals’ appraisal ratings of stressors as challenges, hindrances, and threats are positively aligned with *a priori* categorizations of the 17 common stressors (summarized in Table 1). We tested H2 by identifying the highest median appraisal likelihood rating for each of the common work-related stressors that was also greater than 50 out of 100 (identified in bold, underline in Table 2). We then compared the appraisal form associated with this highest rating with how stressors are typically categorized *a priori*. Of the 17 stressors, empirical appraisal likelihoods cleanly aligned with typical *a priori* stressor classifications for 11 of the 17 stressors (64.7%), supporting H2. It should be noted, however, that the remainder of participants’ ratings were either opposite to or unclearly aligned with either challenge or hindrance stressor classification.

Prior to testing the third hypothesis (H3), we computed individuals' within-person "average appraisal rating scores" (for challenge, hindrance, and threat) by averaging, respectively, their challenge, hindrance, and threat appraisal ratings, across all 17 stressors. We then tested H3 by correlating participants' general appraisal tendency scores with these within-person average appraisal rating scores. The resulting correlational values were positive for each of these pairings, though only the correlation between average hindrance appraisal ratings and general hindrance appraisal tendency reached statistical significance ($r = .23, p < .05$). Thus, only H3c is supported: Individuals who scored higher on their general hindrance appraisal tendency were also more likely (across all 17 stressors) to appraise common work stressors as hindrances.

Discussion

The present findings have important implications for how we approach the study of stressors in the workplace. Specifically, along with recent empirical evidence (e.g., Mazzola & Disselhorst, 2019), the results of this study reveal that we may need to re-evaluate our approach to stressor classification. Some (e.g., Michel et al., 2016; Tuckey et al., 2015; 2017) have previously suggested that challenge and hindrance categories alone may not accurately reflect the range of available stressor appraisals. In the present study, we seek to address these concerns by including a measure of threat appraisal in addition to those of challenge and hindrance appraisal. The results reveal that at least most common psychosocial workplace stressors can be simultaneously appraised as belonging to more than one category simultaneously, both across and within individuals. This suggests that further examination is needed to answer the following questions: Why are some stressors appraised differently, both across and within individuals? Why are some of these appraisals different than *a priori* classifications (e.g., Cavanaugh et al., 2000)? To what extent should we abandon these *a priori* categories be abandoned? Should stressor appraisal always be measured?

Findings of the present study also reveal the existence of several "complex" psychosocial stressors, which are not cleanly placed into a single category. Only 64.7% of the *a priori* categorizations of common workplace stressors align with the way in which individuals actually appraise the stressor. For example, predictability of work and quantitative work overload were both appraised, to some extent, as a challenge, hindrance, and a threat in the present study. This further suggests that we may be missing an important piece of the stress process (i.e., appraisal).

Future research should identify additional complex stressors and examine how people appraise, respond to, and manage them.

A final important implication of this study is the possibility that individuals have a tendency (i.e., disposition or mindset), which causes them to appraise stressors in a certain way, regardless of the stressor. This tendency refers to the extent to which an individual generally appraises stressors in his/her work environment as challenges/hindrances/threats. Our results suggest that individuals may have general appraisal tendencies, which may or may not influence their appraisal of specific individual stressors. These findings also warrant further examination.

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Table 1. Common work-related stressors used as appraisal targets in the present study

Work-related stressor	Description
Job autonomy	Discretion in planning out the work and determining procedures in the work (Hackman & Oldham, 1980)
Participative decision-making	Input in the formulation of decisions for which one is responsible for implementing (Lowin, 1968)
Predictability of work	Unexpected events that occur at work (Tetrick & LaRocco, 1987)
Role ambiguity	Unclear information concerning one's work objectives and what is expected (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; King & King, 1990)
Role conflict	Conflicting information or inconsistent demands concerning one's work or methods (Kahn et al., 1964; King & King, 1990)
Quantitative work overload	Too much work to do in a given time frame (Spector & Jex, 1998)
Qualitative work overload	The work is too difficult & exceeds one's abilities (Fisher, 1993)
Quantitative work underload	Not enough work to do (Fisher, 1993)
Qualitative work underload	The work is too simple and does not allow individuals to use their full abilities. (Fisher, 1993)
Responsibility for others	Responsibility for the work of others (e.g., their morale, division of labor) (Hurrell & McLaney, 1988)
Lack of social support from colleagues	Lack of help and support from colleagues (Pejtersen, Kristensen, Borg, & Bjorner, 2010)
Lack of social support from supervisors	Lack of help and support from supervisors (Pejtersen et al., 2010)
Interpersonal conflict among colleagues or peers	Negatively charged interactions in the work environment (Spector & Jex, 1998) among colleagues or peers
Interpersonal conflict involving one's supervisor	Negatively charged interactions in the work environment (Spector & Jex, 1998) involving one's supervisor
Bureaucratic constraints	Bureaucracy (e.g., rules, procedures) that prevent individuals from performing up to their capabilities; (refers to a subset of Spector & Jex's (1998) "Organizational Constraints Scale")
Material and technological constraints	Missing or lack of equipment at work that prevent individuals from performing up to their capabilities; (refers to a subset of Spector & Jex's (1998) Organizational Constraints Scale)
Job insecurity	Uncertainty about the security of one's job in the future (Greenhalgh, 1982; Hartley, Jacobson, Klandermans, & Van Vuuren, 1991)

Table 2. Median and interquartile range (IQR) for common work-related stressors

Stressor	Prevalence		Challenge		Hindrance		Threat	
	<i>Mdn</i>	<i>IQR</i>	<i>Mdn</i>	<i>IQR</i>	<i>Mdn</i>	<i>IQR</i>	<i>Mdn</i>	<i>IQR</i>
Job autonomy	75	40	<u>79</u>	40	6	19	2	9
Participative decision-making	74	40	<u>80</u>	33	5	19	3	9
Predictability of work	61	44	<u>57</u>	44	25	41	15	33
Role ambiguity	30	50	17	43	<u>62</u>	53	26	54
Role conflict	20	43	10	27	<u>69</u>	53	33	60
Quantitative work overload	40	65	25	50	<u>50</u>	56	30	57
Qualitative work overload	5	14	20	50	34	57	24	54
Quantitative work underload	4	19	4	14	43	72	10	47
Qualitative work underload	9	39	5	14	<u>53</u>	76	11	44
Responsibility for others	30	66	<u>70</u>	47	10	27	8	24
Lack of social support from colleagues	10	28	10	28	<u>60</u>	56	30	60
Lack of social support from supervisors	10	38	10	28	<u>69</u>	58	47	70
Interpersonal conflict among colleagues or peers	10	28	10	26	<u>56</u>	60	39	62
Interpersonal conflict involving one's supervisor	5	14	8	20	68	60	52	69
Bureaucratic constraints	11	38	10	26	<u>66</u>	54	38	60
Material and technological constraints	5	19	9	23	<u>60</u>	63	30	60
Job insecurity	11	47	9	25	50	65	46	69

Table 3. Stressors appraised as belonging to more than one appraisal category

Stressor	Rated stressor higher than 50 on multiple categories	
	Number of respondents	Percentage of respondents
Interpersonal conflict involving one's supervisor	262	44%
Lack of social support from supervisors	256	43%
Job insecurity	225	38%
Bureaucratic constraints	212	36%
Role conflict	210	36%
Interpersonal conflict among colleagues or peers	202	34%
Material and technological constraints	190	32%
Quantitative work overload	189	32%
Lack of social support from colleagues	189	32%
Role ambiguity	187	32%
Qualitative work overload	149	25%
Qualitative work underload	129	22%
Quantitative work underload	114	19%
Predictability of work	106	18%
Responsibility for others	78	13%
Job autonomy	68	12%
Participative decision-making	67	11%

Table 4. Dominant observed classification for 17 common stressors & comparison with a priori categorizations

Stressor	Dominant observed classification			A priori categorization	Match?
	Category	Mdn	IQR		
Job autonomy	Challenge	79	40	Challenge ^c	Y
Participative decision-making	Challenge	80	33	Challenge ^c	Y
Predictability of work	Challenge	57	44	Hindrance ^g	N
Role ambiguity	Hindrance	62	53	Hindrance ^a	Y
Role conflict	Hindrance	69	53	Hindrance ^d	Y
Quantitative work overload	Hindrance	50	56	Challenge ^e	N
Qualitative work overload	Hindrance	34	57	Challenge ^{a,e}	~
Quantitative work underload	Hindrance	43	72	Hindrance ^f	~
Qualitative work underload	Hindrance	53	76	Hindrance ^f	Y
Responsibility for others	Challenge	70	47	Challenge ^{a,e}	Y
Lack of social support from colleagues	Hindrance	60	56	Hindrance ^d	Y
Lack of social support from supervisors	Hindrance	69	58	Hindrance ^d	Y
Interpersonal conflict among colleagues or peers	Hindrance	56	60	Hindrance ^d	Y
Interpersonal conflict involving one's supervisor	Hindrance	68	60	Hindrance ^d	~
Bureaucratic constraints	Hindrance	66	54	Hindrance ^{a,b,d}	Y
Material and technological constraints	Hindrance	60	63	Hindrance ^d	Y
Job insecurity	Hindrance	50	65	Hindrance ^{a,b}	~

Note. Both the "Category" column and the color of the "Mdn" (median) column reflect the dominant appraisal tendency by participants in the present study; IQR=interquartile range, Y=match between typical *a priori* stressor classification and dominant appraisal likelihood rating, N=not a match, and ~ = unclear pattern; ^a = Cavanaugh et al., 2000; ^b = Ivancevich et al., 1982; ^c = Karasek, 1979; ^d = LePine et al., 2005; ^e = McCauley et al., 1994; ^f = Schultz, Wang, & Olson, 2010, ^g = often identified as a "resource", ^g = "unpredictability of work events" has not explicitly been identified as a hindrance stressor, although most types of unpredictability at work (e.g., job insecurity, role ambiguity) are labelled hindrances.