

Laying the Foundation for the Challenge–Hindrance Stressor Framework 2.0

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Abstract

Although traditional views of workplace stress assume that all job demands have deleterious consequences, research indicates that some job demands may benefit employees. Notably, the Challenge–Hindrance Stressor Framework (CHSF) proposes that, although job demands that constrain, hinder, or thwart personal growth and achievement (hindrance stressors) have negative effects on work-related outcomes, job demands that provide the potential for personal growth and achievement (challenge stressors) have positive effects on these outcomes. Despite the attention generated by the CHSF, several criticisms and limitations hinder the potential of this framework. Thus, this article reviews our current understanding of the CHSF, addresses important criticisms about the nature and effects of challenge and hindrance stressors, and discusses how future research should approach conceptual and methodological challenges to lay the foundation for the next iteration of this framework—CHSF 2.0. Building on this new framework, we discuss some implications for cross-cultural research and for practitioners.

INTRODUCTION

Employee stress has become one of the most significant challenges for organizations, with many researchers arguing that stress at work has reached epidemic levels (Dobson 2021, Pfeffer 2018). The American Institute of Stress estimates the cost of work-related stress to the American economy at more than \$300 billion annually (AIS 2019), and organizations like Thrive Global have declared it their mission to eradicate stress and burnout in the workplace. Moreover, the American Psychological Association's annual Stress in America survey indicates that the workplace was rated as one of the top two causes of stress for Americans from 2019 to 2021, with approximately two-thirds of respondents indicating that this form of stress was either "somewhat significant" or "very significant" (APA 2021). The COVID-19 pandemic and the Great Reshuffling have further highlighted the effects of workplace stress. Indeed, by the end of 2020, 76% of workers reported feeling burnout in their jobs (Spring Health 2020), and by mid-2021, 44% of employees reported feeling even more burned out on the job than they did during 2020 (Robert Half 2021). Given its prevalence and costs, it is not surprising that discussions about workplace stress usually focus on its negative effects.

However, there are historical and contemporary perspectives that highlight potential beneficial effects of stress. For example, the Challenge–Hindrance Stressor Framework (CHSF) (Cavanaugh et al. 2000, Podsakoff et al. 2007) classifies job demands into those that promote the accomplishment of work tasks and personal development (challenge stressors) and those that prevent, interfere with, constrain, or thwart the accomplishment of job tasks or the opportunity for achieving work goals (hindrance stressors). Challenge stressors typically include job responsibility, complexity, time pressure, and workload, whereas hindrance stressors include job stressors such as role conflict, resource inadequacies, administrative hassles, interpersonal conflict, and organizational politics.

Although the CHSF was introduced only two decades ago, it has generated substantial attention. Along with the original article by Cavanaugh et al. (2000), 10 meta-analytic reviews (Bennett et al. 2018, Clarke 2012, Crawford et al. 2010, Downes et al. 2020, LePine et al. 2005, Lerman et al. 2021, Mazzola & Disselhorst 2019, Podsakoff et al. 2007, Webster & Adams 2020, Y. Zhang et al. 2019) applying this framework have been cited more than 11,000 times (according to a Google Scholar search conducted on October 19, 2022), with over half of those citations accumulated in just the past 5 years. As a result, some scholars have concluded that the CHSF has become the dominant perspective in the organizational stress literature (Mazzola & Disselhorst 2019).

Despite this acclaim, the CHSF has been the subject of several criticisms and concerns. For example, although hindrance stressors typically have hypothesized dysfunctional effects on employee outcomes, the hypothesized benefits of challenge stressors have materialized less consistently. Indeed, a few meta-analyses (Clarke 2012, Mazzola & Disselhorst 2019) report that challenge stressors are unrelated to functional outcomes, raising questions about the validity of the CHSF. Another major criticism is that job demands classified as challenges are sometimes appraised as hindrances by employees (Gerich 2017, Searle & Auton 2015, Webster et al. 2011). This is problematic because challenge stressors appraised as hindrances will not have relationships with employee outcomes that are consistent with propositions derived from the CHSF, raising additional questions about the validity of this framework.

In addition, several concerns and limitations need to be addressed before the potential of CHSF can be more fully realized. Some of these concerns are conceptual in nature. For example, it is not clear whether challenge and hindrance stressors should be conceptualized as (a) overarching categories that contain several individual unidimensional stressor constructs or (b) higher-order constructs that are made up of multiple first-order constructs (Podsakoff 2007). Another concern relates to the scope of job demands classified as challenge or hindrance stressors. Although several

new challenge and hindrance stressors have been suggested (Breevaart & Bakker 2018, Gerich 2017, Prem et al. 2017), little guidance has been offered regarding the criteria used to determine whether a job demand merits inclusion or not. Finally, it is unclear what implications other popular models of workplace stress have for researchers using the CHSF.

Two additional methodological limitations of the CHSF literature need to be addressed. The first relates to the construct validity of operationalizations of challenge and hindrance stressors, as several studies either have used an incomplete set of indicators to measure these stressors or have reported psychometric problems that required modifications before the measures could be used (e.g., Byron et al. 2018, Crane & Searle 2016). Second, most primary studies testing the CHSF have employed limited designs, making it difficult to determine whether the challenge and hindrance stressors are the causes or consequences of other variables in the model (Pindek 2020).

Thus, the CHSF is at a crossroads. On the one hand, it has had considerable impact and is recognized as a popular perspective on workplace stress (LePine 2022, O'Brien & Beehr 2019). On the other hand, consistent with the concerns and limitations noted above, critics (e.g., Horan et al. 2020, Mazzola & Disselhorst 2019) argue that the CHSF should be abandoned altogether. Thus, it is time to take stock of what we currently know about the CHSF, address its shortcomings, and point the way forward. To that end, the remainder of this review is organized into four parts. First, we discuss three historical perspectives on beneficial forms of stress. Next, we summarize the current state of the CHSF, its assumptions, and how it has been applied in research contexts. Third, we consider two important criticisms of this framework, providing theoretically grounded explanations for how each can be better understood. Finally, we discuss conceptual and methodological challenges and identify cross-cultural and practical implications in an effort to lay the foundation for the next iteration of this framework—CHSF 2.0.

HISTORICAL PERSPECTIVES ON BENEFICIAL STRESS

To understand the current state of the CHSF, we briefly review three historical approaches to beneficial stress: the Yerkes–Dodson law (YDL) (Yerkes & Dodson 1908), the Distress–Eustress Model (Selye 1956), and the Transactional Theory of Stress (TTS) (Lazarus & Folkman 1984). Although these models have not always been explicitly acknowledged as predecessors of the CHSF, they provide important context for the development of this framework.

Yerkes–Dodson Law

Psychologists Robert Yerkes and John Dodson are often credited with developing a model of the curvilinear relationship between psychological arousal and performance. However, their original experiments examined electric shocks and the speed of learning in mice, indicating that mice learn faster under moderate (versus mild or extreme) levels of shock (Yerkes & Dodson 1908). Although subsequent studies did not replicate these results and the original paper was cited only 10 times during the next 50 years, the original curvilinear effects were described by some as a psychological “law” (Corbett 2015). Later, Yerkes and Dodson’s observed effects on animals were extrapolated to the relationship between human arousal and task performance (Eysenck 1955), depicted as a bell-shaped curve, such that increased arousal is associated with higher performance up to some point, after which additional arousal results in lower performance (Corbett 2015). Although neither the original studies nor later adaptations used the term “stress,” many publications in management and psychology have referenced the YDL when discussing curvilinear stress effects (Corbett 2015). Therefore, although its extrapolation from the original research on animals is questionable, the YDL represents a foundational perspective on beneficial stress.

Distress–Eustress Model

Endocrinologist Hans Selye introduced the term “stress” into medical vocabulary (Tan & Yip 2018), describing it as the “nonspecific response of the body to any demand” (Selye 1976, p. 137). In further explicating this concept, Selye described bad stress (i.e., “distress”) as that which causes an individual to experience negative emotions and adverse effects at the physical level, and good stress (i.e., “eustress”) as stimulating an individual to feel happy or motivated. Although Selye considered these concepts “the crucial findings of his whole scientific career” (Bienertova-Vasku et al. 2020, p. 2), the conceptualization of eustress has given rise to debate, with some scholars questioning its meaning and existence (Bienertova-Vasku et al. 2020, Nelson & Simmons 2003). Despite, or because of, this lack of clarity, eustress is still utilized in organizational research to describe beneficial forms of work stress (Hargrove et al. 2015, Le Fevre et al. 2006).

Transactional Theory of Stress

Lazarus and his colleagues (e.g., Lazarus & Folkman 1984) developed the TTS, which specifies that two types of appraisal occur in response to demanding events or experiences: a primary appraisal, in which demands are evaluated as positive, harmful, threatening, or challenging, and a secondary appraisal, in which individuals consider the availability of coping resources and the efficacy of potential responses. Combined, these appraisals determine the degree of stress experienced, emotional reactions, and coping responses. For example, threat appraisals focus on the potential for harm or loss and elicit negative emotional responses that drive coping responses aimed at regulating emotions (emotion-focused coping) or changing the situation (problem-focused coping). In contrast, challenge appraisals focus on the potential for growth or gains and elicit positive emotions, which require less emotional regulation than negative emotions, while also readying individuals to pursue growth or gain opportunities. These appraisals allow researchers to account for individual differences that impact the stress process. As noted by scholars involved in early iterations of the CHSF (Cavanaugh et al. 2000, LePine et al. 2005), several elements of the TTS were employed in the development of this framework. However, as discussed below (in the section titled What Are the Links Between the Challenge–Hindrance Stressor Framework and Other Models of Stress?), there is opportunity for further integration.

THE CHALLENGE–HINDRANCE STRESSOR FRAMEWORK

The CHSF was first articulated by Cavanaugh et al. (2000), who drew from managerial development research (McCall et al. 1988, McCauley et al. 1994) to argue that stress from some types of job demands would have positive effects on employee outcomes. Using data from almost 1,900 managers working in the USA, Cavanaugh et al. (2000) reported support for their hypotheses, indicating that hindrance-related stressors (e.g., organizational politics, role ambiguity, organizational red tape, job insecurity) had a negative relationship with job satisfaction and positive relationships with job search and voluntary turnover, whereas challenge-related stressors (e.g., workload, time pressure, job responsibility) had a positive relationship with job satisfaction and a negative relationship with job search (there was no relationship with turnover). When combined with subsequent primary studies (Boswell et al. 2004, LePine et al. 2004) that also supported the differential relationships of challenge and hindrance stressors, the Cavanaugh et al. (2000) study provided the foundation for CHSF 1.0.

Following these studies, researchers have applied, revised, and adapted the CHSF in a variety of ways. Most notably, the framework has progressed using meta-analytic summaries of the work stress literature, testing the proposed differential relationships that challenge and hindrance stressors have with a range of criteria. For example, the first two meta-analyses (i.e., LePine et al.

Table 1 Job demands classified as challenge stressors and hindrance stressors

Type of stressor	Definition
Challenge stressors	Workplace demands that promote the accomplishment of job tasks and the personal development of the individual
Workload	The amount or quantity of work that is required by one's role in the organization
Time pressure	The speed with which one must complete assigned tasks
Job complexity	The breadth or variety of job-related activities performed by an organizational member, such that more complex jobs require a broader variety of tasks than do less complex jobs
Job responsibility	The perceived accountability that an individual has for their own work and the work of others
Hindrance stressors	Workplace demands that are perceived as barriers or obstacles that thwart the accomplishment of job tasks and the personal development of the individual
Role ambiguity	The uncertainty regarding the actions that are appropriate to fulfill one's role requirements
Role conflict	The incompatibility between the expectations of different parties or between aspects of a set of role-related tasks
Organizational politics	Influence attempts designed to promote one's self-interest at the expense of organizational goals
Resource inadequacies	The lack of availability of tools, equipment, materials, and/or supplies required to adequately complete role-related tasks; specifically, insufficient availability of physical resources in the work environment
Administrative hassles	Excessive or unnecessary requirements (hurdles), regulations, or rules (red tape) that employees must deal with during the completion of their work
Interpersonal conflict	The perceived tension and frustration resulting from personal differences in style, preferences, attitudes, and personality
Job insecurity	The potential loss of continuity (employment) in a threatened job situation

2005, Podsakoff et al. 2007) added to the CHSF by (a) expanding the set of job demands classified as challenge and hindrance stressors and (b) extending the model to include relationships with other employee outcomes. To explain inconsistencies in empirical relationships between job demands and outcomes, the authors of these meta-analyses added organizational constraints, hassles, resource inadequacies, interpersonal conflict, and other role-related demands (e.g., role conflict and role overload) to the hindrance stressor category and measures of job complexity and various job-specific workload demands to the challenge stressor category (**Table 1**). In addition, these meta-analyses expanded the CHSF to include relationships with motivation, job performance, organizational commitment, turnover intentions, turnover, and withdrawal behaviors, generally finding support for differential relationships between challenge and hindrance stressors and these outcomes. Subsequent meta-analyses have provided additional support for the expectations that hindrance stressors are dysfunctional for employee work engagement, vigor, and positive work affect, whereas challenge stressors can be (but not always are) functional with respect to these outcomes (Bennett et al. 2018, Crawford et al. 2010, Webster & Adams 2020).

Importantly, the initial work on the CHSF acknowledged that both challenge and hindrance stressors should have positive relationships with physical and psychological strains. Generally speaking, job demands refer to the “physical, psychological, social or organizational aspects of the job that require sustained physical and/or psychological effort” (Bakker & Demerouti 2017, p. 274); thus, regardless of their classification as either challenging or hindering, stressors are taxing and require energy and effort to address. Consistent with this notion, primary and meta-analytic applications of the CHSF have typically found challenge and hindrance stressors to be positively related to strains, including burnout; emotional exhaustion; fatigue; frustration; and mental, physical, and psychological symptoms (Cavanaugh et al. 2000, LePine et al. 2005, Mazzola & Disselhorst 2019). In summary, some support exists for the CHSF's propositions that challenge

stressors and hindrance stressors have opposite relationships with employee outcomes and that both are job demands in that they have positive relationships with employee strains.

Despite the attention paid to the CHSF and the support reported in favor of it, there are two important criticisms of this framework. The first criticism is that challenge stressors do not always have their expected positive relationships with functional outcomes. The second criticism is that challenge stressors may be appraised as hindrances in some circumstances. Although there is some merit to these criticisms, there are good theoretical reasons why one would expect (a) hindrance stressors to have stronger effects than challenge stressors and (b) challenge stressors to be appraised as hindrances in some situations. After addressing these criticisms, we consider other limitations of the framework (i.e., how the challenge and hindrance stressors should be conceptualized, whether other stressors should be included in the CHSF, how the framework can be integrated with other current theories of stress, concerns regarding construct validity, and the lack of consideration for cultural and managerial implications), and discuss how they should be addressed in future research to lay a foundation for the development and application of CHSF 2.0.¹

WHY DO HINDRANCE STRESSORS HAVE STRONGER EFFECTS THAN CHALLENGE STRESSORS?

Negativity Bias

Negativity bias refers to the tendency for negative events to have a greater impact on the attitudes, perceptions, and behaviors of individuals than positive events (Baumeister et al. 2001). Research from a variety of disciplines indicates that negative (bad) events are encoded, processed, recalled, and responded to differently by individuals than are positive (good) events. Specifically, Rozin & Royzman (2001) reported that negative events have stronger effects than positive events because (a) negative events command more attention and are more salient; (b) negative events produce more arousal; (c) when negative and positive events are combined, there is a tendency to skew more toward an overall negative interpretation than would be suggested by summing the individual events together; and (d) there is greater differentiation for negative events because these events are more complex and elicit more extreme emotions. Similarly, Baumeister et al. (2001) reported that negative events have stronger effects on emotions and information processing responses, produce learning effects that are longer lasting and harder to extinguish, carry more weight in stereotyping and impression formation processes, and have stronger effects on social relationships than positive events. So consistent are these results that Baumeister et al. (2001, pp. 354–55) concluded:

The principle that bad is stronger than good appears to be consistently supported across a broad range of psychological phenomena. . . . In no area were we able to find a consistent reversal, such that one could draw a firm conclusion that good is stronger than bad. This failure to find any substantial contrary patterns occurred despite our own wishes and efforts. We had hoped to identify several contrary patterns, which would have permitted us to develop an elaborate, complex, and nuanced theory about when bad is stronger versus when good is stronger. . . . However, the greater strength of bad was apparent nearly everywhere. Hence, we must conclude that bad is stronger than good at a pervasive, general level.

Taken together, these findings provide one explanation for why hindrance stressors (i.e., negative work events/conditions) have stronger effects than do challenge stressors (i.e., positive work events/conditions).

¹For the purposes of this article, we conducted a review of the extant literature using the CHSF. A description of the search terms and coding processes used in this review are provided in the Appendix.

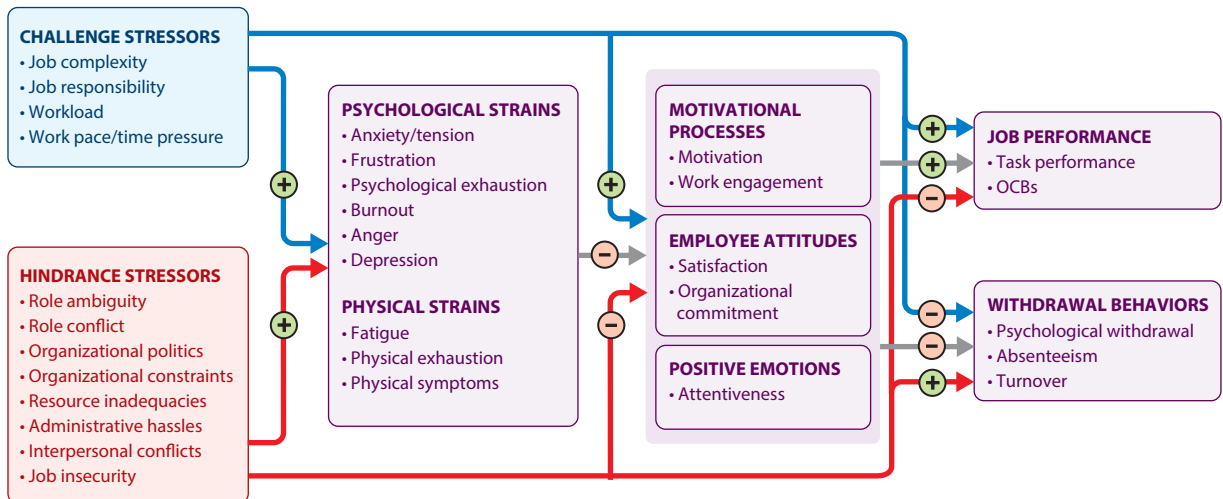


Figure 1

Conceptual model of relationships among challenge and hindrance stressors, mediators, and outcomes. Abbreviation: OCBs, organizational citizenship behaviors.

Countervailing Versus Complementary Effects of Challenge and Hindrance Stressors

Another explanation for why the positive effects of challenge stressors tend to be weaker and less consistent than the negative effects of hindrance stressors relates to differences in the direct effects that these stressors have on outcomes, relative to the indirect effects that they have through other variables. Although both challenge and hindrance stressors increase strains, they have different direct effects on the outcome variables affected by these strains (**Figure 1**). More specifically, whereas the negative direct effects of hindrance stressors on employee motivation, attitudes, and positive emotions complement the negative indirect effects that these stressors have on these variables through strains, the positive direct effects of challenge stressors serve as a countervailing (opposing) force to the negative indirect effects that these stressors have on these variables through strains. Similarly, whereas the negative (positive) direct effects that hindrance stressors have on job performance (withdrawal behaviors) complement the negative indirect effects that these stressors have on these outcomes through strains and employee attitudes, emotions, and motivation, the positive direct effects that challenge stressors have on these variables work in the opposite direction of the negative indirect effects that these stressors have on behavioral outcomes through strains and employee motivation, job attitudes, and emotions.

Thus, the net overall effect of challenge stressors depends on the strength of the positive direct effects relative to the strength of the negative indirect effects through strains (and other mediating mechanisms). In cases where the positive direct effects of challenge stressors are stronger, we expect that the total effect will be positive. However, in cases where the indirect negative effects are strong, the total effect may be nonsignificant (or possibly negative). This finding helps explain why, even though hindrance stressors tend to have uniformly negative effects on outcome variables, in some cases challenge stressors have positive effects on these outcomes, whereas in other cases they have no effect. In the following sections, we review evidence that demonstrates the differential relationships that challenge and hindrance stressors have with a variety of mechanisms.

Motivation. Generally, studies have supported the opposing effects of challenge and hindrance stressors on employee motivation. For example, building on Expectancy theory (Vroom 1964), LePine et al. (2005) argued that employees will perceive a positive relationship between the effort they expend and the likelihood of addressing challenging demands (e.g., workload or time pressure), and that, when addressed, valued outcomes will be obtained, producing higher motivation. In contrast, employees will not perceive that effort expended to cope with hindrance stressors (e.g., organizational politics) will adequately address these stressors, and that this effort would be better spent addressing demands that are more likely to produce valued outcomes; thus, hindrance stressors produce lower motivation. Consistent with these expectations, the meta-analysis by LePine et al. (2005) reported support for a positive (negative) indirect effect of challenge (hindrance) stressors on employee performance via motivation.

In a subsequent meta-analysis, Crawford et al. (2010) examined relationships between challenge and hindrance stressors and work engagement. Rich et al. (2010, p. 619) note that engagement is “motivational because it refers to the allocation of personal resources to role performance and also how intensely and persistently those resources are applied.” Building on propositions developed by LePine et al. (2005), Crawford et al. (2010) argue that employees will be more willing to invest effort to address challenging demands and less likely to do so to address hindering demands, leading them to disengage from effectively coping with these types of demands and devote their efforts elsewhere. Consistent with this argument, Crawford et al. (2010) reported meta-analytic evidence that challenge stressors have a positive relationship with engagement but that hindrance stressors have a negative relationship with this variable. A more recent meta-analysis (Downes et al. 2020) provided additional support for these differential relationships at both the within- and between-person levels of analysis. Although neither Crawford et al. (2010) nor Downes et al. (2020) tested the indirect effects of challenge and hindrance stressors on performance-related outcomes through engagement, several studies have provided support for engagement as a mediator of the relationships between workplace stressors and outcomes, at both the within- and between-person levels (e.g., Bakker & Demerouti 2017, de Spiegelaere et al. 2014, Rich et al. 2010, Salanova & Schaufeli 2008).

Job attitudes. Challenge and hindrance stressors also have opposing effects on job attitudes. For example, Cavanaugh et al. (2000) reported that hindrance stressors had a negative relationship with job satisfaction and challenge stressors had a positive relationship with this job attitude. Likewise, Podsakoff et al.’s (2007) meta-analysis not only found similar results but also showed that challenge stressors had a positive relationship, and hindrance stressors a negative relationship, with organizational commitment. These authors also reported that challenge stressors had negative indirect effects on turnover intentions and actual turnover through both job satisfaction and organizational commitment, whereas indirect effects on these same outcomes were positive for hindrance stressors. More recently, Webster et al. (2010) examined the relationships among challenge and hindrance stressors, job satisfaction, and organizational citizenship behaviors (OCBs). Although Webster et al. (2010) did not specify a formal hypothesis for the relationship between job satisfaction and OCBs, they provided evidence consistent with the notion that challenge stressors have positive indirect effects on OCBs through job satisfaction, and that hindrance stressors have negative indirect effects on OCBs, also through this job attitude.

Emotions. Consistent with the TTS (Folkman & Lazarus 1990) and Affective Events Theory (Weiss & Cropanzano 1996), scholars have hypothesized that challenge and hindrance stressors elicit positive and negative emotional responses, respectively. For example, Rodell & Judge (2009) hypothesized that positive appraisals associated with challenge stressors result in increased attentiveness, a positively valenced emotion referring to feelings of concentration, determination,

and alertness; whereas negative appraisals associated with hindrance stressors result in anger, described as a response to threats or events that offend one's basic values (Lazarus 1991, 1999). In addition, they argued that both challenge and hindrance stressors would have positive effects on anxiety, as this emotion represents a response to uncertainty that is inherent to appraisals of both stressors. Using a within-subject design, these authors reported support for these hypotheses; for the positive indirect effects of daily (*a*) challenge stressors on OCBs through attentiveness, (*b*) hindrance stressors on counterproductive work behaviors (CWBs) through anger, and (*c*) hindrance stressors on CWBs through anxiety; and for the negative indirect effects of daily challenge stressors on OCBs via anxiety.

Building on the findings of Rodell & Judge (2009), Rosen et al. (2020, study 1) examined the mediating effects of anxiety and attentiveness on the relationships between high (versus low) and stable (versus unstable) challenge stressors and task performance, OCBs, and CWBs, using a within-subject design. They found that high (versus low) challenge stressors that are stable from week to week are positively related to task performance and OCBs, and negatively related to CWBs, through the mediating effects of increased attentiveness. In contrast, when challenge stressors are unstable (i.e., more fluctuation week to week), participants were more anxious and less attentive, which led to decreases in task performance and OCBs and increases in CWBs.

Summary. Research suggests that whereas challenge stressors tend to have positive relationships with variables that serve as countervailing mechanisms of the effects of these stressors on employee performance-related behaviors through strains, hindrance stressors tend to have negative relationships with variables that complement their negative effects on outcomes through strains. Thus, it is not surprising that challenge stressors may not always have positive net effects on outcomes, because such effects will materialize only when the positive effects of these stressors through motivation, job attitudes, emotions, or other mechanisms are strong enough to outweigh the deleterious effects of these demands through strains.

WHY AND WHEN ARE CHALLENGE STRESSORS APPRAISED AS HINDRANCES?

Although research generally supports the notion that challenge and hindrance stressors are appraised accordingly (e.g., Boswell et al. 2004, LePine et al. 2016), some studies have found that challenge stressors are appraised as hindrances (e.g., Gerich 2017, Searle & Auton 2015, Webster et al. 2011). Fortunately, as discussed below, research has helped identify factors (e.g., individual differences, characteristics of the stressors, and contextual variables) that influence when challenges stressors are appraised as hindrances.

Individual Differences

Several individual differences have the potential to influence when challenge stressors are appraised as hindrances. These individual differences include self-efficacy, core self-evaluations, stress mindset, and resilience. In the following subsections, we provide a brief overview of each of these individual differences and discuss how and why they have the potential to influence appraisals of work demands.

Self-efficacy. According to Bandura (1982, 1997), general self-efficacy (GSE) reflects the confidence individuals have in their ability to control their environment, and task self-efficacy (TSE) reflects the amount of confidence that individuals have in their ability to perform specific tasks at work. Building on these concepts, Liu & Li (2018) argued that employees high in TSE would be more likely to appraise job complexity as challenging than employees low in TSE, and Lu et al.

(2016) argued that employees high in GSE would be more likely to perceive challenge stressors as beneficial and positive than employees low in GSE. Consistent with these expectations, Liu & Li (2018) reported a positive relationship between job complexity and challenge appraisals for those higher in TSE, while this relationship was nonsignificant for those lower in TSE, and Lu et al. (2016) reported that GSE strengthened the positive relationship between challenge stressors and job performance.

Core self-evaluations. Multiple studies have considered the moderating role of core self-evaluations (CSE) on the effects of challenge and hindrance stressors on employee outcomes. CSE refer to “fundamental premises that individuals hold about themselves and their functioning in the world” (Judge et al. 1998, p. 168) and are thought to shape the appraisals that people make of all other entities, including events, objects, and people. Scholars have argued that CSE serve as a personal resource that diminishes the extent to which people perceive situations as threatening while also enhancing beliefs that they are capable of coping with stressors (Wang & Li 2019). Consistent with this perspective, K. Zhang et al. (2019) reported that CSE moderated the relationships between challenge stressors and both burnout and work engagement. Specifically, their results indicated that the positive relationship between challenge stressors and burnout was less positive when CSE were high (versus low) and that the relationship between challenge stressors and work engagement was positive when CSE were high but nonsignificant when they were low. Likewise, Wang & Li (2019) reported that CSE moderated the relationship between role overload (a hindrance stressor) and negative emotions, such that it was not significant when CSE were high but was positive when CSE were low. Thus, we would expect individuals high in CSE to be more likely to appraise challenge stressors as challenging and individuals low in CSE to be more likely to appraise them as hindering.

Stress mindset. Crum et al. (2013) argued that the mindset a person uses to organize and encode information about an event influences the way in which they interpret and act toward that event. Crum et al. (2013, p. 716) define stress mindset as

the extent to which one holds the belief that stress has enhancing consequences for various stress-related outcomes such as performance and productivity, health and wellbeing, and learning and growth (referred to as a “stress-is-enhancing mindset”) or holds the belief that stress has debilitating consequences for those outcomes (referred to as a “stress-is-debilitating mindset”).

On the basis of this definition, one would expect individuals with a stress-is-enhancing mindset to be more likely to appraise challenge stressors as challenges than individuals with a stress-is-debilitating mindset. Consistent with this expectation, Crum and colleagues’ results indicated that (a) a stress-is-enhancing mindset is negatively related to perceived stress and the intolerance of uncertainty and positively related to dispositional hardiness and optimism; (b) participants exposed to a stress-is-enhancing intervention had improved psychological symptoms and work performance, whereas participants in a stress-is-debilitating or a control condition did not report these improvements; and (c) participants who endorsed a stress-is-enhancing mindset had a stronger desire to receive feedback about their performance on a stressful task than participants who endorsed a stress-is-debilitating mindset. In a follow-up study, Crum et al. (2017) found that for participants who evaluated stress as a challenge, a stress-is-enhancing mindset produced greater increases in positive affect, attentional bias toward the positive stimuli, and cognitive flexibility, whereas a stress-is-debilitating mindset produced worse cognitive and affective outcomes. Thus, it appears that the mindset individuals use to evaluate stressors has a significant effect on how they perceive and respond to these demands.

Resilience. Similar to the concept of psychological hardiness, resilience refers to an employee's tendency to effectively cope with adversity, or their "ability to bounce back or recover from stress" (Smith et al. 2008, p. 194). As noted by Mitchell et al. (2019, p. 532):

Trait resilience influences how individuals appraise and cope with stressors across time because it creates an optimistic lens by which individuals tend to evaluate their surroundings. . . . High trait resilient individuals are able to react to stressors functionally because of their tendency to appraise stressors as challenging, whereas low trait resilient individuals react to stressors dysfunctionally because of their tendency to appraise stressors as threatening.

Using within-person data gathered over 10 workdays, Mitchell et al. (2019) reported results consistent with their expectations, such that trait resilience moderated the effect of daily performance pressure on the appraisal of this stressor. Specifically, employees with high trait resilience were more likely to appraise daily pressure as challenging, whereas individuals with low trait resilience were more likely to appraise this stressor as threatening. On the basis of these findings, Mitchell et al. (2019, pp. 533, 537) concluded that "trait resilience enhances the likelihood of functional outcomes and diminishes the likelihood of dysfunctional outcomes from the stress process." Thus, employee resilience can affect appraisals of work demands.

Stressor Characteristics

Beyond individual differences, the characteristics of stressors are also likely to have an impact on when they are appraised as challenges versus hindrances. These characteristics include the magnitude or frequency of the stressors, the extent to which different types of stressors co-occur and/or combine, and the extent to which stressors are stable versus unpredictable. These characteristics of stressors, and their potential impact on subsequent appraisals, are discussed in detail below.

Magnitude or frequency. There is evidence from several disciplines that variables which initially produce positive outcomes can, when presented at higher levels of intensity or with greater frequency, produce negative consequences (i.e., the too-much-of-a-good-thing effect; Grant & Schwartz 2011, Pierce & Aguinis 2013). According to the work on this phenomenon, we would expect that, although challenge stressors that are present at moderate levels of intensity will be viewed as providing the potential for personal gain or achievement, as the magnitude, intensity, or severity of these stressors increases, they will eventually be viewed as an obstacle that may constrain personal growth and achievement (i.e., be viewed as a hindrance). Consistent with this expectation, Xie & Johns (1995) reported that higher levels of job scope (also referred to as job complexity) have a curvilinear (U-shaped) relationship with emotional exhaustion. These authors also found that perceived demands–ability fit moderated the relationship between job scope and stress such that individuals with complex jobs who perceived that their abilities matched the job demands experienced less stress. In addition, Chung-Yan (2010) reported that although job complexity did not have linear or curvilinear main effects on job satisfaction, psychological well-being, or turnover intentions, the effect of the interaction between nonlinear job complexity and autonomy on these outcomes was statistically significant. More specifically, for low-autonomy jobs, as job complexity increased from low to moderate, job satisfaction and psychological well-being increased and turnover intentions decreased. However, when job complexity was high, the relationships reversed; that is, the relationships with job satisfaction and psychological well-being decreased, and the relationship with turnover intentions increased. When job autonomy was high, moderate to high job complexity was positively related to job satisfaction and psychological well-being, and job complexity was related to turnover intentions in an inverted-U pattern, such that turnover intentions were higher at moderate complexity than at either high or low complexity.

Thus, it appears that challenge stressors can be viewed as hindrances as their intensity, magnitude, or frequency increases.

Combining challenge and hindrance stressors. Pearsall et al. (2009) noted that although the combination of challenge and hindrance stressors might lead some scholars and practitioners to believe that the positive motivational effects of challenge stressors might offset the negative effects of hindrance stressors, in highly stressful situations the negative implications of hindrance stressors are likely to be more salient than the positive implications of challenge stressors, making it unlikely for team members to separate the stressors into their positive and negative aspects. To test these expectations, these authors conducted a study in which teams were exposed to (a) only a challenge stressor (time pressure), (b) only a hindrance stressor (role ambiguity), (c) neither (a control condition), or (d) a combination of both. In support of their expectations, Pearsall et al. (2009) found that teams exposed to the challenge-only condition had the most favorable outcomes (based on their performance, transitive memories, and decreases in psychological withdrawal) and that the worst results occurred in the combined-stressor condition. These findings are consistent with the observation by Rozin & Royzman (2001) that when negative and positive events are combined, there is a tendency to skew more toward an overall negative interpretation than a positive one. Thus, managers should exercise caution when introducing or increasing challenge stressors in situations in which employees are already inundated with hindrance stressors.

Predictability. Rosen et al. (2020) argued that the extent to which stressors are predictable influences whether they are appraised as challenge or hindrance stressors. More specifically, these authors argue that (a) although the frequency of challenge stressors is stable in some jobs, it fluctuates in others, and (b) whereas stressors that can be anticipated allow for adaptation, stressors that fluctuate or are unpredictable do not permit preplanning and are likely to be perceived as hindrances. Supporting these arguments, Rosen et al. (2020) found that employees who were exposed to a stable pattern of challenge stressors from week to week were more attentive and experienced less anxiety, which in turn mediated the effects of the challenge stressors on task performance, OCBs, and CWBs. In contrast, employees who were exposed to an unstable (i.e., unpredictable) weekly pattern of challenge stressors were less attentive and reported higher levels of anxiety, which subsequently decreased their task performance and OCBs and increased their CWBs.

Contextual Factors

Several aspects of the work context are also likely to affect the extent to which challenge stressors are appraised as hindrances. These contextual influences include leader behaviors (e.g., charismatic leadership, transformational leadership, ethical leadership, servant leadership, and leader support), and perceived organizational support (POS). Below, we discuss how each of these contextual factors might influence stressor appraisals.

Leader behaviors. Several studies have shown that leaders can influence the effects of challenge and hindrance stressors on employee outcomes. For example, LePine et al. (2016, study 1) reported that charismatic leader behaviors moderate the effects of (a) challenge stressors on challenge appraisals, (b) challenge appraisals on task performance, and (c) hindrance appraisals on task performance. In general, this research indicated that charismatic leadership amplifies (attenuates) the positive (negative) effects of challenge (hindrance) stressors. Similar results have been reported for other leader behaviors, including transformational and ethical leadership, both of which limit the effects of stressors on dysfunctional work outcomes (e.g., exhaustion and social undermining; Eissa & Wyland 2018, Syrek et al. 2013). Likewise, Wu et al. (2020) found that servant leadership

attenuates the positive relationship between challenge stressors and emotional exhaustion. There is also evidence that leader support (*a*) buffers the effects of hindrance stressors on strains (Dawson et al. 2016) and/or (*b*) amplifies the positive effects of challenge stressors on challenge appraisals (e.g., Gerich & Weber 2020) and other functional outcomes (e.g., role-based performance and creativity; Wallace et al. 2009, Zhang et al. 2014). These studies generally converge in describing positive leader characteristics and behaviors as resources that mitigate the deleterious effects of hindrance stressors, while enhancing the ability of employees to successfully manage challenges.

Perceived organizational support. Related to the preceding point, there is also evidence that the perceived support employees receive from their organization has similar effects. For example, Kawai & Mohr (2015) reported that POS enhances positive relationships between role novelty (a challenge stressor) and job satisfaction/work adjustment and mitigates the negative relationships between role ambiguity and work adjustment. Similarly, Wallace et al. (2009) found a positive relationship between challenge stress and job performance when POS was high, but not when it was low.

LAYING THE FOUNDATION FOR THE CHALLENGE-HINDRANCE STRESSOR FRAMEWORK 2.0

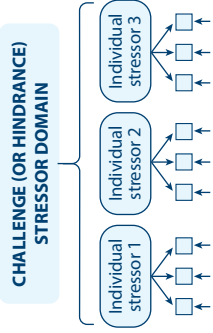
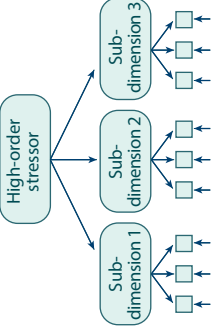
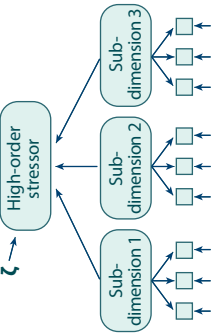
In the following subsections, we turn our attention to important issues that need to be considered to support the next generation of the CHSF. Specifically, we identify several conceptual, theoretical, methodological, and practical concerns that need to be addressed in future research to strengthen the foundation of CHSF 2.0.

How Should Challenge and Hindrance Stressors Be Conceptualized?

Without a clear understanding of the conceptual nature of challenge and hindrance stressors, it is difficult to know the defining characteristics of these constructs, distinguish them from related constructs, or specify and test their nomological networks. Although the defining properties of the challenge and hindrance stressors have been articulated, little attention has focused on whether these stressors should be conceptualized as uni- or multidimensional constructs or on the nature of the relationships between these constructs and their indicators (or subdimensions). Perhaps the lack of attention to these issues can be explained by the fact that many of the early studies in this area appeared to assume that because challenge and hindrance stressor categories contained several different types of stressors, they were multidimensional by nature. Moreover, since until recently most constructs in the fields of organizational behavior and applied psychology were treated as having reflective indicators (Podsakoff et al. 2003), it is possible that researchers did not feel that this was an important issue to address. Nevertheless, as we move toward establishing CHSF 2.0, it is time to consider these issues more carefully.

The relationships between challenge and hindrance stressors and their indicators have been conceptualized in three ways (**Table 2**). According to the first approach, (*a*) challenge and hindrance stressors are conceptualized as overarching categories containing several types of distinct work demands, (*b*) each individual work demand represents a separate unidimensional construct, and (*c*) the indicators of each of these work demands reflect the specific construct they are measuring. This was the prevailing approach in the work stress literature prior to the development of the CHSF. Indeed, much of the previous literature focused on the examination of the effects of distinct stressors (e.g., role ambiguity, organizational politics, time pressure, job complexity), and several scholars in the CHSF domain (Baethge et al. 2018, Balducci et al. 2012, Doci et al. 2020, Gallagher & Meurs 2015) use this approach to examine the effects of stressors on employee outcomes.

Table 2 Comparison of conceptualizations of challenge and hindrance stressors

Conceptualization	Challenge and hindrance stressor domains contain individual-level constructs	Challenge and hindrance stressors are higher-order constructs with reflective subdimensions	Challenge and hindrance stressors are higher-order constructs with formative subdimensions
Visual model			 <p><i>Note: Correlations among the sub-dimensions have been omitted for clarity.</i></p>
Assumptions of the conceptualization	<p>Challenge and hindrance stressors are simply overarching category labels that contain several different types of work demands. Each individual work demand represents a separate unidimensional construct, and indicators of each of these demands reflect the individual stressor construct that they are measuring. This conceptualization does not require that the stressors in the challenge (or hindrance) stressor domain (a) have a common cause, (b) be strongly (or weakly) correlated with one another, (c) be interchangeable, or (d) have the same antecedents or consequences.</p>	<p>Challenge and hindrance stressors are made up of multiple, reflective first-order subdimensions. For the purposes of this conceptualization, (a) each of the subdimensions is conceptualized as a reflection of the higher-order stressor construct, (b) the subdimensions are expected to be highly correlated with one another, (c) removal of subdimensions should not alter the meaning of the higher-order construct, and (d) changes in the higher-order stressor construct should be reflected by changes in its first-order subdimensions (i.e., the higher-order construct is a common cause of the subdimensions).</p>	<p>Challenge and hindrance stressors are higher-order constructs formed by multiple, first-order subdimensions. For the purposes of this conceptualization, (a) the subdimensions combine to produce the meaning of the higher-order stressor construct; (b) the subdimensions need not be highly correlated with one another; (c) the subdimensions are not interchangeable, so removing one may alter the meaning of the higher-order construct; and (d) changes in the subdimension produce changes in the higher-order construct.</p>
Limitations of the conceptualization	<p>This approach does not appear to be consistent with the conceptualization that challenge and hindrance stressors share some common attributes—except in name only. In addition, if only one stressor (or a few) in the challenge (or hindrance) stressor category is included in a study, it is not clear why it should be considered as an exemplar of the overarching challenge (or hindrance) stressor category rather than as a representative of the individual stressor construct.</p>	<p>It is difficult to imagine that some challenge (or hindrance) stressors have the same common cause, because (a) the conceptual definitions of the subdimensions differ substantially, (b) some of the subdimensions of the higher-order challenge (and hindrance) stressor constructs do not appear to be interchangeable, and (c) it is doubtful that all of the challenge (or hindrance) subdimensions are highly correlated with one another. Several studies have reported poorly fitting measurement models, which is not consistent with the assumption that the higher-order stressor constructs serve as common causes of their subdimensions. This conceptualization implicitly assumes that each stressor in the challenge and hindrance stressor categories should have the same antecedents and consequences—which is questionable. Thus, if this conceptual model is used, the higher-order challenge and hindrance stressor constructs are probably best described as representing the shared covariation among the subdimensions, not necessarily as common causes of the subdimensions.</p>	<p>Researchers must take care to include a census of the subdimensions of the higher-order stressor construct in their model; otherwise, they may omit an important part of the conceptual definition of the construct, and the measure of the higher-order stressor will lack construct validity. In addition, to avoid interpretational confounding and problems associated with the identification of the construct-level error term, several requirements need to be addressed when modeling constructs with formative indicators. Moreover, constructs with formative indicators can suffer from problems related to multicollinearity (for a discussion of ways to avoid these problems, see Jarvis et al. 2003; MacKenzie et al. 2005, 2011).</p>

This approach is appealing because it places the fewest restrictions on the relationships between the different types of stressors in the challenge and hindrance categories (e.g., they can be either strongly or weakly related to one another) and because it does not require that stressors in these categories (*a*) have a common cause, (*b*) be interchangeable, or (*c*) have the same antecedents or consequences. However, a limitation of this approach is that it is not consistent with the notion that the challenge and hindrance stressor categories represent higher-order constructs that contain work demands that share some common attributes. Moreover, if only one (or a few) of the stressors in the challenge or hindrance categories is included in a study, it is not clear if or why that stressor is an exemplar of that overarching category, rather than a representative of the individual stressor construct.

Second, challenge and hindrance stressors can be viewed as higher-order constructs that consist of multiple reflective first-order subdimensions. According to this approach, (*a*) each subdimension is conceptualized as a reflection of the higher-order stressor construct, (*b*) the subdimensions are expected to be highly correlated, (*c*) removal of a subdimension should not alter the meaning of the higher-order construct, and (*d*) changes in the higher-order stressor construct should be reflected by changes in its first-order subdimensions (i.e., the higher-order construct is a common cause of the subdimensions; MacKenzie et al. 2005). Although the measurement model in **Table 2** indicates that it ideally includes challenge (or hindrance) subdimensions with multiple reflective indicators, this approach is also consistent with studies that have modeled “overall” challenge and hindrance stressors as higher-order constructs with single indicators (or scale scores) representing the stressor subdimensions using confirmatory factor analysis (CFA) techniques (Boswell et al. 2004, Cavanaugh et al. 2000).

Although this approach appears to be more consistent with the notion that the work demands included in the challenge and hindrance stressor categories have something in common, it also has some limitations. For instance, it is difficult to imagine that all challenge (or hindrance) stressors reflect the same higher-order construct (i.e., have the same common cause), because the conceptual nature of the subdimensions of the higher-order stressor constructs differs substantially. Relatedly, stressors included in the higher-order stressor categories do not appear to be interchangeable; nor would we expect them to all be highly correlated or to have the same antecedents and consequences. For example, job insecurity is neither conceptually the same as nor interchangeable with organizational politics; these two hindrance stressors need not be highly correlated; and they may have different relationships with variables in their nomological networks. Similarly, job responsibility is not a substitute for workload; these two challenge stressors need not be highly correlated; and they may have different relationships with their antecedents and consequences (Webster et al. 2011). Consistent with these points, research has shown that several stressors included in the challenge or hindrance stressor categories are not very highly correlated (Jackson & Schuler 1985, Jex & Gudanowski 1992, Spector et al. 1988), and CFAs treating the challenge and hindrance stressor subdimensions as reflections of a higher-order construct sometimes exhibit poor fit with the data (e.g., Boswell et al. 2004, Byron et al. 2018, Crane & Searle 2016). Thus, if this conceptual model is used, the higher-order challenge and hindrance stressor constructs are probably best described as representing shared covariation among the subdimensions, not necessarily as common causes of the subdimensions.

Third, challenge and hindrance stressors can be conceptualized as higher-order constructs formed by multiple first-order subdimensions. According to this approach, (*a*) all the subdimensions combine to produce the meaning of the higher-order stressor constructs, (*b*) the effect of each subdimension on the higher-order construct may be independent of the effects of the other subdimensions, (*c*) the subdimensions need not be highly correlated with one another, and (*d*) removal of one of the subdimensions may alter the meaning of the higher-order construct (MacKenzie et al.

2011). Advantages of this approach are that it does not require researchers to assume that the subdimensions in the challenge (and hindrance) stressor categories are interchangeable (i.e., that they have a common cause), that the individual-level subdimensions included in the challenge (or hindrance) stressor domains need to be highly correlated, or that they necessarily should have the same antecedents and consequences. However, modeling the challenge and hindrance stressor constructs using this conceptualization presents challenges. Foremost is that, since the higher-order challenge and hindrance stressor constructs are formed by their subdimensions and these subdimensions are not interchangeable, researchers must be careful to include a census of them, rather than a representative sample, in their studies. Otherwise, the measures will lack construct validity. In addition, to avoid interpretational confounding and problems associated with the identification of the construct-level error term, it is necessary to address several statistical requirements when modeling constructs with formative indicators (for recommendations, see Jarvis et al. 2003; MacKenzie et al. 2005, 2011). Finally, constructs modeled with formative indicators can suffer from problems of multicollinearity.

This is a complex issue, and there is currently a lively debate about how variables in the applied psychology and organizational behavior disciplines should be modeled (Bollen & Diamantopoulos 2017, Diamantopoulos & Siguaw 2006, Edwards 2011, Howell et al. 2007, MacKenzie et al. 2011). Although we believe that there is merit to treating the challenge and hindrance stressors as higher-order constructs that are formed by their subdimensions (Podsakoff 2007), settling this debate goes beyond the scope of this review. In any case, there is a clear opportunity for researchers interested in exploring the benefits and limitations of modeling these stressors using different approaches.

Should Other Stressors Be Included?

Consistent with research in other areas—most notably examinations of the Job Demands–Resources (JD-R) model (e.g., Bakker & Demerouti 2007) and job design research (e.g., Morgeson & Humphrey 2006)—broad conceptualizations of challenge and hindrance stressors have raised questions around how to operationalize these constructs. For example, in addition to the challenge and hindrance stressors identified in **Table 1**, scholars have included other stressors in these categories (e.g., work interruptions as a hindrance stressor, and training intensity, cognitive demands, and learning demands as challenge stressors). Although we acknowledge that additional types of challenge and hindrance stressors may exist, we believe that additional work is needed to identify a more discrete set of challenge and hindrance stressors. Importantly, prior to including new stressors in the CHSF, scholars should evaluate the extent to which individual stressors align with their respective conceptualizations and should determine the extent to which they meet the following criteria for inclusion. First, the demand should either (*a*) provide the potential for personal gain or achievement (challenge stressors) or (*b*) constrain, interfere with, or thwart personal goal achievement (hindrance stressors). Second, to prevent construct proliferation (Podsakoff et al. 2016), newly proposed challenge or hindrance stressors should be conceptually distinguishable from other constructs that are already included in the CHSF. Third, researchers should examine how the proposed challenge and hindrance stressors are appraised. Exemplar challenge (hindrance) stressors will be those that demonstrate positive relationships with challenge (hindrance) appraisals and negative or no relationship with hindrance/threat (challenge) appraisals. Fourth, both challenge and hindrance stressors are work demands that should be positively related to strains (Cavanaugh et al. 2000, LePine et al. 2005). Finally, newly proposed challenge and hindrance stressors should be empirically distinguishable from other challenge or hindrance stressors (Le et al. 2010); otherwise, they are likely to be redundant and of questionable value. We encourage researchers to consider these criteria when proposing new demands to the CHSF.

As a demonstration, some work interruptions may represent hindrance stressors. There are several dimensions of work interruptions, including intrusions, distractions, breaks, surprises, and multitasking (Leroy et al. 2020). Of these dimensions, intrusions appear to bear the closest resemblance to hindrance stressors. Leroy et al. (2020, p. 663) note that intrusions

compel a switch away from the interrupted task despite one's commitment to completion of the initial task and one's preference for continuing that work... This misalignment between one's motivation and the expected attention switch explains why intrusions are likely to be experienced as goal blockage, that is, as a hindrance to goal progress that frustrates one's motivation for continued engagement in the initial/interrupted task.

Consistent with conceptualizing intrusions as a hindrance stressor, empirical research indicates that these types of interruptions are positively related to strains, including anxiety, emotional exhaustion, negative affective well-being, and physical complaints (Fletcher et al. 2018, Leroy et al. 2020, Lin et al. 2013), and are negatively related to task performance and performance quality (Altmann & Trafton 2007, Leroy et al. 2020, Trafton et al. 2003). However, recent research by Puranik et al. (2021) suggests that the relationship between work intrusions and job satisfaction is more complex. These authors note that, apart from the potential harm that interruptions cause to job satisfaction by depleting self-regulatory resources, interactions with the interrupter may fulfill one's need for belongingness, which may subsequently increase one's job satisfaction. Consistent with these expectations, Puranik et al. (2021) reported that although work interruptions had a significant negative indirect effect on job satisfaction through depletion, these interruptions also had a positive indirect effect on this criterion through belongingness. These authors also reported that the relationship between depletion and job satisfaction was moderated by belongingness, such that depletion was negatively related to job satisfaction only at lower levels of belongingness. These findings suggest that the relationship between work interruptions and job satisfaction is subtler than expected for traditional hindrance stressors. Thus, additional research that considers the potential for intrusions to serve as a hindrance stressor is needed.

Researchers have also proposed that cognitive demands (Breevaart & Bakker 2018) and learning demands (Prem et al. 2017) are challenge stressors. Because both types of demands represent specific aspects of workload (**Table 1**), they may already be captured in the CHSF. For example, Prem et al. (2017, p. 110) state that "learning demands require employees to acquire knowledge and skills that are necessary to perform their jobs effectively." This definition overlaps substantially with the definition of workload. Indeed, Podsakoff (2007, p. 91) states that the very act of "meeting the requirements of one's role should also facilitate learning and the creation of knowledge." Thus, learning demands appear to be represented by the workload dimension of the CHSF; however, these demands may more directly assess aspects of work that are related to employee growth and development, which are core elements of the challenge stressor conceptualization.

Finally, Breevaart & Bakker (2018, p. 340) define cognitive demands as "the degree to which the job requires employees to be highly concentrated on their work." These authors distinguish between cognitive demands and workload by focusing on the concentration component of cognitive demands, which they believe to be distinct from the amount or quantity of work as captured by the workload dimension of challenge stress. While novel, this differentiation may represent a distinction without much of a difference. That is, arguing that the amount of work an employee must complete for their role does not include the associated cognitive load of completing such work may lack practical significance. Thus, cognitive demands seem to capture a specific form of the workload dimension of challenge stressors. When taken together, these demands seem redundant with the workload dimension of the CHSF. However, some researchers may still wish to study these stressors to address a specific research question or sample.

What Are the Links Between the Challenge–Hindrance Stressor Framework and Other Models of Stress?

Although the theoretical forerunners of the CHSF are easy to identify, the CHSF has not been sufficiently integrated with contemporary models of work stress. More explicitly, our review indicates that authors frequently cite tenets of another theory to describe different aspects of the CHSF (e.g., Rosen et al. 2020), but often fail to fully integrate critical elements of these theories into their research. We believe that further integration of the CHSF with extant theory is necessary, as it has the potential to provide insights into why, how, and when challenge and hindrance stressors relate to various outcomes. Therefore, we consider how three popular stress theories could be applied and tested in CHSF research.

Transactional Theory of Stress. Valuable insights could be garnered from further integration of the CHSF with Lazarus & Folkman's (1984) TTS in several ways. First, it would be helpful to include appraisals in future research examining the CHSF. Our review indicates that a subset of CHSF studies have incorporated primary appraisals (e.g., LePine et al. 2016, Liu & Li 2018, Mitchell et al. 2019, Prem et al. 2017, Rosen et al. 2020, Searle & Auton 2015, Tuckey et al. 2015), but, to our knowledge, primary empirical studies have not directly considered the role of secondary appraisals in this process. Lazarus & Folkman (1984) noted that the terms "primary" and "secondary" were not meant to convey that one type of appraisal (e.g., primary) is more important than the other and that each is equally important to consider in the stress process. As such, there is a clear need for research that further considers the roles of both primary and secondary appraisals in determining how employees perceive and respond to challenge and hindrance stressors.

In addition, the majority of CHSF studies that included primary appraisals assessed challenge and hindrance appraisals, as opposed to challenge and threat appraisals. However, it is unclear to what extent hindrance appraisals, as defined in CHSF research (i.e., "an individual's subjective interpretation that demands have a potential to result in loss, constraints, or harm"; LePine et al. 2016, p. 1039), are distinguishable from threat appraisals (i.e., "harms or losses that have not yet taken place but are anticipated"; Lazarus & Folkman 1984, p. 32). Relatedly, it is also unclear to what extent it matters, theoretically or empirically, whether scholars consider hindrance versus threat appraisals, as they are defined and operationalized in similar ways. However, this is largely an empirical question, and more research is needed to determine the equivalence of hindrance and threat appraisals in the context of the CHSF.

A more comprehensive application and integration of the TTS with the CHSF would also consider the extent to which challenge and hindrance stressors relate to emotion- versus problem-focused coping, as well as the efficacy of those coping responses in terms of mitigating negative outcomes associated with challenge and hindrance stressor exposure. A recent meta-analysis (Y. Zhang et al. 2019) examined some of these relationships, but there is a need for additional primary studies that consider how challenge and hindrance stressors relate to coping responses and subsequent outcomes (e.g., enhanced well-being and performance) via the primary and secondary appraisal processes described by the TTS.

Furthermore, most of the CHSF studies we reviewed utilized designs (e.g., between-person and/or cross-sectional) that do not allow researchers to consider the effects of stressors on appraisals in situ, as they unfold over time, creating another opportunity for further integration of the CHSF with the TTS. Thus, it is not clear to what extent results of within-person or event-based studies (e.g., Rodell & Judge 2009), which tend to conceptualize challenge and hindrance stressors as acute phenomena occurring across or within workdays, would mirror those from cross-sectional and longitudinal studies, which tend to view challenge and hindrance stressors as more chronic and enduring features of the work context. Either way, future CHSF studies would

be better aligned with the TTS if researchers utilize designs that allow them to focus on challenge and hindrance stressors as intraindividual phenomena. Per Lazarus & Folkman (1984, pp. 299–300), “it is necessary to observe the same person again and again. [This] requires comparing the person with himself or herself at different times and under different conditions. . . . An ideal alternative is to observe individuals repeatedly intraindividually and do interindividual comparisons.” Thus, within-person studies that utilize experience sampling methodology (ESM) (Gabriel et al. 2019) would be ideal for studying how employees appraise and cope with hindrance and challenge stressors, and how and why the same job demands may be appraised differently depending on preceding events, contexts, and individual differences.

Job Demands–Resources model. The JD-R model (Bakker & Demerouti 2007) is an extension of the demand–control model (Karasek 1979) and the effort–reward imbalance model (Siegrist 1996), both of which specify that strain occurs when there is disequilibrium between job demands and the resources that employees have available to them. The JD-R model offers an extension to these models by specifying that “whereas every occupation may have its own risk factors associated with job stress, these factors can be classified in two general categories (i.e., job demands and job resources), thus constituting an overarching model that may be applied to various occupational settings, irrespective of the particular demands and resources involved” (Bakker & Demerouti 2007, p. 312). Importantly, the JD-R model is defined by four core principles:

1. Job characteristics can be classified as either demands (i.e., physical, psychological, social, or organizational aspects of the job that are associated with physiological or psychological costs because they require sustained effort) or resources (i.e., physical, psychological, social, or organizational aspects of the job that support the achievement of goals, minimize demands and their costs, and/or stimulate growth, learning, and development).
2. Job demands and resources relate to employee outcomes via two unique pathways that involve strains and motivation, respectively.
3. Job resources mitigate the impact of job demands on strain.
4. Job resources have a particularly potent effect on motivation when demands are high.

Below, we consider how each of these core principles of the JD-R model can be further integrated into CHSF research.

The first step toward integrating the CHSF with the JD-R model is to determine the extent to which challenge and hindrance stressors are classified as job demands or resources. Using the definitions and examples provided by Bakker and colleagues (e.g., Bakker & Demerouti 2007, 2017), most hindrance stressors would be considered job demands in the JD-R model. What is less clear, however, is the extent to which challenge stressors would be classified as job demands or resources. Consistent with the conceptualization of challenge stressors, Bakker & Demerouti (2007) define job resources as being functional and stimulating personal growth and development. Thus, it would appear that job demands traditionally categorized as challenge stressors (e.g., workload, time pressure, job complexity, job responsibility) should all be classified as job resources in the JD-R model. However, Bakker & Demerouti (2017) mention that work pressure is an example of a job demand, rather than a resource. As such, it is difficult to determine whether challenge stressors such as workload and time pressure should be classified as job demands or resources. Further conceptual research is needed to determine why and when specific job characteristics included in the CHSF should be classified as demands or resources in the JD-R model.

The JD-R model further specifies that job demands and resources relate to employee outcomes through unique processes: The effects of job demands are mediated by strain (e.g., exhaustion/burnout), and the effects of job resources are mediated by motivation (e.g., engagement). Although these mediators have not been considered simultaneously in organizational contexts, research by

LePine et al. (2004) indicated that strain and motivation mediate the effects of both challenge and hindrance stressors on learning performance in an educational context, thus providing preliminary evidence to support integration of the CHSF and the JD-R model via these mediating pathways. Within organizational contexts, scholars have integrated this aspect of the JD-R with the CHSF by considering the direct effects of hindrance and challenge stressors, alongside job resources, in predicting motivation and strain (Crawford et al. 2010, Downes et al. 2020, Van den Broeck et al. 2010). These studies provided evidence for anticipated positive direct effects of hindrance and challenge stressors on strain (exhaustion/burnout) and motivation (engagement/vigor), respectively. Crawford et al. (2010) and Downes et al. (2020) also found that hindrance stressors were negatively associated with engagement and that both challenge and hindrance stressors were positively associated with strain, suggesting that strain and motivation may not reflect unique processes, as suggested by the JD-R model. Thus, to facilitate integration of the CHSF with the JD-R model, it is important for future research to reconcile these theoretical discrepancies, given that JD-R research suggests unique effects of challenge and hindrance stressors via these mechanisms whereas CHSF research indicates that challenge and hindrance stressors relate to outcomes via their countervailing and complementary effects, respectively, through both mechanisms.

The JD-R model also proposes that job demands and resources interact to predict job strain and motivation. Though this aspect of the JD-R model has not received as much support as other parts of the model, research (e.g., Bakker et al. 2005) has provided evidence that job resources (e.g., autonomy, feedback, social support) have the potential to attenuate the effects of job demands on strain (e.g., burnout), thus supporting the third core principle of the JD-R model. Likewise, other research (Bakker et al. 2007, Hakanen et al. 2005) has provided evidence that supports the fourth core principle of the JD-R model, indicating that the effects of job resources (e.g., professional skills, supervisor support, organizational climate) on motivation (e.g., engagement, innovation, dedication) are most salient when job demands (e.g., workload, unfavorable physical environment, demanding interpersonal interactions) are high. Thus, to further integrate the CHSF with the JD-R model, we encourage researchers to consider (a) the role of job resources in buffering the effects of challenge and hindrance stressors on strains and (b) the extent to which the relationship between job resources and motivation demonstrates a more salient pattern when hindrance demands are high.

Conservation of Resources theory. The core assumption of Conservation of Resources (COR) theory is that people have an evolutionary need to acquire and conserve resources (Hobfoll 1989), broadly defined as objects (e.g., tools and equipment), conditions (e.g., tenure and seniority), personal characteristics (e.g., skills and traits), and sources of energy (e.g., knowledge and money). Although COR theory was initially intended to enhance understanding about motivation, it also provides insight into the stress process, suggesting that “stress occurs (a) when central or key resources are threatened, (b) when central or key resources are lost, or (c) when there is a failure to gain central or key resources following significant effort” (Hobfoll et al. 2018, p. 104). In contrast to the TTS and the JD-R model, COR theory does not explicitly consider the effects of job demands, but instead considers the role that resource gains and losses play in motivating behavior.² In addition, COR theory defines resources more broadly than the JD-R model does. Thus, one

²COR theorists tend to eschew the role of appraisals in the stress process, suggesting that stress theories that emphasize appraisals are “either idiographic or nonpredictive” (Hobfoll et al. 2018, p. 104) and arguing that, compared with appraisal theories, COR theory emphasizes “the objectively stressful nature of events” (p. 104). However, this description of the stress process is not necessarily consistent with applications of COR theory in organizational research, which have emphasized the role of stressor perceptions and/or appraisals in the stress process (e.g., Kiazad et al. 2014, Kim & Beehr 2020, Koopman et al. 2016).

way to further integrate COR theory with the CHSF is by considering how various resources (i.e., personal, relational, and structural/contextual) affect stressor appraisals, strains, and coping strategies, with a focus on conducting comparative tests to determine which resources are most relevant in terms of attenuating (or strengthening) the effects of challenges and hindrances on stressor appraisals. In addition, as discussed below, COR theory has several other basic principles that can be integrated with the CHSF.

Consistent with our discussion on negativity bias, the Primacy of Loss Principle of COR theory suggests that the effects of resource loss will be disproportionately more salient than the effects of resource gain (Hobfoll et al. 2018). As noted above, CHSF research aligns with this principle, although hypotheses related to the Primacy of Loss Principle have not been directly tested in CHSF research. As such, we encourage researchers to further test the assumption that resource loss associated with challenge and hindrance stressors is more impactful than any resource gain that may be associated with overcoming these stressors. Such tests will allow researchers to determine the extent to which resource loss associated with stressors, particularly challenge stressors, is disproportionately more salient than the resource gains associated with overcoming these stressors.

The Resource Investment Principle of COR theory states that it is necessary to invest resources to protect, acquire, or recover resources. One way to integrate this principle into the CHSF is by identifying the return on investments (i.e., resource gains) and costs (i.e., resource losses) associated with coping with and overcoming challenge and hindrance stressors. That said, an enduring criticism of COR theory is that it is not clear about what is (versus is not) a resource. Although scholars have attempted to address this issue (Halbesleben et al. 2014, Hobfoll et al. 2018), it is particularly important for researchers to identify which resources are invested into coping, as well as which resources are returned (or lost) as a result of successful (or unsuccessful) coping. It is beyond the scope of this review for us to identify the specific resources involved in these processes, but we believe that there is promise in considering how personal resources (e.g., cognitive, affective, and self-regulatory) affect this process.

There is also opportunity to integrate the CHSF with other aspects of COR theory. More explicitly, Hobfoll et al. (2018) noted that because resource loss is more impactful than resource gain, and because resource loss is what causes stress to occur, people will have fewer resources to counter resource loss as they experience stressors. As such, events that result in resource loss have the potential to create resource loss cycles, wherein people become more vulnerable to resource loss and less capable of resource gain as they experience stressors over time. Hobfoll et al. (2018) further speculated that resource gain spirals may occur, but they are weaker than loss spirals and take longer to develop. We believe that there is value in incorporating loss cycles and gain spirals into the CHSF, because doing so may enhance our understanding of why the negative effects of bad experiences (i.e., hindrance stressors) are potentially more enduring than the positive effects of good experiences (i.e., challenge stressors).

Methodological Issues

Thus far, we have discussed theoretical and conceptual opportunities for further research. In this section, we draw attention to methodological limitations of the current CHSF literature and, in so doing, identify additional areas for further study.

Measurement concerns. Although researchers have used a variety of scales to measure challenge and hindrance stressors, the most widely used was reported by Cavanaugh et al. (2000). Unfortunately, this measure has several limitations (**Supplemental Table 1**). The first limitation

Supplemental Material >

is that none of these scales (with the exception of LePine et al. 2016) include all commonly acknowledged challenge or hindrance stressors. For example, several hindrance stressor scales (Cavanaugh et al. 2000, LePine et al. 2004, Rodell & Judge 2009, Zhang et al. 2014) and some challenge stressor scales (Cavanaugh et al. 2000, LePine et al. 2004) do not contain measures of stressors that are typically included in these stressor categories. Moreover, several of the most commonly used challenge and hindrance scales measure some of the stressor subdimensions with only one item, which is unlikely to capture the full domain of these complex constructs and thus makes these measures deficient (MacKenzie et al. 2011). In addition, some of the indicators included in the challenge or hindrance stressor scales may not measure these constructs. For example, it is not clear whether work difficulty (LePine et al. 2004) or skill demands (Rodell & Judge 2009) are valid measures of job complexity. Nor is it clear whether having one's career stalled is a valid measure of a hindrance stressor. Thus, these measures may be contaminated.

Finally, several studies have raised questions about how well the hypothesized two-factor measurement model fits the data. Specifically, this research has shown a lack of support for the two-factor structure of some of the measures of challenge and hindrance stressors unless (a) items are dropped from the scale (Crane & Searle 2016; Searle & Auton 2015, studies 2 and 3), (b) error covariances among indicators are freed up (Boswell et al. 2004; Searle & Auton 2015, studies 2 and 3), or (c) item parcels are used (Byron et al. 2018, Firth et al. 2014, Li et al. 2020, Mackey & Perrewé 2019). These procedures are problematic because freeing up error covariances may indicate that extraneous (confounding) factors are present in the data (MacKenzie et al. 2011), and that the use of parcels that combine items into a single index for the purposes of developing or refining a scale has been questioned (Bandalos 2002, Marsh et al. 2013). Moreover, given the substantial conceptual differences among some of the challenge and hindrance stressors, it is unclear whether they should be combined into parcels in the first place. Taken together, these limitations raise questions about the validity of several of the existing challenge and hindrance stressor measures and suggest that additional research directed at refining measures of these stressors is warranted.

Research designs and the assessment of causal relationships. Our review indicates that most (52%) of the studies conducted in this domain are cross-sectional in nature. Such studies make it impossible to determine whether the stressors being measured are the cause or the consequence of observed relationships. For example, although the positive relationship observed between hindrance stressors and burnout has been interpreted as an indication that hindrance stressors cause employees to experience burnout, it is possible that the employees who are experiencing burnout perceive more events to be hindrances because they are already exhausted. Alternatively, it is possible that the relationship between hindrance stressors and burnout is spurious because implicit theories lead people to believe that such stressors deplete psychological and physical energy. Similarly, Pindek (2020) has argued that although most studies conceptualize job stress as an antecedent to job performance, there are good reasons to believe job underperformance should lead to stress. Thus, future research should carefully consider study design when testing hypotheses about the causal direction between challenge and hindrance stressors and other variables in their nomological network.

The best way to do so is through experimental studies, in which participants are randomly assigned to experimental conditions, the stressors are manipulated, and the effects on their outcomes are observed in either a laboratory or field setting (Campbell & Stanley 1963, Podsakoff & Podsakoff 2019). Unfortunately, however, few experiments are designed to test the CHSF; indeed, we identified fewer than a dozen experimental studies in our review of more than 250 contemporary CHSF studies. One possible reason may arise from concerns related to exposing participants to workplace stressors. Although this is a legitimate ethical and practical concern,

such experimental studies are possible. For example, Sacramento et al. (2013) studied the effects of promotion focus and prevention focus as moderators of the effects of work demands on individuals' creativity by manipulating workload (a challenge stressor) to create high/low-work demand conditions. They found that (a) high workload demands produce better results on a creative insight task for individuals with strong trait promotion focus (versus strong trait prevention focus) and (b) high workload demands combined with an induced promotion focus (versus an induced prevention focus) lead to better results across both a creative generation and a creative insight task (see also Pearsall et al. 2009). Such experiments provide compelling evidence of the causal effects of challenge and hindrance stressors. Thus, we encourage researchers to conduct experimental research on the CHSF when possible.

As noted above, studies using within-person research designs should also prove worthwhile. Although most of the studies we reviewed examined interindividual relationships between challenge and hindrance stressors and outcomes, we found approximately two dozen studies employing ESM to examine these stressors. This approach is consistent with Lazarus & Folkman's (1984) recommendation to study stress by utilizing repeated measure designs. One ESM study reported by Mitchell et al. (2019) examined the effects of performance pressure in a daily diary study. These authors hypothesized that the way in which performance pressure is appraised as a threat or a challenge will subsequently determine how this pressure relates to incivility, task proficiency, and OCBs through mediators. Consistent with these expectations, they reported that when individuals focused on negative aspects of performance pressure (e.g., difficulties in performing their job), it prompted threat appraisals that depleted their energy, leading them to act less civilly. In contrast, a focus on the positive aspects of performance pressure (e.g., the opportunities available) prompted challenge appraisals that promoted task proficiency and helping behaviors.

Despite their advantages, within-person studies applying the CHSF are also subject to limitations, such as their ability to make strong causal inferences. However, ESM designs have recently been expanded to improve their ability to make causal inferences by incorporating experimental procedures. For example, Song et al. (2018) conducted a within-person field experiment that tested the effects of two interventions (recall of prosocial acts and perspective taking) on customer service employees' moods and behaviors after being mistreated by customers. These authors found that both interventions reduced the daily experience of customer mistreatment relative to a control condition. Recall of prosocial actions also buffered the positive relation of daily experience of customer mistreatment with negative moods in the afternoon, and both interventions had significant indirect effects on dysfunctional coping responses in the evening. Although this study was not explicitly designed to examine challenge or hindrance stressors, we encourage scholars interested in testing the CHSF to think of ways to incorporate (within- and between-person) experimental manipulations into their ESM studies.

When it is difficult or impossible to randomly assign participants to experimental conditions, ESM studies can still utilize quasi-experimental designs. For example, it is generally assumed that promotion to leadership positions is accompanied by an increase in the level of both challenge stressors (e.g., increased job responsibilities, job complexity, and workload) and hindrance stressors (e.g., increased levels of role ambiguity, role conflict, and organizational politics). Thus, it might prove informative to conduct a within-person study that compares the effects of such promotions on the appraisals, strains, and feelings of well-being among participants who received a promotion into a leadership position and those who did not receive such a promotion over the transition period (6–8 weeks). Such studies should provide researchers with information about the real-life consequences of being promoted, both in terms of the stressors associated with promotions and in terms of how employees cope with them.

Cross-Cultural Implications

Work stress is not exclusive to American employees and organizations. We believe that, when moving toward CHSF 2.0, scholars should more directly consider the potential cross-cultural implications of this framework. Our review of more than 250 studies in the CHSF literature indicated that the majority (83.7%) were conducted in China (34.3%), in North America (25.1%), or in countries that are part of the European Union (24.3%), and that little research has been conducted in other countries. More importantly, we found few studies designed to compare differences in stressor effects across cultures. Thus, future research needs to examine challenge and hindrance stressors in a cultural context. There are several important possible cultural effects, including (a) the meaning of challenge and hindrance stressors experienced in the culture, (b) the mean level of these stressors across cultures, (c) the strength of the relationships between challenge and hindrance stressors and their consequences, (d) the theoretical mechanisms through which stressors influence their outcomes, and (e) the boundary conditions that influence the relationships between challenge and hindrance stressors and other variables.

Although the mean-level differences across cultures may have managerial implications because high levels of stress may be present in some countries, they are less important from a theoretical perspective. However, all the other effects are potentially theoretically important. For example, a recent study reported by Luong et al. (2020) showed that, when faced with interpersonal conflict (a hindrance stressor), Chinese Americans (individuals from a more collectivistic culture) tended to use coping strategies that promote social harmony, whereas European Americans (individuals from a more individualistic culture) tended to use a more confrontational style. Although this study was not specifically designed to test hypotheses from the CHSF, the fact that it shows that cultural background influences differences in coping responses to stressors suggests that cultural contexts may be important to consider when examining challenge and hindrance stressors. Thus, as we transition to CHSF 2.0, we encourage future research that examines the effects of cultural differences on the relationships between these stressors and their outcomes.

Implications for Practitioners

Finally, we believe that laying the foundation for CHSF 2.0 also includes consideration for the practical implications and applications of this framework. Although most research on the CHSF has focused on identifying the outcomes of these stressors, this is only the first step in helping managers and organizations improve employee outcomes at work. To ensure that the negative consequences employees face from hindrance stress and the strains associated with challenge stress are mitigated, managers must also focus on strategies that can lessen these effects. Remedies designed to address hindrance stressors should focus on reducing these demands and their negative effects, whereas remedies for challenge stressors should focus on enhancing the positive outcomes associated with these demands while mitigating the negative effects of their related strains. To achieve these goals, managers have three options: change the experience of the stressor, change the appraisal of the stressor, or change the response to the stressor.

Change the experience of the stressor. Strategies designed to change the experience of hindrance stressors are relatively straightforward. For example, when employees indicate that they are experiencing high levels of role ambiguity, managers can clarify the elements of the employees' job and provide clear and concise instructions about what is expected of them. Likewise, when employees express concerns about the adequacy of their resources, managers can (a) provide these resources (if possible), (b) train employees to more effectively use their current resources, (c) improve the alignment between the tasks employees are asked to perform and the resources available to perform them, or (d) look for ways of incorporating technology that can improve the

use of resources. Finally, if employees feel that they are hindered by administrative hassles, strategies can either focus on reducing red tape and empowering employees (within limits) to make decisions about their jobs or concentrate on removing unnecessary rules, regulations, and policies.

In contrast, strategies designed to change the nature of challenge stressors may require different techniques, because (a) challenge stressors are not always positively related to functional outcomes, and increasing the level of these job demands may increase the strains experienced by employees; (b) when challenge stressors are added to already high levels of hindrance stressors, they may be appraised as hindrances themselves (Pearsall et al. 2009); and (c) challenge stressors are expected to have positive effects only up to the point that employees can effectively deal with them (Grant & Schwartz 2011). Thus, when managing challenge stressors, employers should take care not to overwhelm employees' capacity to effectively cope with increased levels of these stressors. For example, introducing complexity into a job may mean breaking the work down into its component parts and presenting these more manageable parts to employees gradually, until they have a chance to adapt to the new job. This approach also offers employees the opportunity to acclimate to higher levels of complexity, which may decrease the likelihood of negative outcomes.

Similarly, when an employee is considering taking on a job that entails more responsibility, it is important for the manager to (a) explain how the job helps the organization and why it is essential to the organization's success, (b) explain why they chose the employee for the job and why they believe the employee has the skills to perform it effectively, (c) give the employee the authority (autonomy) to make their own decisions and determine how the work will be done, (d) provide the employee with feedback and coaching about their performance, and (e) express a willingness to mentor the employee and answer questions that they may have about the new role. Although using this strategy may not completely alleviate the strains associated with the increased amount of responsibility, it should help highlight that the stressor is meant to provide the potential for personal gain and achievement as well as greater opportunities for future success.

Change the way in which stressors are appraised. Managers can also change the way employees appraise the demands they experience on the job. As noted above, several studies (Liu & Li 2018, Wang & Li 2019, Xie & Johns 1995, K. Zhang et al. 2019) have shown that individuals who believe that they have the ability to perform the job tend to view challenge stressors more positively and hindrance stressors less negatively. Therefore, one technique for changing employees' appraisal of work-related stressors is to increase employees' self-efficacy or CSE. This can be done by designing work to match the employees' abilities, providing adequate training and technical support, involving employees in decisions about how they do their work, communicating confidence that employees have the ability to be successful in the job, and coaching employees when they encounter difficulties.

Another tool that managers can use to help employees reframe the physiological and psychological manifestations of negative reactions to stressful events is based on arousal reappraisal theory (Jamieson et al. 2010, 2018). According to this theory, reappraisal of a stressor can be accomplished by breaking "the link between stressful situations and [the] physiological responses and experiences of negative affect" (Jamieson et al. 2018, p. 30). One example of the successful use of this technique is reported by Jamieson et al. (2010). These authors found that students who were told that feeling anxious might help (as opposed to hurt) performance on standardized tests experienced more arousal than control group students who were not provided with arousal reappraisal instructions. However, the students in the arousal reappraisal condition also (a) performed better on the math section of the GRE taken more than a month later, (b) reported that the arousal helped their performance more, (c) worried less about feeling anxious, and (d) felt less unsure of themselves. Taken together, these results demonstrate that getting people to reappraise arousal as

a challenge that signals good performance may improve not only their performance but also their subjective evaluation of the situation.

This technique could be particularly useful for reappraising challenge stressors in workplace settings. For example, consider an employee who is experiencing anxiety because of the increased workload that accompanies taking on a new job. To address this situation, their supervisor could coach the employee to use this situation as an opportunity to define their own role, prioritize the important parts of the job that need to be accomplished, and then provide evidence of how other employees who effectively reappraised this situation as providing the potential for personal gain or achievement were able to succeed in the new job. In contrast, the reappraisal of a hindrance stressor might focus on decreasing the appraisal of this demand as a hindrance rather than getting employees to reappraise it as a challenge.

Finally, another technique that shows promise in helping employees change their appraisal of workplace stressors builds on research by Crum et al. (2013) on stress mindsets. As noted above in the section titled Stress Mindset, individuals who hold a stress-is-debilitating mindset tend to avoid or manage the stress in order to prevent negative outcomes, whereas individuals with a stress-is-enhancing mindset tend to harness and use stress to achieve desired outcomes. An employee's mindset toward stress can be changed through interventions (Crum et al. 2013). One effective intervention shows employees short video clips that offer examples of how stress is enhancing (Crum et al. 2013). Not only did this manipulation increase employees' view of stress as enhancing versus debilitating, but also employees achieved improvements in work performance. In a separate study, Crum et al. (2013) showed that individuals with a stress-is-enhancing mindset were also more likely to seek feedback on their performance, which may support the idea that individuals with this mindset engage in actions and behavior to help themselves cope with and overcome stress. Managers can use these findings on stress mindset to take an active coaching role with employees experiencing work stress, and challenge stress in particular. By educating employees on the potential benefits—or enhancing nature—of certain stressors, managers may be able to help employees change their mindset about stress and, thus, their appraisals of stressors as more challenging and/or less hindering.

Change the responses to the stressor. Although research suggests that it is possible to change the nature of workplace stressors or the appraisal of them, it is unlikely that all stressors can effectively be dealt with using these techniques. The fact that some jobs (e.g., firefighters, police officers, or other emergency personnel) contain work demands that are hard to predict or control may make it difficult to change the nature of the stressors that occur in these jobs, or the appraisal of these work demands. In these cases, managers might have to shift their focus to changing employee responses to stressors by developing strategies designed to increase an employee's ability to use promotion- and problem-focused coping methods for both challenge and hindrance stressors. For example, managers can help employees cope by providing them with instrumental support and training them to (a) identify the sources of their stress, (b) consider multiple ways to address these stressors, and (c) develop a plan of action to implement (Y. Zhang et al. 2019). Using this approach, an employee who has recently experienced a higher workload would benefit from identifying the specific activities that make up this load, developing strategies to complete these specific activities, and creating an action plan to implement one or more of these strategies. Alternatively, in those cases where the stressor is difficult, if not impossible, to change (e.g., where the nature of the job requires employees to deal with unpredictable events), managers can help employees regulate their emotional responses by offering emotional support, encouraging them to refrain from making quick decisions when encountering the stressor, and providing them with tools to help them evaluate the stressors as opportunities for growth (i.e., change their mindset).

Finally, research indicates that the support employees receive from their supervisor (Dawson et al. 2016, Gerich & Weber 2020, Wallace et al. 2009) and their organization (Kawai & Mohr 2015, Wallace et al. 2009) helps them cope with the strains associated with both challenge and hindrance stressors. Rhoades & Eisenberger (2002) have suggested that such support can be demonstrated by (a) treating employees fairly (e.g., allowing employees input into the decision-making process, providing adequate notice to employees before decisions are implemented, and informing employees about how resource allocations are determined); (b) ensuring that supervisors treat all employees with dignity and respect, and demonstrate concern for their employees' well-being; and (c) using human resources practices wisely (e.g., making compensation commensurate with employees' contributions to the organization, providing employees with adequate training to perform their jobs effectively, and, where possible, allowing employees control over their work procedures). Therefore, organizations that provide these types of support should see benefits in the ability of their employees to cope with the stressors they encounter at work.

CONCLUSION

Research on the CHSF has increased dramatically over the past two decades. Although this growth has prompted some scholars to identify it as a dominant perspective on work stress, the CHSF has also been the subject of criticism, with some scholars (e.g., Horan et al. 2020, Mazzola & Disselhorst 2019) calling for the field to abandon it. In this article, we have reviewed the history of beneficial forms of stress and the current state of the literature on challenge and hindrance stressors; addressed critiques and conceptual, operational, practical, and methods-related concerns with the research conducted using this framework; and laid the foundation for the next iteration of the model: CHSF 2.0. We hope that this review, like the original CHSF article (Cavanaugh et al. 2000), guides research and practice for the next two decades.

APPENDIX: SUMMARY OF ARTICLE IDENTIFICATION AND CODING FOR LITERATURE REVIEW

For the purposes of our review, we were interested in identifying articles designed to test propositions about the relationships between workplace stressors and their outcomes that were generated from the CHSF, rather than conducting an exhaustive review of all the stress literature that had simply cited the CHSF. Therefore, to identify relevant articles to include in our review, we performed the following steps. First, we conducted a search of the Web of Science database on January 31, 2021, using the keywords “hindrance stress” OR “hindrance stressor” OR “hindrance stressors” OR “challenge stress” OR “challenge stressor” OR “challenge stressors.” This search resulted in an initial list of 245 articles. From this list, we included empirical articles that reported relationships between measures of challenge and/or hindrance stressors (and their dimensions) and outcome variables. We omitted 61 of the articles because they (a) included meta-analytic (as opposed to primary) data; (b) reported a review of the literature; (c) focused on stress in other species or organisms (e.g., fish, mice, rats, chickens, mollusks, phages); (d) did not explicitly assess challenge or hindrance stressors; (e) were not accessible through the library systems at two large state universities; or (f) were related to medical, physiological, or pharmaceutical issues (e.g., drug dosage, in vivo studies, inflammatory responses, drug use, fetal heart rates, alcoholism, endocrine linkages, psychosis) that were not germane to our discussion. Second, we identified articles in the Web of Science that cited Cavanaugh et al. (2000), or at least one of the reviews by LePine et al. (2005), Podsakoff et al. (2007), and Crawford et al. (2010). We selected these articles because they are

the most highly cited in this research domain and they review relationships with several different outcomes. Third, we downloaded the entire list of citations to these articles (including the titles of the citations) from the Web of Science into an Excel file. This search resulted in an initial master list of 3,096 articles from all these sources. However, many of these articles ($N = 933$) were duplicates because they cited two or more of these reviews. We narrowed the number of articles by searching through the titles of the articles in the master list using the terms “hindrance” AND “challenge,” yielding an additional 29 articles that we included in our review (for a total of 213 articles). However, several of the papers included in this final set reported more than one study. Therefore, following conventional practices, we coded each sample as an independent study. Our final data set included 256 independent samples.

We coded each study for a variety of characteristics. These included (*a*) the type of study conducted (e.g., laboratory experiment, field or quasi-experiment, diary/ESM study, longitudinal study, cross-sectional survey, qualitative study, scale development study); (*b*) geographical location where the study was conducted; (*c*) the type of challenge and hindrance stressor examined; (*d*) the specific scale used to measure general challenge or hindrance stressors; (*e*) the type of consequences examined in the study; (*f*) the type of mediators included in the study (if applicable); and (*g*) the type of moderators included in the study (if applicable).

SUMMARY POINTS

1. The Challenge–Hindrance Stressor Framework (CHSF) represents a popular contemporary perspective on work stress that categorizes job demands into (*a*) those that constrain, hinder, or thwart personal growth and achievement (hindrance stressors) and tend to have negative effects on employee outcomes and (*b*) those that provide the potential for personal growth and achievement (challenge stressors) and tend to have positive effects on these outcomes.
2. Despite its influence and impact on work stress research, the CHSF has been subject to several criticisms, leading some scholars to recommend that it be abandoned for other models. To help determine a potential path forward, we have reviewed the CHSF literature and addressed several criticisms and concerns.
3. We address the criticism that hindrance stressors have more consistent and stronger effects (in absolute terms) compared with the effects of challenge stressors by demonstrating how (*a*) the negativity bias displayed by humans and (*b*) the countervailing versus complementary indirect effects for challenge and hindrance stressors, respectively, can explain this difference.
4. We address the criticism that challenge stressors are typically appraised as challenging but are sometimes appraised as hindrances by identifying several individual-, stressor-, context-, and leader-related variables that can moderate the effects that challenge (and hindrance) stressors have on appraisals, and other variables.
5. To better lay the foundation for CHSF 2.0, we identify and address several conceptual, practical, and methods-related concerns in the current research applying this framework.
6. Like the article that established the CHSF (Cavanaugh et al. 2000), we hope that this article influences and guides research and practice for the next two decades.

FUTURE ISSUES

1. Should challenge and hindrance stressors be conceptualized as individual overarching constructs or as higher-order constructs with reflective (or formative) subdimensions?
2. Are there other work demands that should be included in the challenge or hindrance stressor categories? Do these work demands meet the criteria to be included as new forms of challenge and hindrance stressors?
3. What are the effects of challenge and hindrance stressors on primary and secondary appraisals and subsequent coping responses? Are hindrance appraisals distinguishable from threat appraisals, and if so, what difference does it make?
4. Do challenge and hindrance stressors have different effects on problem- and emotion-focused coping responses? What is the efficacy of these coping responses in mitigating the potential negative outcomes associated with challenge and hindrance stressors?
5. Are the effects of challenge and hindrance stressors on outcomes mediated by both strains and motivation, or are the effects of hindrance stressors mediated uniquely by strains, whereas the effects of challenge stressors are mediated uniquely by motivation? Do challenge and hindrance stressors interact with one another to predict strains and motivation?
6. To what extent do job resources (e.g., autonomy and support) buffer the effects of challenge stressors on motivation? To what extent does the relationship between job resources and motivation demonstrate a more salient pattern when hindrance demands are high (as opposed to low)?
7. What specific kinds of resources (i.e., personal, relational, or structural/contextual) are most relevant in terms of attenuating (or strengthening) the effects of challenges and hindrances on stressor appraisals, strains, and coping strategies?
8. What are the specific benefits (i.e., resource gains) and costs (i.e., resource losses) associated with investing resources into coping with and overcoming challenge and hindrance stressors?
9. To what extent do hindrance (challenge) stressors trigger loss cycles (gain spirals)? Do loss cycles (gain spirals) cause employees to lose (help employees acquire) resources they need to meet (overcome) subsequent demands when they invest resources in coping with challenge and hindrance stressors?
10. Are the existing measures of challenge and hindrance stressors construct valid? Should multi-item scales of the various types of challenge and hindrance stressors be developed?
11. How can experimental studies (laboratory, field, quasi-experiments) best be utilized to determine whether challenge and hindrance stressors are the causes or the consequences of various criterion variables?
12. How can experience sampling methodology (ESM) studies be used to develop a better understanding of the within-person effects that daily stressors have on employee well-being?

DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

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