

**Nomological Network of a Challenge and Hindrance  
Workplace Stressors Scale: A Meta-Analysis**

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## Abstract

This research presents a meta-analysis that aims to assess the reliability and nomological network of the Cavanaugh, Boswell, Roehling, and Boudreau (2000) measure of challenge and hindrance workplace stressors, specifically, the relationship of these stressors with correlates and outcomes. Since the publication of this seminal article in 2000, the measurement of challenge and hindrance workplace stressors within industrial/organizational psychology has been vast. Yet, how the Cavanaugh and colleagues' (2000) scale operates and performs in the field has not been reviewed. Therefore, the following meta-analysis examines challenge and hindrance workplace stressors as operationalized by Cavanaugh and colleagues (2000) to provide a greater understanding of this scale. By investigating this scale, (1) information was ascertained about the average reliability of this scale within research, (2) average effect sizes and variabilities in effect sizes were analyzed between challenge and hindrance stressors and correlates/outcomes, and (3) possible moderators between stressors and correlates/outcomes were explored. Pertinent information from articles was extrapolated that met the inclusion criteria (i.e., use the Cavanaugh et al. 2000 measure, published in English, have correlational data) and analyzed those articles using Hunter and Schmidt's (2004) meta-analytic method to determine the sample size weighted mean observed correlations and the reliability-corrected mean correlations and variability. Results suggest the Cavanaugh and colleagues (2000) measure has a relatively high reliability ( $\alpha = 0.85$  for both challenge stressors and hindrance stressors) and that most correlates and outcomes are not differentially related to challenge and hindrance workplace stressors.

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## **Introduction**

Workplace stressors are increasingly important for organizations and researchers to address. Strain experienced on the job results in many negative outcomes for the individual, as well as for the organization. Work stressors are linked to a number of health issues, such as heart disease, anxiety, and hypertension, as well as organizational issues such as burnout, absenteeism, and job dissatisfaction (Stanton, Balzer, Smith, Parra, & Ironson, 2001). These issues can be very costly for organizations and individuals, and therefore an understanding of the different types of workplace stressors employees experience is imperative. Based on this importance of understanding stressors in the workplace, their correlates, and their impact on work and personal outcomes, there have been numerous theories utilized to explain workplace stressors and relationships with overall worker well-being (LePine, LePine, & Jackson, 2004; Podsakoff, LePine, & LePine, 2007; Webster, Beehr, & Christiansen, 2010). Additionally, discovering the dimensionality of workplace stressors has been the focus of much of the research and theory in this area. Most notably, researchers have established a theory of workplace stressors that considers two dimensions: challenge stressors and hindrance stressors (Cavanaugh et al., 2000). These dimensions stem from the idea that both positive and negative stressors exist (commonly referred to as eustress and distress), or more specifically, stressors that result in either positive or negative outcomes, respectively. As a response to this dichotomy of stressors, the measurement of workplace stressors typically reflects both challenges and hindrances. Cavanaugh and her colleagues (2000) developed a scale of challenge and hindrance workplace stressors that became an immediate classic in the work and stress literature with over 800 citations according to Google Scholar as of November 2017.

Current meta-analyses of challenge and hindrance workplace stressors have focused on a

variety of challenge and hindrance variables, specifically variables that are commonly used as proxies for challenges and hindrances (e.g., time pressures, responsibilities, red tape, organizational politics, work overload). These meta-analyses are a good representation of challenge and hindrance workplace stressor variables in the literature and their relationships with personal and work outcomes. However, more focus needs to be given in meta-analytic work to the dichotomy of challenge and hindrance workplace stressors as conceptualized by Cavanaugh and colleagues (2000). Since its publication in 2000, their measure of challenge and hindrance workplace stressors has been frequently used, yet an overview of how the measure functions within research has been largely understudied. Therefore, I conducted the following meta-analysis in order to examine the challenge and hindrance workplace stressors as operationalized by Cavanaugh and colleagues (2000). I meta-analyzed those articles that utilized the Cavanaugh et al. (2000) instrument for measurement in their studies. By only assessing this measure, several research questions and hypotheses were assessed. By investigating this scale, more can be learned about the reasons for inconsistencies in correlations between challenge and hindrance stressors and outcomes, the frequency of use of the scale within the literature, and the presence of possible moderators between stressors and outcomes.

In the following paper, I provide foundational knowledge of the concept of general stress and strain, including an overview of the dichotomy of eustress and distress, workplace stressors, and the evolution of workplace stressors into the categories of challenge and hindrance workplace stressors as defined by Cavanaugh and colleagues (2000). After the provision of general information on workplace stressors and the differing types of workplace stressors (including common measurement practices and common covariates and outcomes), I meta-analyze articles that utilize the original Cavanaugh et al. (2000) instrument. I assess the overall

use of the original measure of challenge and hindrance workplace stressors within the literature and examine challenge and hindrance stressors in comparison to demographics and dispositional- and work-related correlates, as well as the stressors' relationships with work, family, and individual health outcomes. I conclude by providing an interpretation of the results and suggestions for new research directions in the area of workplace stressors and the measurement of these variables.

### **A Brief Overview of the Stress Literature**

Stress research has greatly evolved since its original conceptualization. While stress is a concept that most people feel like they understand well, the agreement on what stress is in academic literature is less streamlined. Stressor, stress, and strain are all terms that are often used interchangeably, but in research (especially psychological research) these terms actually have very different meanings. Properly delineating between these concepts is important for researchers to do and be wary of in order to ensure that they are utilizing the correct constructs in order to answer their research questions, as well as ensuring that the interpretation of the results of their studies is accurate. Not only is it important for researchers to understand these nuances, but it is also important for participants to understand the differences in these terms as well. If research participants are not interpreting the items the way in which the researcher intended for the items to be interpreted, incorrect conclusions may be drawn (Jex, Beehr, & Roberts, 1992). Therefore, if the researchers are able to properly explain and define the terms that the questions of their survey or questionnaire are related to, then participants may have a clearer depiction of what is being asked of them and may be able to respond to items with more integrity. Essentially, properly defining stressor, stress, and strain is important if utilizing these variables in psychological research to increase the content and construct validity of the study. Given that the

focus of this meta-analysis is on workplace stressors, it is imperative to accurately outline the differences between stressors, stress, and strain in the following sections.

The term stress has been used in many different fields including physics, biology, and psychology, and sometimes even to represent different concepts. The idea of general stress is derived from Cannon's (1932) early work on fight-or-flight responses. Our bodies respond to demands from the environment, which can many times disrupt our homeostasis and result in an imbalance in our physiological systems (Ganster & Perrewé, 2011). The process by which we experience some form of imbalance in our physiological systems is common when confronted with environmental demands, but in most cases, when the threat or demand dissipates, the body will return to its normal, homeostatic state. Within psychological research, we are highly attuned to the importance of understanding and coping with stress, as it has been related to a slew of outcomes, mainly those related to health, work, school, and family. Yet, even though this is a highly pertinent concept to individuals, our ability as psychological researchers to reach a consensus on the meaning of stress is poor at best. Stress is often a confused topic because of different perspectives on where in the overall process of stress is the actual stress itself experienced. Some would argue that stress is the environmental force or demand placed upon an individual (Beehr & Franz, 1987; Jex et al., 1992; Kahn & Quinn, 1970; Lazarus, 1966). According to this definition, stress can be thought of as the antecedent or stimulus that leads to specific outcomes within this process of stress. This viewpoint was likely developed from Cannon's (1932) interpretation of stress as the physical stimuli that has an adverse result on a person or animal. Other researchers feel that stress is the reaction to certain threatening environmental stimuli (Beehr & Franz, 1987). Anecdotally, we see stress appraised in this way every day. For example, we likely have a deadline coming up, and we say that the deadline is

making us feel stressed. In this conceptualization, the stress is the outcome or response to the threatening environmental stimuli, the looming deadline. While this may be a common way to refer to or talk about stress, this perspective is not typically supported in the literature.

Researchers in another camp might view stress as the interaction between an environmental threat and an individual's response (Beehr & Franz, 1987; Ivancevich & Matteson, 1980; Mason, 1975). Defining stress in one of these three ways, as either the antecedent, outcome, or interaction, are some of the most common ways in which stress is thought to culminate. This muddled definition of stress clearly points to some of the issues researchers come across when defining stress, antecedents, and outcomes in their research. More recently, researchers have decided that stress may be best suited as an umbrella term that refers to an entire research area that includes looking at the environmental demands or threats that lead to certain behavioral, physiological, and psychological responses (Beehr & Franz, 1987). I adhere to this broader, higher-level definition of stress that considers stress to be an overarching term that represents an entire area of research for the purposes of this meta-analysis.

Stress can also be discussed in terms of “good” and “bad” stress, or eustress and distress, respectively (Le Fevre, Matheny, & Kolt, 2003; Selye 1964, 1974). However, while commonly referred to as good and bad stress, eustress and distress actually differ in the amount of demand that is being experienced. According to Selye (1964, 1974), it is important to consider the amount of demand being placed on a person, and whether that amount of demand is viewed as pleasant or unpleasant (Le Fevre et al., 2003). When someone is distressed, this would entail that they are either experiencing too much of a demand or too little of a demand. Following from Cannon's (1932) conceptualization of stress and homeostasis, this definition of distress is logical. If a person is experiencing distress, we can assume that this person is imbalanced since the

demand that they are receiving is either too much or too little, and therefore they must be out of their typical homeostatic state. Given that Selye (1974) considers all stressors to either provide distress or eustress, it would follow that eustress can be defined as the optimal amount of demand for a certain individual. The decision for something to be considered either eustress or distress is up to the individual, a piece that will prove imperative as challenge and hindrance workplace stressors are discussed more in the coming sections. Something else important to consider when delineating between distress and eustress, and which is also important in delineating between challenge and hindrance workplace stressors, is the perception of the characteristics of the demands imposed upon an employee. Considering if meeting the demand is desirable, if meeting the demand would be beneficial, and considering who is imposing the demand all are pertinent factors for an individual to consider when labeling an event as either distress or eustress, and may also be important when assessing if a stressor is challenging or hindering (Le Fevre et al., 2003). In sum, eustress is thought to be an amount of demands that is viewed by the individual as pleasurable and perceived as positive, while distress is perceived by individuals as a negative and an unpleasant amount of demands (Le Fevre et al., 2003).

### **Stressors**

A stressor is any event that can lead to strain or certain outcomes, which are discussed in more detail in the next section. Traffic, deadlines, responsibilities, workload, poverty, and natural disasters can all be classified as stressors. However, while nearly all people can relate to the strain caused by stressors such as deadlines or traffic, stressors are unique in that any situation can be appraised as a stressor by an individual. For some, giving a speech may be a very pertinent stressor, while others may not view this situation as a stressor and may actually view giving a speech as a positive opportunity to grow and develop. This appraisal or perception of

stressors is an important aspect of the transactional theory of stress, which will be discussed in more detail later (Lazarus & Folkman, 1984).

How impactful a stressor is should also be considered. Researchers often discriminate between acute stressors and chronic stressors. A chronic stressor is one that is consistently present in a person's life, such as levels of constant poverty, malnutrition, or the existence of a life-long disease. Essentially, chronic stressors are experienced for a long period of time by the individual and can have a very negative impact given that they keep the individual in a steady state of strain. Conversely, acute stressors are much shorter in duration, and come and go more naturally. Stressors such as deadlines or impending exams can be considered acute stressors. Often times, these stressors can even be viewed positively, as they may help to prepare the individual to meet a certain goal or can challenge people to become motivated. Many other delineations of stressors have been posited as well, such as interpersonal or physical stressors. These stressors can be derived in all areas of life, which highlights the individual nature of the stressors as well— some people may experience stressors in their family lives, some in their social lives, or some in their work lives. However, while stressors can be categorized in a number of ways, for the purposes of this project, I am mostly concerned with workplace stressors, which will be discussed to a great extent in the coming sections.

## **Strain**

Unlike stress, strain is a much more streamlined concept. Simply put, strain is the outcome or the response (whether behavioral, psychological, or physiological) of or to a stressful event. According to Knapp (1988), strain is the wear and tear that stressors cause for an individual. This is echoed by French, Caplan, and Harrison (1982), in which they conceptualized that stressors cause strain. Essentially, strain is expected if events are experienced as stressful



(Boswell, Olson-Buchanan, & LePine, 2004; Scheck, Kinicki, & Davy, 1995; Spielberger, 1972). Importantly, strain can be the result of both eustress and distress (Boswell et al., 2004). Therefore, regardless of a stressful event being viewed as positive or negative, or optimal or suboptimal, strain is still likely to be an outcome. Strain can take many forms and can be measured at varying levels of analysis, such as at the psychological level, social level, or physiological level (Eckenrode, 1984). For the purposes of the present meta-analysis, I am mostly interested in common strain-related outcomes experienced by employees. These outcomes revolve around strain experienced at work, such as burnout; strain related to a person's relationship between their work and family, such as issues of work-family conflict; and strain experienced in relation to the individual, such as the manifestation of health issues or psychological issues.

### **Applying Stressors and Strains to the Workplace**

Workplace stressors are stimuli that place demands on individuals in the workplace (Lazarus & Folkman, 1984, 1987; LePine, Podsakoff, & LePine, 2005). Basically, workplace stressors are any strain inducing events that may happen in work contexts (Chen & Spector, 1992). In the context of the workplace, any condition, situation, or event could be considered a stressor for an employee. Common workplace stressor variables that have been identified include responsibility, work overload, role ambiguity, and role conflict (Caplan, Cobb, French, Harrison, & Pinneau, 1975; Karasek, 1979; Rizzo, House, & Lirtzman, 1970). In keeping with much of the research on stress and strain, stressors are the stimuli or conditions that result in strains, meaning stressors are the antecedents to strains, while strains are the outcome (Jex, 1998). Much of the work regarding challenge and hindrance stressors is therefore focused on antecedents to strain, correlates of strain, and work or personal outcomes of strain. Brief and George (1995) emphasize

focusing on the workplace stressors themselves in research, stating that it is important to first identify the stressors that may elicit specific appraisals and responses from employees to better understand the consequences of stressors at work. Focusing on these stressors provides more clarity about conditions that may cause strain for employees, such as negative impacts on well-being, and therefore research can be done to explore tactics to lessen these conditions or train employees to cope with stressors in a way that can lead to reduced levels of strain.

### **Conceptual Theories of Workplace Stressors**

There are also several frameworks and theories of stressors that can aid in the overall conceptualization of workplace stressors. Considered one of the most influential theories or models of stress, Lazarus (1966) proposed the transactional theory of stress, and later worked to expand the model (Lazarus & Folkman, 1984). This model suggests that strain is experienced in the interaction between a person and their environment, as opposed to being found solely in the environment or in the person. Lazarus also posits that stressors are to be considered subjective, meaning that some situations or events may be labeled as stressful by some individuals but not by others. Individuals make a cognitive evaluation of a situation and deem it either as a demand or threat or as not a demand or threat, and then respond accordingly. Lazarus and Folkman (1984) propose that these situations can be labeled more specifically as either 1) a chance to grow and develop or 2) as a threat to well-being. This dyadic conception of stressors (i.e., challenge stressors that may push us or hindrance stressors that may thwart us) resides in newer conceptualizations of the types of stressors prevalent in workplaces. Yet, despite widespread understanding of the importance of assessing appraisals as denoted in the transactional theory of stress, many researchers have ignored appraisals and perceptions in their measurement of challenge and hindrance workplace stressors. Some researchers have begun to consider

appraisals in their measurement and conceptualizations of workplace stressors (e.g., Gerich, 2016; Webster, Beehr, & Love, 2011), but this is a more novel endeavor.

Following these early theories of stress, it has become common in workplace stress literature to delineate between different types of stressors. Beehr and Newman (1978) were some of the first to identify that certain workplace stressors have differing impacts on performance than do other stressors. This again provides precedence for types of workplace stressors being subcategorized, most commonly, into dimensions that represent antecedents of an increase in performance or a decrease in performance (Edwards, Franco-Watkins, Cullen, Howell, & Acuff, 2014). Overall, within the major frameworks and theories of occupational stress (see Ganster & Pewerré, 2011), working conditions that may be interpreted as stressors affect worker health and well-being. Additionally, there is consensus that workplace stressors are those that either induce negative or unfavorable (i.e., hindering) effects on work or personal outcomes or are stressors that have positive or favorable (i.e., challenging) effects on work or personal outcomes (Gerich, 2016; Selye, 1974). This conception of the types of stressors has evolved into the challenge and hindrance model of occupational stressors, and has received a great deal of emphasis in workplace stress research (Cavanaugh et al., 2000).

### **Measurement of Workplace Stressors**

Measurement of workplace stressors has not always considered these two dimensions of challenges and hindrances. Although Lazarus and Folkman (1984) proposed that there are two types of stressors, those that promote growth and development or those that stymie growth and development, delineating between the two is not always done in the measurement of workplace stressors. Workplace stressors have previously been measured using scales that treat workplace stressors as a unidimensional construct. For example, the Job Demands and Worker Health Study

(Caplan et al., 1975; Matteson & Ivancevich, 1987), the Stress Diagnostic Survey (Ivancevich & Matteson, 1983), and the Job Stress Index (Sandman, 1992) have all been commonly utilized to measure overall workplace stressors (Cavanaugh et al., 2000). Yet, researchers encountered several issues by employing this single dimension concept of workplace stressors. In several studies (e.g., Bogg & Cooper, 1995; Bretz, Boudreau, & Judge, 1994; Leong, Furnham, & Cooper, 1996), relationships between workplace stressors and expected related outcome variables, such as job search, job satisfaction, intention to quit, and mental and physical health were found to be nonsignificant (Cavanaugh et al., 2000). These nonsignificant findings do not support much of what researchers have studied concerning stressors and negative outcomes (Cavanaugh et al., 2000), in which support has been found between general stressors and negative outcomes, and consequently a better explanation of these null relationships is warranted. It was hypothesized that these nonsignificant relationships may be due to the presence of multiple facets of stressors, and that only some types of stressors are likely to lead to negative outcomes. The nonsignificant findings could thus be a result of different stressors cancelling one another out. Therefore, certain types of stressors are more likely to lead to certain types of outcomes, and in some cases, when stressors are collapsed into a single dimension, significant outcomes with expected variables may be lost.

Considering that differing stressors may lead to different relationships with strain and other outcomes, measuring stressors using a unidimensional measure therefore may not be adequate (Cavanaugh et al., 2000). This is especially an issue if it is believed that some stressors lead to positive outcomes while others may lead to negative outcomes for employees. These two underlying dimensions, if not represented as individual factors in measurement, could be cancelling each other out and researchers may be missing valuable information about the

relationships between stressors, strains, and other outcomes. This viewpoint that positive outcomes can result from stressors and that not all stressors are bad has been previously hypothesized, given the construct of eustress (Selye, 1982) and other findings that support how experiencing temporary discomfort can be viewed as worth the possible positive benefits (McCall, Lombardo, & Morrison, 1988). If some stressors lead to positive outcomes, and some to negative outcomes, it may be best to separate stressors into two dimensions in order to have a clearer factor structure for measurement and a better understanding of the antecedents of these positive and negative outcomes. Therefore, measurement that separates stressors into two dimensions, those that promote positive outcomes (i.e., challenge stressors) and those that forecast negative outcomes (i.e., hindrance stressors), allows researchers to more accurately capture relationships between stressors and strains, as well as stressors and other negative or positive outcomes.

### **Categorization of Workplace Stressors**

While Brief and George (1995) state that employees tend to view all workplace stressors in fairly consistent ways, evidence has shown that a two-dimensional categorization of workplace stressors may represent this domain best (Crawford, LePine, & Rich, 2010). Lazarus (1981), as well as Lazarus and Folkman (1984), in addition to being influential in general stress research, were also influential in dichotomizing work stress. They completed research in which individuals categorized life events as either uplifts or hassles, which are either positive or negative life events. Other scholars in this area have also researched positively and negatively evaluated job demands, and subsequently have argued for examining both challenges and threats in the workplace (Cavanaugh et al., 2000). Considering challenge and hindrance stressors separately helps researchers to understand the outcomes of stressors more, and therefore

maintaining this dyad is important in future research. Additionally, the presence of both challenge- and hindrance-related job stressors has been identified across several studies in several different types of employees. Most notably, Cavanaugh and colleagues (2000) display challenge and hindrance stressors experienced by managers. Shortly after, researchers found evidence of challenge and hindrance stressors being judged by lower level employees, as well as Master's of Business Administration students (Boswell et al., 2004; LePine et al., 2005). From this evidence, the conceptualization of workplace stressors being evaluated as challenges and hindrances has been well-established and is the new standard for conceptualizing and measuring workplace stressors. Below I first introduce hindrance stressors, as these stressors fit best with the common schema that stressors are negative, and then move to discussing challenge stressors, which posit that some stressors may actually be good for employees.

### **Hindrance Stressors**

Hindrance stressors are workplace stressors that have negative outcomes for employees, and reflect the idea that stressors are inherently bad and will result in undesirable outcomes such as strain (Boswell et al., 2004). These negative outcomes of hindrance stressors relate to early conceptions of workplace stressor and strain relations, in that since strain is generally seen as detrimental and results from unwanted demands, stressors must all be negative (Podsakoff et al., 2007). As such, hindrance stressors are stressors associated with work demands that involve undesired constraints that interfere with or hinder an employee's ability to do their job or complete their goals (Cavanaugh et al., 2000). In situations where hindrance stressors are experienced, employees are barred from completing their job appropriately and must endure obstacles that do not aid in the successful performance of their work. These hindrance stressors include stimuli such as organizational politics, role ambiguity, interpersonal conflict, red tape

(such as policies or rules in place that keep work from being performed adequately), and concerns about job security (Cavanaugh et al., 2000; Ivancevich, 1986; Ivancevich, Matteson, & Preston, 1982). Hindrance stressors also parallel with the conception from general stress research of distress. Distress, in comparison to eustress, is not perceived as a growth opportunity, and instead is perceived as stifling to progress or goal achievement (Selye, 1982). Hindrance stressors also align with Lazarus and Folkman's (1984) categorization of threats, in that hindrance stressors threaten an employee's ability to achieve their goals or experience growth. When stressors are viewed as hindering, extra effort or motivation is not likely to be emitted since efforts by the employee are not believed to pay off. This also fits with Vroom's (1964) expectancy theory, in that hindrance stressors are not seen as motivators due to the perception that they cannot be adequately overcome and do not provide the employee with an opportunity to grow. Overall, hindrance stressors stunt an employee's ability to properly get his or her job done, develop as an employee, and can lead to negative work and personal outcomes.

### **Challenge Stressors**

In contrast to the expected negative outcomes of stressors, recent research has provided precedence that different types of stressors might elicit different types of non-negative responses (Podsakoff et al., 2007). In some situations, experiencing work stressors may be viewed as rewarding or an opportunity for growth (Cavanaugh et al., 2000). Therefore, not all stressors give rise to negative outcomes. These types of workplace stressors may require employees to overcome an obstacle, rise above pressure, or just generally work through a stressful situation. Situations like these breed stressors that can result in positive outcomes or positive feelings for the employee. Types of job demands or stressors such as these are considered challenge stressors (Cavanaugh et al., 2000; McCauley, Ruderman, Ohlott, & Morrow, 1994). Challenge-related

stressors have the potential to aid in learning, development, growth, accomplishment, and to promote mastery (Flinchbaugh, Luth, & Li, 2015). Common challenge demands include a high workload, time pressures, job scope, and high levels of responsibility (LePine et al., 2005). While these may still be stressful demands to experience in the workplace, challenge demands typically provide the employee with an opportunity to flourish and expand one's capabilities, as well as to demonstrate and get rewarded for abilities or competencies (Crawford et al., 2010). This parallels with opportunity biases, in that by being given extra opportunities or tasks that are challenging, individuals can end up performing at higher levels. For example, managers may provide some employees with extra opportunities or challenges that give them an opportunity to prove themselves and ultimately results in positive outcomes for the employee. Because of the challenge he or she was given, even if it was stressful, positive results or higher performance are usually observed.

Moreover, Lazarus and Folkman (1984) also labeled a group of stressors that they observed as challenges, stating that some stressors can promote personal growth or gains (LePine et al., 2005). Challenge stressors have also been compared to eustress, which has been defined as a type of more general stress that creates challenges and feelings of accomplishment (Cavanaugh et al., 2000; Selye, 1982). While eustress and challenge stressors should not always be considered synonyms, similarities between the two are present. Thus, hindrance stressors can be seen more as distress, while challenge stressors more closely reflect eustress. Challenge stressors are also thought to facilitate goal achievement and high motivation (Webster et al., 2010), given that employees perceive that their extra effort will have a positive impact on performance. This again brings into context expectancy theory (Vroom, 1964), in which individuals put effort in to a situation if they see potential for their effort paying off. If employees do not see the potential



for their effort paying off, then extra effort will not be expended, as is observed with hindrance-related stressors. Overall, while challenge-related stressors may still conjure feelings of tension and anxiety, extant research shows that these types of stressors ultimately result in more positive outcomes for employees and provide opportunities for employees to grow and develop in the workplace.

### **Differences Between Challenge and Hindrance Stressors**

At a foundational level the differences between positive and negative stressors, or challenges and hindrances, as displayed in their respective definitions is apparent. Hindrances are demands that thwart progress or achievement, while challenges are demands that enhance the opportunity for progress or achievement. Researchers have also found that these stressors are only moderately correlated (ranging from .21 to .46), and thus it is warranted to separate challenge and hindrance stressors into two separate dimensions (Cavanaugh et al., 2000; LePine et al., 2004; Rodell & Judge, 2009; Webster et al., 2010). Cavanaugh and colleagues (2000) also found strong support for a two-factor structure of challenge and hindrance stressors as opposed to a one-factor model. Collectively, this evidence supports both statistical and practical differences in the constructs of challenge stressors and hindrance stressors.

The outcomes of hindrances and challenges also highlight the vast differences between these two types of stressors. Hindrance stressors and challenge stressors are related to both organizational outcomes and well-being outcomes. Hindrance stressors are customarily related to negative organizational outcomes, such as lower levels of job satisfaction and organizational commitment, as well as increases in the intention to quit, turnover, and withdrawal behaviors (Cavanaugh et al., 2000; Flinchbaugh et al., 2015; Podsakoff et al., 2007). Hindrance stressors have also been found to be negatively related to motivation, and probably most importantly,

negatively related to performance (LePine et al., 2005). Additionally, hindrance stressors have consistent relations with worker well-being. Research has found that hindrance stressors are related to increases in psychological strain (Boswell et al., 2004) as well as increased anxiety, health complaints, emotional exhaustion, and frustration (LePine, LePine, & Saul, 2007; Widmer, Semmer, Kälin, Jacobshagen, & Meier, 2012).

Challenge stressors, conversely, are found to be positively related to organizational outcomes such as job satisfaction and organizational commitment, and negatively related to turnover intentions, actual turnover, and withdrawal behavior (Podsakoff et al., 2007). Challenges also are positively related to motivation and job performance, as evidenced by LePine and colleagues (2005) and Rodell and Judge (2009), as well as positively related to motivation and vigor at work (Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010). Some empirical evidence states that challenge stressors have positive impacts on well-being as well, but support for this is less present in the literature (Widmer et al., 2012). Support that has been found in the literature claims that challenge stressors are positively related to enjoyment and euphoria (Podsakoff et al., 2007), feelings of fulfillment (Boswell et al., 2004) and general positive feelings (LePine et al., 2005).

While most commonly associated with positive outcomes, challenge stressors do have some negative outcomes. Notably, challenge stressors are shown to contribute to increased psychological strain, such as emotional exhaustion, anxiety, depression, and tension (Boswell et al., 2004; LePine et al., 2004; LePine et al., 2005; Podsakoff et al., 2007). Therefore, challenge stressors, while promoting growth, development, and several other positive work outcomes, still seem to have a deleterious impact on several forms of psychological strain. Since both hindrance and challenge stressors affect psychological strain, being able to adequately determine if

hindrance or challenge stressors are leading to psychological strain has been hard to accomplish. Regardless of this, the overwhelmingly differing outcomes of challenge and hindrance stressors gives evidence for there being a clear delineation between these two types of workplace stressors. Additionally, since Cavanaugh and colleagues (2000) found support for this two-factor model, much of the measurement of challenge and hindrance stressors has reflected the separation of these two types of stressors and their outcomes.

### **Measurement of Challenge and Hindrance Stressors**

In their seminal article, Cavanaugh and colleagues (2000) not only propose a two-factor structure of workplace stressors, but also develop and validate a measure that captures these differing dimensions. This measure was created through content validity ratings and confirmatory factor analyses. Items from previously created scales, the Job Demands and Worker Health Study (Caplan et al., 1975; Matteson & Ivancevich, 1987), the Stress Diagnostic Survey (Ivancevich & Matteson, 1983), and the Job Stress Index (Sandman, 1992), were utilized in the scale development process. These are classic surveys of general workplace stressors, and therefore creating a new scale of challenge and hindrance stressors that utilize the best of these items is logical. Initially, Cavanaugh and her colleagues (2000) did a Q-sort of the gathered items, placing 16 items into categories of either challenge, hindrances, or neither/both. From this, it was found that five items clearly belonged as hindrances, six items as challenges, and five items that did not fall cleanly into either category. Subject matter experts made up of graduate students and professors confirmed this sorting of the items, and factor analysis was conducted to provide empirical evidence of these two factors, as the five ambiguous items that did not fit as either challenges or hindrances were dropped from further analyses. Confirmatory factor analysis supported this notion, as good fit was found for this two-factor structure. After this study was

conducted, researchers began utilizing this measure when interested in assessing workplace stressors (see Appendix for items and instructions). Additionally, LePine and colleagues (2004) edited the Cavanaugh et al. (2000) measure to better fit with challenge and hindrance stressors as felt by students as opposed to employees. The intent of this version of the Cavanaugh and colleagues (2000) scale was to assess if challenge and hindrance stressors had differing impacts on learning performance in students, as examining general stressors' impact on learning performance has shown inconsistent findings in the past (LePine et al., 2004). As expected, measuring challenge and hindrance stressors separately yielded more definitive findings, in that challenge stressors had a positive relationship with learning performance and hindrance stressors had a negative relationship with learning performance. Since the creation of the Cavanaugh and colleagues challenge and hindrance measure in 2000, the current meta-analysis estimates nearly 40 studies have used this scale to assess challenge and hindrance stressors. Hence, this measure is one of the most commonly used in the literature.

Researchers have also employed several other measures to assess both challenge and hindrance stressors. As stated by LePine et al. (2005) and Webster et al. (2011), challenge stressors can be classified as job demands, responsibilities, time pressure, and workload. Therefore, using measures of these constructs is also a common way to assess challenge stressors. As for hindrance stressors, these are commonly measured using items pertaining to constraints, hassles, inadequate resources, role ambiguity, interpersonal conflict, role strain, role clarity, and organizational politics (LePine et al., 2005). Researchers have subsequently used measures of these constructs, as opposed to the Cavanaugh et al. (2000) measure, to assess hindrance stressors. Notably, Rizzo and colleagues (1970) created scales of role ambiguity and role conflict, which have frequently been utilized as measures to represent hindrance stressors

(e.g., Crane & Searle, 2016; Crawford et al., 2010; LePine et al., 2005). Additionally, Spector and Jex (1998) created four short scales that examine organizational constraints, interpersonal conflict, workload, and physical symptoms that are often used to measure challenge and hindrance stressors. Scholars have also utilized Karasek's (1979) measure of workload, as well as French and Caplan's (1970) measure of responsibilities to represent challenge stressors. The merit of these scales and others being used to estimate the presence of challenge and hindrance stressors is thus also well-established. Yet, given that the Cavanaugh and colleague's (2000) scale was the first of its kind and was developed in a rigorous set of studies (following Hinkin's 1998 guidelines for scale development), this scale has become the benchmark for the measurement of challenge and hindrance workplace stressors. However, bearing in mind the nearly 20 years since its publication, a review that assesses the overall use of the measure as well as challenge and hindrance workplace stressors' relationships with possible correlates and outcomes should be conducted.

### **Research Hypotheses and Purpose**

As established in the previous section, empirical evidence points to differential relationships between challenge-related workplace stressors and outcomes and hindrance-related workplace stressors and outcomes. Therefore, I expect there to be stark differences between challenges and hindrances in relation to outcomes when these relationships are analyzed across many samples. Additionally, as discussed, research has established that regardless of arguments for stressors leading to positive or negative outcomes, both challenge and hindrance stressors are equally likely to lead to heightened levels of psychological strain. Essentially, even though being given extra responsibilities (a challenge stressor) may provide the employee with opportunities to grow and develop, it is still likely to cause increases in psychological strain for the employee.

Therefore, I do not expect to see differences in the relationships between hindrance-related workplace stressors and challenge-related workplace stressors and psychological strain given equivocal theory and empirical evidence. Since I could not be sure of the variables or outcomes that I would uncover during data collection and coding for this meta-analysis, I was unable to make exact hypotheses about challenge and hindrance workplace stressors and specific outcome variables. Therefore, the hypotheses reflect more of the general tendencies that I expected to extrapolate from the included samples. Additionally, given that I did not have information on the exact correlates that would be utilized in conjunction with challenge and hindrance stressor variables in the retained articles, specific hypotheses pertaining to correlates of workplace stressors could also not be proposed. Instead, I explored demographic, dispositional, and work correlates more broadly to help establish a nomological network of workplace stressors.

Similarly, I explored the possibility of the presence of moderators. Several studies have found results that support the notion that challenge and hindrance stressors cause different types of outcomes in different types of situations, and therefore, moderators could be at play here to explain these differences. For example, Edwards and colleagues (2014) provide evidence that challenge and hindrance workplace stressors have a similar impact on performance in certain types of situations, which alludes to the possibility of moderators in the relationships between challenge and hindrance workplace stressors and outcomes. Given that challenge and hindrance workplace stressors may operate differently under different conditions, there may be some variability in the observed effect sizes. If this variability was found, I explored possible moderators (such as publication status, gender, and age) to attempt to account for why this variability in effect size was occurring. However, since this was largely exploratory, this was proposed as a research question as opposed to a formal hypothesis. Accordingly, the hypotheses

and research questions for the current study are as follows:

*Hypothesis 1:* Challenge-related workplace stressors are positively related to favorable work and family outcomes (e.g., greater performance, satisfaction, and organizational citizenship behaviors).

*Hypothesis 2:* Hindrance-related workplace stressors are positively related to adverse work and family outcomes (e.g., reduced performance, satisfaction, and greater counterproductive work behavior).

*Hypothesis 3:* Challenge-related and hindrance-related workplace stressors are similarly related to health outcomes (e.g., positively related to psychological strain and negatively related to well-being).

*Research Question 1:* How are challenge-related and hindrance-related workplace stressors related to various demographic, dispositional, and work correlates?

*Research Question 2:* Do various demographic and methodological variables moderate these stressor and covariate/outcome relationships?

### **Correlates of Challenge and Hindrance Workplace Stressors**

#### **Demographic Correlates**

Demographic information from each of the articles was extracted by the author and research assistants to be utilized in the meta-analysis. We included and analyzed the following sample level demographic variables in relation to challenge and hindrance workplace stressors: 1) sample size, 2) type of sample (i.e., student vs. employee), 3) education level, 4) percentage dual-earner, 5) percentage married/cohabiting, 6), percentage Caucasian, 7) study design, 8) average hours worked per week, and 9) the country the study is conducted in (U.S. vs. Non-U.S. and specifics if Non-U.S. study). Average age of the participants in each sample, gender, and

whether the study is published or unpublished was also collected and coded along with these demographic variables, but is considered as a possible moderators and therefore is discussed more in the moderator section below. Additionally, even though the demographic information listed above was coded for each sample, only age, gender, education level, and marital status could be analyzed in comparison to challenge and hindrance stressors, as correlational data was not provided for the other demographic variables coded. The demographic variables and their definitions included in the meta-analysis are depicted in Table 1.

### **Dispositional Correlates**

From all of the correlates that were pulled from the articles in the meta-analysis, some were coded into the category of dispositional variables. While these dispositions, or inherent qualities of those in the sample, are aspects of the individual, they are operationalized as different from demographics in that they assess individual differences in a person's psychological processes and behavior (Bozionelos, 2004). Typical dispositional variables that are included in studies related to workplace stressors are variables such as personality traits and general mental ability (Brand, Egan, & Deary, 1993). Therefore, variables were included related to the Five-Factor Model of personality, dispositional or trait affect, locus of control, core self-evaluations, self-efficacy, motivation, and thinking/intelligence as correlates of challenge and hindrance workplace stressors in this category. All of the dispositional variables and their definitions can be found in Table 1.

### **Work Correlates**

Given that the workplace is the domain in which challenge and hindrance workplace stressors are examined, many correlates of challenge and hindrance workplace stressors that related to the workplace were identified. I extracted work-related variables that spanned themes



related to leadership and supervision (e.g., leader-member exchange, leadership styles), workplace resources (e.g., feedback, support), workplace demands (e.g., workload, time pressures), and characteristics of the company (e.g., company type, organizational justice), and other variables such as organizational deviance. A full list of these variables and definitions can be found in Table 1.

## **Outcomes of Challenge and Hindrance Workplace Stressors**

### **Work Outcomes**

In contrast to correlates, outcomes of challenge and hindrance workplace stressors were also examined. Again, because of the context of this meta-analysis, I anticipated having a large amount of diverse work-related outcomes of challenge and hindrance workplace stressors. In line with other meta-analyses on the outcomes of challenge and hindrance workplace stressors, I discovered work outcomes associated with job satisfaction, job-related burnout, absenteeism, loyalty, work engagement, job performance, work behaviors (i.e., organizational citizenship behaviors and counterproductive work behavior), and workplace safety. A full list of work outcomes and their corresponding definitions can be found in Table 2.

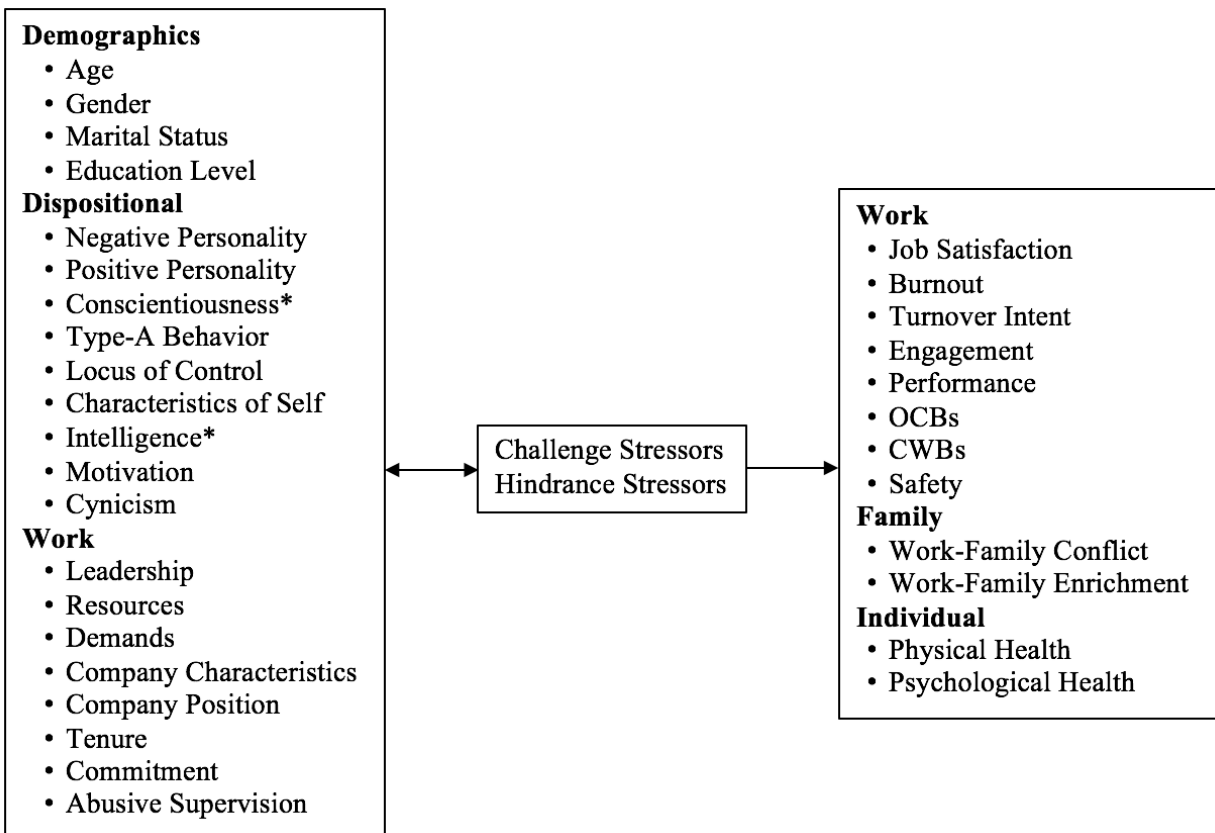
### **Family Outcomes**

There also were several variables identified that represented outcomes related to an employee's personal or family life. Since workplace stress and work-family variables are commonly examined together in occupational health psychology and related research, I extrapolated variables from our retained articles related to work-family balance, work-family conflict, and work-family enrichment. All of the observed family outcomes are described in Table 2.

### **Individual Health Outcomes**

Similar to the dispositional correlates, challenge and hindrance stressors were commonly evaluated in relation to the individual, and more specifically, the impact challenge and hindrance workplace stressors may have on an individual and his or her well-being. I extracted outcomes variables that fit into this category from the articles that were related to psychological health and physical health. The exact individual health outcome variables extrapolated in this meta-analysis can be found in Table 2. Additionally, Figure 1 below displays all of the individual correlates and outcomes analyzed in the present meta-analysis clustered into the groupings discussed in the above sections.

*Figure 1.* Correlates and outcomes of challenge and hindrance workplace stressors examined in the present study



Note: \* = only related to challenge stressors

**Moderators**

The presence of moderators was also evaluated for between challenge and hindrance workplace stressors and the observed outcome variables. I proposed that several demographic variables, as well as the publication status of the article, will have a significant impact on the relationships between challenge and hindrance workplace stressors and their correlates and outcomes. I considered age, gender, and the publication status (i.e., published or unpublished) as potential moderators. Such variables have been commonly used as moderators (see Michel, Kotrba, Mitchelson, Clark, & Baltes, 2011) and thus it was fitting to examine if there are differences in these relationships due to age, gender, or the publication status of the article.

### **Age**

Age was used as a continuous moderator to observe if there are any differences in relationships with stressors and outcomes due to the age of the employee. However, in the event that the collected data does not provide enough information for age to be calculated as a continuous moderator, there is the potential that I will create categories of ages. In this case, I will follow the age clustering guidelines provided by Hill, Erickson, Fellows, Martinengo, and Allen (2014) to determine how to cluster the ages into categories. Age will be used as a moderator to capture any reported differences within workplace stressors due to age. Past research provides evidence for differences in experienced strain due to age, thus I view that age may be a pertinent moderator. In general, there is consensus that younger individuals experience more hassles, especially hassles that have to deal with the workplace, such as finances and work-related issues (Folkman, Lazarus, Pimley, & Novacek, 1987). Similarly, younger individuals are also more likely to struggle with balancing their work and personal lives, which influence higher stress levels in these younger workers as well (Hill et al., 2014). Older adults, while often facing more job responsibilities, experience less stress related to work and less stress overall (Hill et al.,

2014). Given these already discovered differences in stress levels between older and younger adults, I see it as precedence to explore age as a moderator in the present study.

### **Gender**

The information gathered on the percentage of the sample that is female was used here as a continuous moderator, given that the percentage of females in a sample was on a scale from 0-100. Workplace stressor research typically uses the participant's sex as a proxy for gender role orientation, and therefore I used the male/female sex distinction as a proxy for the gender role variable. I simply referred to this variable as gender. Gender is often used as a moderator variable, as it is often hypothesized that men and women may respond to work and family stressors or other antecedents differently (Michel et al., 2011). Therefore, the exploration of gender as a possible moderator is warranted.

### **Publication Status**

Given that dissertations are readily available through ProQuest's Dissertations & Theses online database, a number of the samples that were extrapolated came from unpublished dissertations. While there is some debate surrounding the use of unpublished studies in meta-analyses, Cook and colleagues (1993) argue that unpublished data should not be systematically excluded from meta-analyses. Therefore, following this guidance, samples from unpublished dissertations in this meta-analysis were utilized. However, because there may be differences in the data quality and findings between dissertations and published articles (O'Boyle, Banks, & Gonzalez-Mulé, 2017), publication status was used as a categorical moderator, with two categories of 1) published and 2) unpublished. By considering publication status as a point of discrimination between samples, analyses concerning if there are any differences in the relationships reported in published studies and the relationships found in unpublished

dissertations were conducted. In the case that both the dissertation and published version of the same study were extracted, only the published study was included in the analyses to ensure sample independence. In the case that pertinent data to the meta-analysis in the dissertation was omitted from the published manuscript, the unpublished data from the dissertation in conjunction with the published data from the manuscript was included for analyses.

## **Method**

### **Literature Search**

Given that I am interested in articles that utilize the Cavanaugh and colleagues (2000) challenge and hindrance workplace stressors scale, I employed a comprehensive search strategy up until November 2017. Searches for articles were done using features on Google Scholar. Google Scholar offers a “Cited by” feature that lists all of the articles that have cited a given article. I therefore searched for the article of interest (An empirical examination of self-reported work stress among U.S. managers by Cavanaugh et al., 2000) and discovered that 825 articles have referenced this paper. From here, research assistants were assigned page numbers from the Google Scholar search and were asked to pull all 825 articles that cited the Cavanaugh and colleagues (2000) article. Research assistants either downloaded the article directly from Google Scholar or found the article on the university library databases. Articles in which the PDF could not be collected from the Internet, library, or directly from the authors were not considered for further assessment.

### **Inclusion Criteria and Coding**

Once these articles and their corresponding PDFs were recorded and downloaded, research assistants sorted through the articles and made note of the articles that utilized the Cavanaugh et al. (2000) scale for measurement in their studies. I included articles that utilized

the original or an adapted version of the Cavanaugh and colleagues (2000) workplace stressors scale for measurement. Most common adaptations of the scale were changing the context from the workplace to the classroom (e.g., LePine et al., 2005), or removing or adding an item from or to the scale. The samples that made adaptations to the scale were still included in the current meta-analysis, as the adaptations were not expected to drastically change the construct of interest (i.e., challenge and hindrance workplace stressors). It was found that a large number of articles within the 825 articles that cite Cavanaugh and colleagues (2000) simply utilize content-related information from the article without actually using the scale proposed in the article for measurement purposes. Given that this article was one of the first to dichotomize workplace stressors into challenges and hindrances, many articles simply cited information pertaining to the definitions of challenge and hindrance stressors without using the provided scale and items. Therefore, these articles that did not use the items provided in the paper were excluded from further analyses.

From the remaining articles that did utilize the challenge and hindrance workplace stressors scale for measurement, articles were reexamined to determine if they contained data that could be coded. In order to be coded in the meta-analysis, studies needed to: 1) be written in English; 2) include correlations that utilized the challenge and hindrance workplace stressor variables, or data that could be translated into correlations for use in the eventual meta-analytic calculations; and 3) be within either an unpublished dissertation or a published, peer-reviewed journal article. I did not exclude articles based on sample characteristics (e.g., country, size, gender, employment status). In cases in which a range of sample sizes were provided for an effect size (e.g., different sample sizes for different variables within the same study), the lowest sample size of that range was coded to provide a conservative estimate (Hunter & Schmidt,

2004). In cases in which there were duplicate studies, or in which it was apparent that the same sample was used in multiple studies by the same author, the multiple studies were combined into a single study to ensure effect size independence, or the study was chosen to be included based on some criteria, such as the study that was published most recently. How to utilize multiple studies with the same sample was assessed more as needed once the articles were pulled.

After the search and eliminating articles based on inclusion criteria, I coded the samples that fit the above conditions. Following other meta-analyses (e.g., Clark, Michel, Zhdanova, Pui, & Baltes, 2016; Ford, Heinen, & Langkamer, 2007), all articles were coded by a two-person coding team composed of the author and an undergraduate research assistant. The undergraduate research assistant was trained to code by the author, in which the research assistant was given 10 articles to independently code. Once the research assistant coded the 10 training articles, the author and research assistant met to determine the level of agreement between the research assistant's coding and the author's coding of the 10 articles. Any discrepancies in coding were discussed and adjudicated by assessing the original article to determine the correct way of coding the sample and related data. All questions related to coding were discussed and answered during this training phase. After the training was complete, the research assistant was released to code the remaining samples. The author and research assistant both coded all of the articles collected that met the inclusion criteria and scheduled to meet approximately every month to compare coding and adjudicate any differences in coded information from the selected articles. The author's coding sheet was the final coding sheet utilized for analyses, and therefore any changes that needed to be made based off of the meetings between the author and the research assistant were changed on the author's coding sheet. Original discrepancies between the undergraduate research assistant and author were highlighted on the author's coding sheet as a log of all of the

disagreements that occurred between the research assistant and author. This number of disagreements was used to calculate an agreement statistic between the author and research assistant.

### **Codebook Description**

For each article, myself and a research assistant coded information focal to the variables of interest, information related to the correlates, possible moderators, outcomes, and information pertaining to the sample. As for the variables of interest (i.e., challenge and hindrance workplace stressors), we coded the name of the variable as used in the study, the instrument used to measure that variable (along with information about the number of items and whether the instrument was adapted), and the reliability of the measure. Given that this meta-analysis concerns only those studies that used the Cavanaugh and team (2000) measure of challenge and hindrance workplace stressors, this scale was always the instrument tool used to measure the challenge and hindrance workplace stressor variables. What differed from sample to sample was whether or not the Cavanaugh and colleagues (2000) scale was adapted and the reliability of the scale. As for the correlates and outcomes, we again coded the name of the variable as used in the study, the instrument used to measure that variable (as well as information about if the scale was adapted, the number of items used, and the type of Likert scale used), and the reliability of the measure. Lastly, we coded a variety of study and demographic characteristics. We coded for 1) sample size, 2) type of sample (i.e., student vs. employee), 3) education level, 4) average age, 5) percentage female, 6) percentage dual-earner, 7) percentage married/cohabiting, 8), percentage Caucasian, 9) study design, 10) average hours worked per week, 11) whether the study is published or unpublished, and 12) the country the study is conducted in (U.S. vs. Non-U.S. and specifics if Non-U.S. study).



## **Statistical Methods**

All coding was conducted in Microsoft Excel. Articles that met all of our inclusion criteria were added to the coding sheet in alphabetical order, and the information pertaining to the study variables and demographic variables in the above section was extracted from each article. In the event that any information was missing from the articles, this information was left blank in the coding sheet. Additionally, information was only pulled from articles if it was precise. In other words, if demographics or other variables were listed as “approximate” or if ranges of values (excluding sample size) were provided instead of an exact value, this information was also left blank. This was done to ensure that we only coded “true” information from the articles, and to ensure that we did not make assumptions from the articles or draw our own individual inferences from the information provided in the articles.

The two coders each utilized their own copy of the coding sheet in Excel in order to perform the coding without access to the other coder’s work to minimize the influence that the coders could have on one another’s coding. Any discrepancies between coders was adjudicated during the monthly coders’ meeting. However, these discrepancies were documented by highlighting each cell in the Excel sheet that contained a value that differed between the two coders. This information was used to calculate an agreement statistic. While all discrepancies were adjudicated in this meta-analysis and therefore the eventual agreement between the coders was 100%, we were still interested in knowing the total number of discrepancies originally made between the two coders. I calculated an agreement statistic by dividing the number of highlighted cells by the total number of cells utilized in the coding sheet in order to determine the percentage of disagreement between the coders.

Additionally, variables from the utilized articles were grouped into more encompassing categories in order to assess the relationships between challenge and hindrance workplace stressors and similar correlates and outcomes. By clustering the individual variables into groups, this also allows for the number of samples ( $k$ ) analyzed to increase. These variable groupings for both correlates and outcomes are described in more detail below in Tables 1 and 2.

Table 1.  
*Summary of Correlates and Definitions*

Correlate	Definition	Variables Included
<b>Demographics</b>		
Age	Average age of sample	Age
Educational Level	Highest education attained	Education, education level
Gender	Percentage female	Gender, sex
Marital Status	Relationship status	Marital status, years in relationship
<b>Dispositional</b>		
Characteristics of Self	One's view of general view of self; including self-sufficiency and self-worth	Core self-evaluations, generalized self-esteem, generalized self-efficacy
Conscientiousness	Extent to which one is dependable, caring, organized, and responsible	Conscientiousness
Cynicism	Belief that people are only interested in themselves	Cynicism
Intelligence	One's cognitive abilities and knowledge base	Divergent thinking, knowledge stock (tacit and explicit), and general intelligence
Locus of Control	Extent to which one feels outcomes are caused by the individual or self as opposed to external variables	General locus of control and work locus of control
Motivation	Desire to engage in activity or to complete goals	Intrinsic, extrinsic, and general motivation
Negative Personality	Extent to which one has higher levels of distress, anxiety, and/or dissatisfaction	Neuroticism and negative affect
Positive Personality	Extent to which one has higher levels of positivity, proactivity, and satisfaction	Positive affect, proactive personality, and extraversion

Type-A Behavior	Chronic, incessant struggle to achieve more and more in less and less time; sometimes against the opposing efforts of other people and things	Type-A behavior
<b>Work</b>		
Abusive Supervision	Extent to which the leader creates negative feelings for employees through his or her supervision	Abusive supervision, job-related negative affect
Commitment	Extent to which employees are invested in the interests of the company or organization	Organizational and professional commitment, loyalty
Company Characteristics	Aspects of the company or organization	Group size, group development, company type, team beliefs and routines
Company Position	Employee's position in the company or organization	Position, position ranking, rank
Demands	Aspects of a job that require sustained effort and are associated with negative costs	Hours worked, workload, time pressure, task conflict, job insecurity, organizational constraints
Leadership	Style and manner in which a supervisor interacts with his or her employees	Charismatic, laissez-faire, transactional, and transformational leadership styles, LMX (overall and facet levels), supervisor support
Resources	Aspects of a job that help employees meet work and personal goals	Feedback, job control, social/organizational support, job autonomy, task significance and interdependence, project complexity, salary, organizational climate and justice
Tenure	Amount of time and experience in the job or organization	Job and organizational tenure, job experience

Table 2.  
*Summary of Outcomes and Definitions*

Outcome	Definition	Variables Included
<b>Work</b>		
Burnout	Feelings of emotional exhaustion, depersonalization, and reduced productivity	Burnout, emotional exhaustion, and general exhaustion
Counterproductive Work Behaviors	Employee behavior that intentionally harms an organization	Counterproductive work behaviors, counterproductive behavior, organizational and interpersonal deviance, and work withdrawal behavior

Engagement	High levels of involvement in work	Engagement, job engagement, work engagement, and organization engagement
Job Satisfaction	Positive feelings about a job that arises from evaluating job characteristics	Job satisfaction
Organizational Citizenship Behaviors	Employee behaviors and activity that go above and beyond job requirements	Interpersonal, organizational, and composite citizenship behaviors, helping, voice, and creative behavior, creativity, and interpersonal justice
Performance	Success at work as exhibited by productivity	Task, in-role, job, innovative, and supervisor performance
Safety	Engaging in and promoting safe behavior at work	Safety compliance and participation
Turnover Intent	Conscious and deliberate intents to leave the organization or begin seeking new employment opportunities	Turnover intentions, intention to quit, and job search behaviors
<b>Family</b>		
Work-Family Conflict	Experience of mutually incompatible role pressures from the work and family domains	Includes work-to-family conflict, work interference with family conflict, family-to-work conflict, family interference with work conflict, and relationship conflict
Work-Family Enrichment	Experiences in improvements in quality of life in one role as a result of another role	Includes work-to-family enrichment, work-to-family facilitation, and family-to-work enrichment
<b>Individual</b>		
Physical Health	Bodily well-being	Includes somatic symptoms and health problems
Psychological Health	Emotional, psychological, cognitive, and mental well-being	Includes psychological detachment and recovery, psychological empowerment, psychological capital, negative affect experienced, psychological strain, psychological symptoms, satisfaction with life, self-alienation, anxiety, and strain

**Effect Sizes.** The effect size of interest in this meta-analysis is the correlation coefficient (*r*). Effect sizes of relationships between challenge and hindrance workplace stressors and the

correlates and outcomes (e.g., between challenge stressors and job satisfaction) were collected and recorded from all of the articles included in the meta-analysis. A single effect size estimation for the overall relationship between both challenge workplace stressors and hindrance workplace stressors and all of the correlates, outcomes, and potential moderators were calculated from the effect sizes extracted from the articles.

**Meta-Analytic Method.** I used the Hunter and Schmidt random-effects meta-analysis method to synthesize the correlation coefficients across the primary studies (Hunter & Schmidt, 2004; Schmidt & Hunter, 2014). This random-effects (vs. fixed-effects) methodology was employed for several reasons. First, researchers (e.g., Field, 2003; Field, 2010; Hunter & Schmidt, 2000, 2004; National Research Council, 1992; Osburn & Callender, 1992) have argued that because the samples that are utilized in our field are variable, it should be assumed that the effect sizes from each of these samples and studies would also be variable, or heterogeneous. Additionally, employing the random-effects model allows researchers to make generalizations beyond the scope of the present meta-analysis or present samples included, whereas the fixed-effects method only allows for inferences to be made about the population of samples within the meta-analysis (Field, 2010). Because the generalizability of findings is often a very important aspect of conducting psychological research, utilizing a random-effects model that allows us to make inferences from our results that go beyond the scope of our project is pertinent. In all, I heed Field's (2010) recommendation to engage in a random-effects model approach to meta-analyses, and thus chose to employ Hunter and Schmidt's (2004; 2014) random-effects method.

I also followed Hunter and Schmidt's (1990; 2004) guidelines for handling different sources of error, such as sampling errors and unreliability. To handle sampling error, I weighted each effect size (in this case, correlations) by the sample size that the correlation was based on

(Field, 2010). It is thought that the best estimate of the population correlation is not just the mean of the gathered correlations, but instead is a weighted mean where each correlation is weighted by the number of people in each sample (Field, 2010). While this type of sampling error is not something that can be corrected for in individual studies since we cannot be sure if the correlation is an under- or over-representation of the true correlation between two variables, it can be estimated and corrected for in meta-analyses and is recommended to do so (Hunter & Schmidt, 2004). Related to weighting these correlations, I also corrected for the variance of these correlations since sampling error can add to this variance. By correcting for variance, we are actually calculating the frequency-weighted average squared error (Field, 2010). To do this, the sampling error variance is subtracted from the observed variance. This difference is an estimate of the variance of the population correlations across studies, and by calculating this, we are able to see if there is any real variance across studies and to begin to looking for moderators (Hunter & Schmidt, 2004). Essentially, by weighting the correlations and calculating a variance based off of these weighted correlations, we are giving greater weight to larger studies within the meta-analysis than to smaller studies. A more in-depth explanation of corrections made in meta-analysis can be found in Hunter and Schmidt's (2004) book, while a simplistic version of the formulas used to calculate such corrections is provided in Fisher's (2010) instructional article on conducting meta-analyses.

While Hunter and Schmidt (2004) cite that correcting for sampling error is vital, there are other corrections that should also be implemented. Therefore, I also corrected for errors related to the measurement reliabilities of the variables. As researchers, we are aware that we never perfectly measure our variables, and thus some form of measurement error is present for all variables, making it a systematic artifact that is present in all studies within a meta-analysis

(Hunter & Schmidt, 2004). Since not all studies report reliabilities, the Hunter and Schmidt (2004) method utilizes the average reliability across studies for a measure to correct the effect sizes. In the case that the scale reliability is absent in the article and thus missing from the coding, artifact distributions were used in the running of analyses (see Ilies, Nahrgang, & Morgeson, 2007).

Additionally, I assessed both confidence intervals of  $r$  and credibility intervals of  $\rho$ . A 90% confidence interval was calculated around the effect sizes to give us a picture of the error in the effect sizes that is due to sampling error. While a 95% confidence interval is sometimes typically recommended (e.g., Hunter & Schmidt, 2004), a 90% confidence interval was utilized in the present study due to small  $k$  and the meta-analytic tools that were available for use. This confidence interval can also be used in statistical significance testing (Colquitt et al., 2013; Hunter & Schmidt, 2004). This significance testing was utilized to determine if there were differential relationships between the workplace stressor (i.e., challenge and hindrance workplace stressors) and outcomes or correlates. If there was no overlap found in the confidence intervals of these relationships, then it was determined that there was a differential relationship between the two types of stressors. For example, if the confidence interval of the relationship between challenge workplace stressors and burnout does not overlap with the confidence interval of the relationship between hindrance workplace stressors and burnout, then it can be determined that these workplace stressor variables must have differing relationships with burnout. In the case that confidence intervals do overlap, it is determined that there is not a difference in the relationships between the variables of interest. This will be discussed more in the results section. Additionally, while confidence intervals are used in many areas of research, a unique reported value within meta-analyses is a credibility interval. A credibility interval provides information

about the variance in the corrected correlation, with 80% of the values in the corrected effect size distribution being within the credibility interval (Colquitt et al., 2013; Hunter & Schmidt, 2004). The wider the credibility interval is, or if zero is within the credibility interval, the likelihood of moderators being present increases (Colquitt et al., 2013; Whitener, 1990). Moderators were assessed as continuous (age and gender) or categorical (publication status) and continuous moderators were subjected to weighted least squares multiple regression as recommended by Steel and Kammeyer-Mueller (2002).

To run the aforementioned meta-analytic calculations, I used the newly developed Wiernik (2017) Open Psychometrics Meta-Analysis Excel tool to perform the meta-analytic calculations. This is a free Excel tool that employs many macros in order to run meta-analyses quickly and reliably within Excel. Meta-analyses are unique in that they are not run in traditional statistical software packages and are often run in Excel. The Wiernik (2017) tool is relatively new, and appears to be a reliable and statistically sound Excel based option. Additionally, the Wiernik (2017) tool is based on the Hunter and Schmidt meta-analytic method, which makes it a viable resource for the running of the analyses. In this Excel tool, the correlations between the challenge or hindrance stressor variable, the sample size of the study, the reliability of the challenge or hindrance stressor variable, and the reliability of the variable of interest (i.e., a correlate or outcome variable as listed in Tables 1 and 2) are entered into separate sheets. After these are entered, there is simply an option to run the meta-analytic calculations, and then the output is placed on a separate tab within the Excel Workbook. Several of the analyses were also run in the INTNL tool to compare the results from the Wiernik (2017) tool to the INTNL tool to determine reliability for the Wiernik (2017) tool. Due to the inability to run moderation analyses in both the Wiernik (2017) and INTNL tool, categorical moderator analyses were conducted in



the Frank Bosco Multi-Purpose Meta-Analysis tool (2013) and continuous moderator analyses were conducted as weighted least squares regressions in SPSS.

## **Results**

In total, 592 correlational relationships between workplace stressors and correlates and outcomes were extracted from 39 articles. These 39 articles were utilized given that they fit the criteria of 1) being written in English; 2) included correlations that utilized the challenge and hindrance workplace stressor variables, or data that could be translated into correlations for use in the eventual meta-analysis calculations; and 3) were within either an unpublished dissertation or a published, peer-reviewed journal article. To address issues of rater reliability, the number of disagreements between the two coders was tallied and compared to the total number of possibilities for agreement within the coding. There were 12,965 pieces of coded information in the current meta-analysis. The two coders only had discrepancies on 101 of the 12,965 cells within the Excel workbook utilized for coding, resulting in only 0.78% of a difference or 99.22% agreement between the two coders. Thus, it was determined that coding conducted by the two coders was carried out reliably. In examining descriptives about the functionality of the Cavanaugh and colleagues measure, it was found that the challenge-related workplace stressor subset of items had an average reliability (across 584 effect sizes) of  $\alpha = 0.85$ . Hindrance-related workplace stressor items also had an average reliability (across 592 effect sizes) of  $\alpha = 0.85$ . Overall, this information gives us confidence in the reliability of this measure, as a 0.85 Cronbach's alpha is well above typical standards for sufficient reliability (about 0.70; Nunnally, 1978; Pedhauzer & Schmelkin, 1991).

The meta-analytic results are presented in Table 3 (challenge workplace stressors relationships with correlates), Table 4 (challenge workplace stressors relationships with

outcomes), Table 5 (hindrance workplace stressors relationships with correlates) and Table 6 (hindrance workplace stressors relationships with outcomes). In general, the results and interpretation of these results are based on Cohen’s (1988) classification of correlation magnitudes (i.e.,  $>0.50$ = large,  $>0.30$ = moderate, and  $>0.10$ = small). Using this template as a guideline, a cutoff of  $\rho > 0.10$  was used to refer to meaningful relationships. While this cutoff is arbitrary, it seemed pertinent to create some type of cutoff for effect size magnitudes so that strength of relationships could be interpreted. Additionally, Michel and colleagues (2011) use this  $\rho > 0.10$  as a cutoff for meaningful effect sizes in their meta-analysis on antecedents of work-family conflict, and therefore the same was employed in the present meta-analysis.

### Hypothesized Relationships

Hypothesis 1 predicted that challenge-related workplace stressors would be positively related to favorable work and family outcomes (e.g., greater performance, job satisfaction, and organizational citizenship behaviors). Overall, support for this hypothesis was not found. Challenge-related workplace stressors were only positively related to one favorable outcome. Challenge-related workplace stressors were meaningfully positively related to engagement ( $\rho = .10$ ), and even this relationship was not strong in magnitude. Therefore, it was concluded that, overall, challenge workplace stressors do not lead to or aid in the development of positive or favorable outcomes for employees.

Table 3.  
*Relationships between Outcomes and Challenge Workplace Stressors*

Outcomes	<i>k</i>	N	<i>r</i>	<i>SD r</i>	$\rho$	<i>SD ρ</i>	80% CV	90% CI	% $\sigma^2$	% $\sigma^2 SE$
<b>Work</b>										
Job Satisfaction	7	2057	-.14	.19	-.19	.24	-.50 .12	-.28 .01	19	9
Burnout	12	3845	.50	.13	.57	.13	.40 .74	.44 .57	13	11
Turnover Intent	4	1225	.03	.10	.04	.09	-.07 .15	-.08 .14	36	36
Engagement	6	1203	.09	.20	.10	.20	-.17 .36	-.08 .25	13	13
Performance	10	2802	.00	.20	.00	.25	-.31 .32	-.12 .12	9	9

OCBs	11	3529	.00	.15	.01	.16	-.20	.21	-.08	.09	13	13
CWBs	4	1577	.09	.13	.11	.14	-.07	.28	-.06	.25	14	14
Safety	2	542	-.30	.04	-.39	.00	-.39	-.39	-.48	-.12	100	100
<b>Family</b>												
Work-Family Conflict	6	1671	.23	.23	.26	.25	-.06	.57	.04	.42	6	6
Work-Family Enrichment	3	1019	-.04	.03	-.04	.00	-.04	-.04	-.09	.01	100	100
<b>Individual</b>												
Physical Health	2	499	.28	.09	.30	.07	.21	.40	-.13	.68	42	42
Psychological Health	14	3258	.26	.24	.30	.26	-.04	.63	.15	.37	7	7

Note. Higher values indicate higher levels of the construct.  $k$  = number of samples.  $N$  = number of participants.  $r$  = sample size weighted mean observed validity.  $\rho$  =  $r$  corrected for unreliability.  $SD r$  = standard deviation of  $r$ .  $CV$  = credibility interval (for  $\rho$ ).  $CI$  = confidence interval (for  $r$ ).  $SD \rho$  = standard deviation of  $\rho$ .  $\% \sigma^2$  = the percentage of variance in effect sizes that was accounted for.  $\% \sigma^2 SE$  = the percentage of variance due to sampling error.

Challenge-related workplace stressors were, however, meaningfully related to many adverse work and family outcomes. Challenge-related workplace stressors were meaningfully related to many adverse outcomes, such as job satisfaction ( $\rho = -.19$ ), burnout ( $\rho = .57$ ), counterproductive work behaviors ( $\rho = .11$ ), safety ( $\rho = -.39$ ), and work-family conflict ( $\rho = .26$ ). These relationships with adverse outcomes are in the opposite direction than was hypothesized in the present study and are counter to what much of the literature on workplace stress states. It is typically expected that challenge workplace stressors lead to positive outcomes for employees given the amount of growth and development that is associated with experiencing challenging workplace stressors. Yet, findings here do not support this notion. These findings will be expanded upon more in the coming discussion section and all of the effect sizes for challenge-related workplace stressors and outcomes can be found above in Table 3.

Hypothesis 2 predicted that hindrance-related workplace stressors would be positively related to adverse work and family outcomes (e.g., reduced performance, job satisfaction, and greater counterproductive work behavior). Overall, support for this hypothesis was found.

Hindrance-related workplace stressors relationships with outcomes exhibited several noteworthy

relationships. Meaningful relationships were found between hindrance-related workplace stressors and job satisfaction ( $\rho = -.41$ ), burnout ( $\rho = .60$ ), turnover intention ( $\rho = .44$ ), performance ( $\rho = -.22$ ), counterproductive work behaviors ( $\rho = .32$ ), safety ( $\rho = -.47$ ), work-family conflict ( $\rho = .22$ ), and work-family enrichment ( $\rho = -.19$ ). Overall, these results show that hindrance-related workplace stressors are related mainly to adverse outcomes. Therefore, the more hindrance-related workplace stressors experienced, the more likely it would be for that employee to also experience negative work and family outcomes. These results are expanded upon in Table 4 below.

Table 4.  
*Relationships between Outcomes and Hindrance Workplace Stressors*

Outcomes	<i>k</i>	N	<i>r</i>	<i>SD r</i>	$\rho$	<i>SD ρ</i>	80% CV	90% CI	% $\sigma^2$	% $\sigma^2 SE$		
<b>Work</b>												
Job Satisfaction	7	2057	-.28	.26	-.41	.32	-.83	.00	-.46	-.09	28	4
Burnout	11	3446	.50	.12	.61	.14	.44	.79	.43	.57	17	12
Turnover Intent	4	1225	.35	.08	.44	.08	.33	.54	.25	.45	5	4
Engagement	6	1203	-.06	.11	-.07	.10	-.20	.06	-.15	.03	40	40
Performance	10	2802	-.17	.23	-.22	.29	-.59	-.14	-.30	-.03	13	6
OCBs	10	3325	-.04	.21	-.04	.24	-.34	.26	-.16	.09	7	7
CWBs	5	1664	.19	.19	.32	.24	.02	.63	.01	.38	42	8
Safety	2	542	-.36	.02	-.47	.00	-.47	-.47	-.42	-.29	100	100
<b>Family</b>												
Work-Family Conflict	6	1671	.18	.25	.22	.29	-.15	.59	-.03	.39	6	5
Work-Family Enrichment	3	1019	-.14	.09	-.19	.09	-.31	-.07	-.30	.01	35	37
<b>Individual</b>												
Physical Health	2	499	.52	.06	.58	.04	.52	.63	.24	.80	59	53
Psychological Health	14	3258	.32	.26	.37	.30	-.01	.76	.19	.44	6	5

Note. Higher values indicate higher levels of the construct. *k* = number of samples. N = number of participants. *r* = sample size weighted mean observed validity.  $\rho$  = *r* corrected for unreliability. *SD r* = standard deviation of *r*. CV = credibility interval (for  $\rho$ ). CI = confidence interval (for *r*). *SD ρ* = standard deviation of  $\rho$ . %  $\sigma^2$  = the percentage of variance in effect sizes that was accounted for. %  $\sigma^2 SE$  = the percentage of variance due to sampling error.

Hypothesis 3 predicted that challenge-related and hindrance-related workplace stressors would be similarly related to health outcomes (e.g., positively related to psychological strain and negatively related to well-being). This hypothesis was supported. Evidence was found showing

positive relationships between challenge-related workplace stressors and the presentation of physical and psychological health issues ( $\rho = .30$ ;  $\rho = .30$ ). Additionally, the results show that hindrance-related workplace stressors are also related to adverse physical and psychological health ( $\rho = .58$ ;  $\rho = .37$ ). These results (also shown in more detail in Tables 3 and 4) highlight the notion that stressors in the workplace consistently lead to adverse physical and mental health outcomes, regardless of the type of stressors that an employee is experiencing. While it might seem likely that positive stressors, eustress, or challenge-related workplace stressors may lead to better health based on their definitions typically entailing concepts related to growth, goal completion, or opportunity, these results conclude that this is not the case. Workplace stressors, however conceptualized, lead to more instances of poor physical and psychological health for employees.

Table 5.  
*Relationships between Correlates and Challenge Workplace Stressors*

Correlates	<i>k</i>	N	<i>r</i>	<i>SD r</i>	$\rho$	<i>SD <math>\rho</math></i>	80% CV	90% CI	% $\sigma^2$	% $\sigma^2$ SE		
<b>Demographics</b>												
Age	20	5422	.04	.12	.04	.11	-.10	.19	-.01	.09	24	24
Gender	19	5211	.00	.08	.00	.05	-.07	.07	-.03	.03	58	58
Marital Status	6	1836	.09	.14	.10	.13	-.07	.27	-.02	.21	17	17
Education Level	9	2295	.22	.22	.23	.22	-.05	.52	.08	.36	7	7
<b>Dispositional</b>												
Negative Personality	3	798	.07	.09	.08	.07	-.02	.17	-.08	.22	48	48
Positive Personality	3	631	.06	.16	.07	.16	-.14	.27	-.21	.33	18	18
Conscientiousness	2	647	-.09	.07	-.11	.06	-.18	-.04	-.42	.23	58	57
Type A Behavior	2	873	.43	.15	.52	.17	.30	.74	-.25	1.11	7	7
Locus of Control	2	662	-.14	.08	-.16	.06	-.24	-.08	-.49	.21	48	47
Characteristics of Self	3	559	-.14	.10	-.17	.09	-.28	-.05	-.32	.04	48	47
Intelligence	4	1060	.08	.09	.10	.07	.01	.19	-.02	.18	51	51
Motivation	4	859	.02	.18	.03	.20	-.23	.28	-.19	.23	15	15
Cynicism	2	742	.23	.03	.26	.00	.26	.26	.11	.35	100	100
<b>Work</b>												
Leadership	16	3187	-.03	.13	-.03	.12	-.18	.12	-.09	.03	31	31
Resources	14	3898	.06	.18	.08	.21	-.20	.35	-.03	.15	12	11
Demands	8	2451	.20	.13	.23	.13	.06	.40	.11	.29	18	17
Company Characteristics	8	2218	.17	.22	.18	.22	-.11	.46	.02	.31	7	7

Company Position	4	1045	.19	.07	.20	.04	.15	.24	.10	.27	72	72
Tenure	14	3745	-.03	.14	-.03	.13	-.21	.14	-.10	.03	19	19
Commitment	5	933	.05	.12	.06	.11	-.08	.21	-.06	.16	39	39
Abusive Supervision	3	533	.24	.10	.26	.08	.15	.37	.06	.41	46	47

Note. Higher values indicate higher levels of the construct.  $k$  = number of samples.  $N$  = number of participants.  $r$  = sample size weighted mean observed validity.  $\rho$  =  $r$  corrected for unreliability.  $SD r$  = standard deviation of  $r$ . CV = credibility interval (for  $\rho$ ). CI = confidence interval (for  $r$ ).  $SD \rho$  = standard deviation of  $\rho$ . %  $\sigma^2$  = the percentage of variance in effect sizes that was accounted for. %  $\sigma^2 SE$  = the percentage of variance due to sampling error.

Research Question 1 asked how challenge-related and hindrance-related workplace stressors would be related to various demographic, dispositional, and work correlates. It was found that challenge-related workplace stressors were meaningfully positively related to intelligence ( $\rho = .10$ ) and education levels ( $\rho = .22$ ). Contrary to existing literature, only these two favorable relationships were found between challenge-related workplace stressors and correlates. However, there were other meaningful relationships uncovered between challenge-related workplace stressors and many other correlates, notably Type-A behavior ( $\rho = .52$ ), conscientiousness ( $\rho = -.11$ ), locus of control ( $\rho = -.16$ ), characteristics of self ( $\rho = -.17$ ), cynicism ( $\rho = .26$ ), demands ( $\rho = .23$ ), and abusive supervision ( $\rho = .26$ ). Aside from the relationships with intelligence and education levels, the remainder of the correlate and challenge-related workplace stressor relationships were in the opposite direction than expected. From these effect sizes, it was found that experiencing more challenge-related workplace stressors is related with greater instances of engaging in Type-A behavior, less chances of being conscientious, less locus of control, lower self-image, more cynicism, more demands, and more instances of abusive supervision. These results will be examined more in the coming discussion section and are described in more detail above in Table 5.

Hindrance-related workplace stressors were related to several adverse correlates, such as negative personality traits ( $\rho = .20$ ), positive personality traits ( $\rho = -.17$ ), Type-A behavior ( $\rho =$

.44), locus of control ( $\rho = -.47$ ), characteristics of self ( $\rho = -.23$ ), motivation ( $\rho = -.31$ ), cynicism ( $\rho = .67$ ), leadership ( $\rho = -.24$ ), resources ( $\rho = -.22$ ), demands ( $\rho = .27$ ), and abusive supervision ( $\rho = .33$ ). These relationships mentioned here between hindrance-related workplace stressor and correlates are in the expected direction (i.e., hindrance-related workplace stressors are comorbid with adverse correlates). Therefore, the more experienced hindrance-related workplace stressors, the more likely negative personality traits, Type-A behavior, cynicism, demands, and abusive supervision are likely to be experienced as well. Additionally, the more hindrance-related workplace stressors, the less likely positive personality traits, high self-image, high motivation, an abundance of resources, quality leadership, and high locus of control are to be experienced. There were also several other surprising, meaningful relationships uncovered. For example, hindrance-related workplace stressors were related to education level ( $\rho = .10$ ), company position ( $\rho = .16$ ), and commitment ( $\rho = .14$ ). Therefore, the more hindrance-related workplace stressors an employee experiences, the more likely that employee is to have a higher education, a higher position in the company, and to be more committed to his or her work. These relationships may be in contrast to what one would typically think of as the expected relationships between these variables. The details of hindrance stressors' relationships with correlates are included below in Table 6.

Table 6.  
*Relationships between Correlates and Hindrance Workplace Stressors*

Correlates	<i>k</i>	N	<i>r</i>	<i>SD r</i>	$\rho$	<i>SD ρ</i>	80% CV	90% CI	% $\sigma^2$	% $\sigma^2 SE$		
<b>Demographics</b>												
Age	19	5218	-.01	.13	-.01	.13	-.18	.16	-.06	.04	20	20
Gender	18	5007	-.02	.08	-.02	.06	-.09	.05	-.05	.01	59	59
Marital Status	4	1374	.01	.07	.01	.05	-.05	.07	-.07	.09	57	57
Education Level	8	2091	.10	.08	.10	.06	.03	.18	.04	.15	56	56
<b>Dispositional</b>												
Negative Personality	3	798	.24	.06	.20	.02	.27	.33	.14	.35	86	91
Positive Personality	3	631	-.15	.04	-.17	.00	-.17	-.17	-.21	-.09	100	100

Type A Behavior	2	873	.35	.13	.44	.15	.25	.64	-.22	.93	11	11
Locus of Control	2	662	-.40	.00	-.47	.00	-.47	-.47	-.42	-.38	100	100
Characteristics of Self	3	559	-.20	.19	-.23	.21	-.50	.03	-.52	.12	14	14
Motivation	2	329	-.22	-.01	-.31	.00	-.31	-.31	-.28	-.16	100	100
Cynicism	2	742	.56	.03	.67	.00	.67	.67	.44	.69	100	100
<b>Work</b>												
Leadership	15	2983	-.21	.21	-.24	.23	-.53	.05	-.30	-.11	11	10
Resources	14	3898	-.16	.27	-.22	.34	-.66	.22	-.29	-.03	8	5
Demands	6	1791	.23	.13	.27	.14	.09	.45	.12	.34	18	17
Company Characteristics	8	2218	-.06	.15	-.07	.15	-.26	.13	-.16	.04	17	17
Company Position	4	1045	.14	.11	.16	.10	.02	.29	.01	.28	28	28
Tenure	12	3337	-.02	.10	-.02	.08	-.13	.09	-.07	.03	38	38
Commitment	5	933	.11	.33	.14	.40	-.37	.65	-.21	.43	5	5
Abusive Supervision	3	533	.33	.05	.33	.00	.38	.38	.25	.42	100	100

Note. Higher values indicate higher levels of the construct.  $k$  = number of samples.  $N$  = number of participants.  $r$  = sample size weighted mean observed validity.  $\rho$  =  $r$  corrected for unreliability.  $SD r$  = standard deviation of  $r$ .  $CV$  = credibility interval (for  $\rho$ ).  $CI$  = confidence interval (for  $r$ ).  $SD \rho$  = standard deviation of  $\rho$ .  $\% \sigma^2$  = the percentage of variance in effect sizes that was accounted for.  $\% \sigma^2 SE$  = the percentage of variance due to sampling error.

Research Question 2 warranted examination of various demographic and methodological variables as possible moderators of challenge and hindrance workplace stressor and covariate/outcome relationships. As mentioned, publication status, age, and gender were all considered as viable moderators given their use as such in extant meta-analyses. In order to determine which relationships to test the existence of moderators in, a minimum for the number of samples included in the study needed to be set. Some researchers have cited that a minimum of 10  $k$  (e.g., Michel et al., 2011), 15  $k$  (e.g., Ng & Feldman, 2008), or 20  $k$  (e.g., Rhoades & Eisenberger, 2002) must be met in order to check for the existence of moderators, given that necessary information to test moderators exists in those studies. For the purposes of the current meta-analysis, using 10 studies as a cutoff seemed to be the most reasonable option given the relatively lower  $k$  values extracted from the 39 articles. Additionally, gender and age were analyzed as continuous moderators while publication status was analyzed as a categorical moderator. Publication status was simply coded into two categories of 1 = published and 2 =



unpublished and was analyzed using the Frank Bosco (2013) meta-analysis tool. Age and gender (i.e., average age of the sample and percentage of the sample that was female) were analyzed as continuous moderators using weighted least squares regression in SPSS.

To further ensure our moderator analyses were based on a representative subgroup, a minimum cutoff for the percentage of studies within a subgroup that contained the moderator information was set. For example, if exploring the possibility of gender as a moderator in the relationship between hindrance workplace stressors and psychological health, gender would only be looked at as a moderator if at least 70% of studies within this subgroup of studies included the moderator information. If gender was not reported in more than 30% of these studies that examined relationships between hindrance workplace stressors and psychological health, then the presence of gender as a moderator for this relationship was not probed. This again was demonstrated in the Michel and colleagues (2011) meta-analysis on antecedents of work-family conflict, and thus it was also deemed an appropriate cutoff in the present meta-analysis.

Considering the cutoffs put in place ( $k \geq 10$ ; 70% of studies including coded information on the moderator of interest), the possibility of moderators could only be considered between four outcomes and hindrance workplace stressors (burnout, performance, organizational citizenship behaviors, and psychological health) four outcomes and challenge workplace stressors (same outcomes as for hindrance workplace stressors), three correlates and hindrance workplace stressors (leadership, resources, and tenure), and three correlates and challenge workplace stressors (same correlates as for hindrance workplace stressors). These correlate and outcome relationships could be examined for the presence of moderators because they met the first requirement of having at least 10 samples included. However, age was not able to be considered as a moderator in several of the relationships. While age met the  $k \geq 10$  requirement

with these seven variables, it did not meet the minimum requirement of being present in 70% of the samples for all of the seven variables. Age could not be considered a moderator for relationships between both types of stressors and resources, tenure, organizational citizenship behaviors, leadership, and burnout, and therefore was only included in relationships between challenge/hindrance stressors and psychological health and performance (see Tables 11 and 12).

Looking first at publication status, this moderator was able to be tested on all seven of the relationships that met the sample cutoff of  $k \geq 10$  and the 70% information inclusion requirement. Support for publication status as a moderator exists if the 90% confidence intervals between the two mean correlations ( $r$ ) of published and unpublished studies do not overlap (Christian, Garza, & Slaughter, 2011; Michel et al., 2011). The Frank Bosco (2013) meta-analysis tool was used here to conduct the categorical moderation analyses. As can be seen below in Tables 7 and 8, only the relationship between hindrance and leadership was moderated by publication status, with the 90% confidence intervals being (-.37, -.26) for published studies and (-.19, .14) for unpublished studies. Therefore, the relationship between hindrance-related workplace stressors and leadership is different when looking at either published or unpublished studies. Specifically, published studies had strengthened relationships between hindrance stressors and leadership ( $r = -.31$ ), in comparison to unpublished studies ( $r = -.02$ ), meaning that the nine published studies had significantly stronger relationships between hindrance workplace stressors and leadership than the six unpublished studies.

Table 7.

*Hindrance Workplace Stressors Moderation Analyses by Publication Status*

Outcome/Correlate	P $k$	UP $k$	P N	UP N	P 90% CI	UP 90% CI		
Burnout	7	4	2426	1020	0.4	0.55	0.46	0.65
Leadership	9	6	1989	994	-0.37	-0.26	-0.19	0.14
Performance	7	2	1885	662	-0.28	0.02	-0.26	-0.03
Psychological Health	6	8	1647	1611	0.26	0.44	0.08	0.49

Resources	12	2	3484	414	-0.3	-0.04	-0.4	0.11
Tenure	9	2	2420	662	-0.07	0.04	-0.14	-0.02

Note. P = published. UP = unpublished.  $k$  = number of samples. N = number of participants CI = confidence interval (for  $r$ ).

Table 8.

*Challenge Workplace Stressors Moderation Analyses by Publication Status*

Outcome/Correlate	P $k$	UP $k$	P N	UP N	P 90% CI	UP 90% CI
Burnout	7	5	2426	1419	0.39	0.52
Leadership	10	6	2239	948	-0.1	0.04
Performance	7	2	1885	662	-0.06	0.2
Psychological Health	6	8	1647	1611	0.17	0.32
Resources	12	2	3484	414	0	0.16
Tenure	11	2	2828	662	-0.07	0.04

Note. P = published. UP = unpublished.  $k$  = number of samples. N = number of participants. CI = confidence interval (for  $r$ ).

When considering gender as a continuous moderator, these relationships were again able to be tested on all seven of the relationships that met the sample cutoff of  $k \geq 10$  and having 70% or more of the articles report information on the moderator. However, instead of using the Bosco (2013) meta-analysis tool to conduct the analyses, SPSS was used in order to consider gender as a continuous moderator instead of a categorical moderator. The Bosco tool does not support continuous moderation analyses, and therefore different moderation analyses were run for gender and age. To analyze gender as a potential moderator in SPSS, the percentage of women in a sample was used as an independent variable in the prediction of Fisher's z-transformed corrected correlation coefficients for the challenge/hindrance workplace stressors and correlate/outcome relationship using weighted least-squares multiple regression. Analyzing gender as a continuous moderator allows for more statistical power, is an overall more robust analysis of gender as a potential moderator, and is considered to be more reliable than other methods (Michel et al., 2011; Steel & Kammeyer-Mueller, 2002). Support for gender moderating these relationships

exists if the percentage of women is a significant predictor of the correlation coefficients (Michel et al., 2011).

As displayed in Tables 9 and 10 below, gender was only found to be a significant moderator for the relationship between challenge workplace stressors and psychological health. Therefore, this result indicates that men and women experience differing impacts of challenge-related workplace stressors on their psychological health. Women experience higher rates of psychological health issues as a result of challenge workplace stressors than do men. All other relationships between challenge or hindrance workplace stressors with both correlates and outcomes were not moderated by gender. While this was just an exploratory research question, it is surprising to find a general lack of significance of gender as a moderator for most of the relationships tested. There is research to show that genders experience stress at different levels (e.g., women experience more stress; Matud, 2014), however, according to these results, it generally does not appear that there are gender differences in the strength of relationships between challenge and hindrance workplace stressors and outcomes/correlates, aside from the significance of gender as a moderator between challenge workplace stressors and psychological health.

Table 9.  
*Hindrance Workplace Stressors Moderation by Percentage of Women in Sample*

Outcome/Correlate	<i>k</i>	$\beta$	Regression <i>F</i> -value
Tenure	18	0.23	0.52
Resources	22	0.03	0.01
Psychological Health	12	0.38	1.69
Performance	10	-0.37	1.11
OCBs	16	-0.44	1.9
Burnout	14	0.1	0.09
Leadership	12	-0.46	3.53

Note. *k* = number of samples.  $\beta$  = standardized beta weight for moderator. Positive beta weights indicate that the correlation coefficient gets closer to 1 as the percentage of women in the sample increases; negative beta weights indicate that the correlation coefficient gets closer to -1 as the percentage of women in the sample increases.

Table 10.

*Challenge Workplace Stressors Moderation by Percentage of Women in Sample*

Outcome/Correlate	<i>k</i>	$\beta$	Regression <i>F</i> -value
Tenure	18	0.22	0.57
Resources	22	0.1	0.09
Psychological Health	12	0.67	7.97*
Performance	10	-0.45	1.76
OCBs	16	-0.54	3.64
Burnout	14	0.24	0.58
Leadership	12	-0.3	1.34

Note. *k* = number of samples.  $\beta$  = standardized beta weight for moderator. Positive beta weights indicate that the correlation coefficient gets closer to 1 as the percentage of women in the sample increases; negative beta weights indicate that the correlation coefficient gets closer to -1 as the percentage of women in the sample increases.

\*  $p < .05$

When considering age as a continuous moderator, these relationships could only be tested on two of the relationships that met the sample cutoff of  $k \geq 10$  and having 70% or more of the samples report information on the moderator. Additionally, these two relationships were between challenge and hindrance workplace stressors and outcomes (performance and psychological health) only, not correlates. None of the correlates met the requirements to be analyzed in this moderation. Analysis of age as a potential moderator was completed using the same method in SPSS (i.e., weighted least squares regression). Support for age as a moderator in these relationships exists if the average age of the sample is a significant predictor of the Fisher's *z*-transformed corrected correlation coefficients.

As displayed in Tables 11 and 12 below, age was not found to be a significant moderator for relationships between challenge or hindrance workplace stressors and these two outcomes. Again, it is surprising that age does not appear to be a significant moderator. As previously mentioned, research points to the idea that younger people experience more stressors than older individuals, likely due to increased coping abilities of older adults. Yet, in the samples included here, there is not support for the idea that challenge or hindrance workplace stressors have

different relationships with performance or psychological health when considering age differences of employees. It seems that employees of all ages experience similar relationships between challenge and hindrance workplace stressors and performance and psychological health.

Table 11.  
*Challenge Workplace Stressors Moderation by Age*

Outcome	<i>k</i>	$\beta$	Regression <i>F</i> -value
Psychological Health	12	-0.43	1.34
Performance	10	0.37	0.81

Note. *k* = number of samples.  $\beta$  = standardized beta weight for moderator. Positive beta weights indicate that the correlation coefficient gets closer to 1 as the average age of the sample increases; negative beta weights indicate that the correlation coefficient gets closer to -1 as the average age of the sample increases.

Table 12.  
*Hindrance Workplace Stressors Moderation by Age*

Outcome	<i>k</i>	$\beta$	Regression <i>F</i> -value
Psychological Health	12	-0.25	0.39
Performance	10	0.34	0.67

Note. *k* = number of samples.  $\beta$  = standardized beta weight for moderator. Positive beta weights indicate that the correlation coefficient gets closer to 1 as the average age of the sample increases; negative beta weights indicate that the correlation coefficient gets closer to -1 as the average age of the sample increases.

### **Non-hypothesized Relationships**

While not directly hypothesized, the differential relationships between challenge and hindrance workplace stressors and correlates and outcomes was also of interest. To assess this, confidence intervals of the relationships observed between challenge-related workplace stressors and correlates and outcomes were compared to the confidence intervals of the relationships observed between hindrance-related workplace and the same correlates and outcomes. For example, the confidence interval of the relationship between challenge-related workplace stressors and commitment was compared to the confidence interval of the relationship between hindrance-related workplace stressors and commitment. If there was any overlap in the confidence intervals being compared, it can be concluded that the relationships were not different

from one another. Interestingly, only two correlates were differentially related to challenge and hindrance workplace stressors, meaning that only two correlates had no overlap in confidence intervals with one another. Cynicism was one of the two correlates with no overlap, with confidence intervals of (.11, .35) for challenge stressors and cynicism and a confidence interval of (.44, .69) for hindrance stressors and cynicism. This provides evidence that cynicism has a different, distinct relationships with each challenge and hindrance workplace stressors. Essentially, these results provide preliminary evidence that cynics are more likely to interpret stressors as hindrances. Additionally, leadership had no confidence interval overlap between challenges and hindrances, with confidence intervals of (-.09, .03) for challenge stressors and (-.30, -.11) for hindrance stressors. This points to the idea that good leaders have subordinates with lower levels of hindrance perceptions. None of the outcomes had non-overlapping confidence intervals between relationships with hindrance/challenge workplace stressors and outcomes, meaning that distinct, different relationships between challenge-related workplace stressors and hindrance-related workplace stressors and outcomes was not found. These findings again go against much of the literature on challenge and hindrance workplace stress research, which usually states that challenge and hindrance related workplace stressors have different relationships with correlates and outcomes such that challenge stressors lead to positive outcomes and are correlated highly with positive correlates and that hindrance stressors lead to negative outcomes and are correlated highly with negative correlates. These results suggest that challenge and hindrance workplace stressors are similarly predictive of work, individual, and family outcomes for employees.

## **Discussion**

A summary of all of these relationships indicating whether the relationship with the correlate/outcome is meaningfully positive or negative can be found in Figure 2 (challenge workplace stressors) and Figure 3 (hindrance workplace stressors) below.

Figure 2. Summary of meaningful correlates and outcomes of challenge workplace stressors

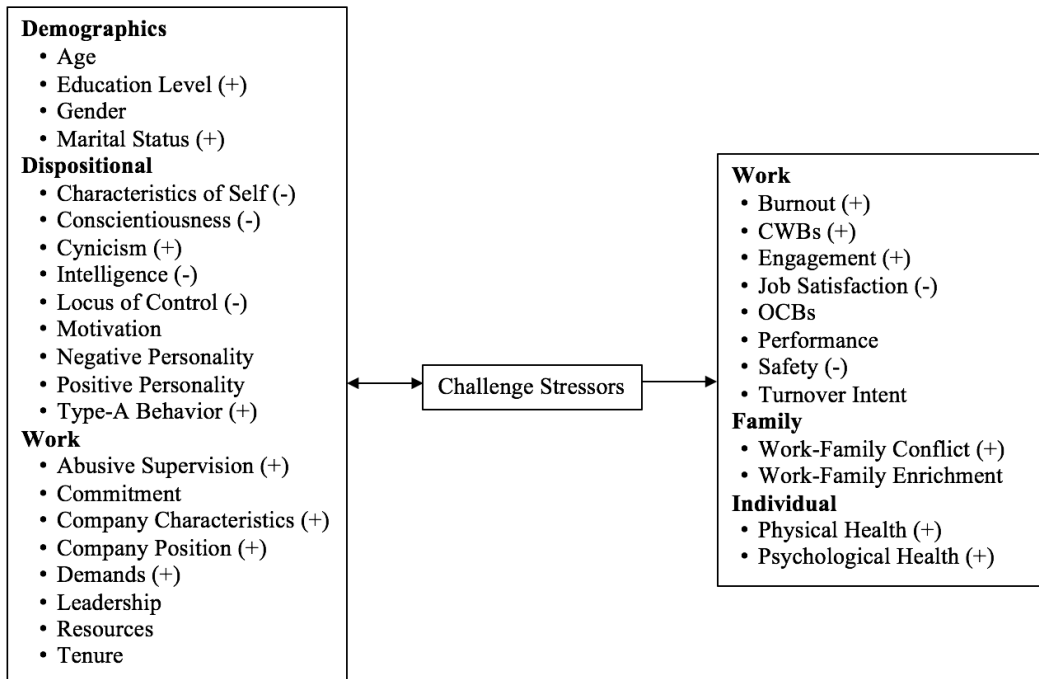
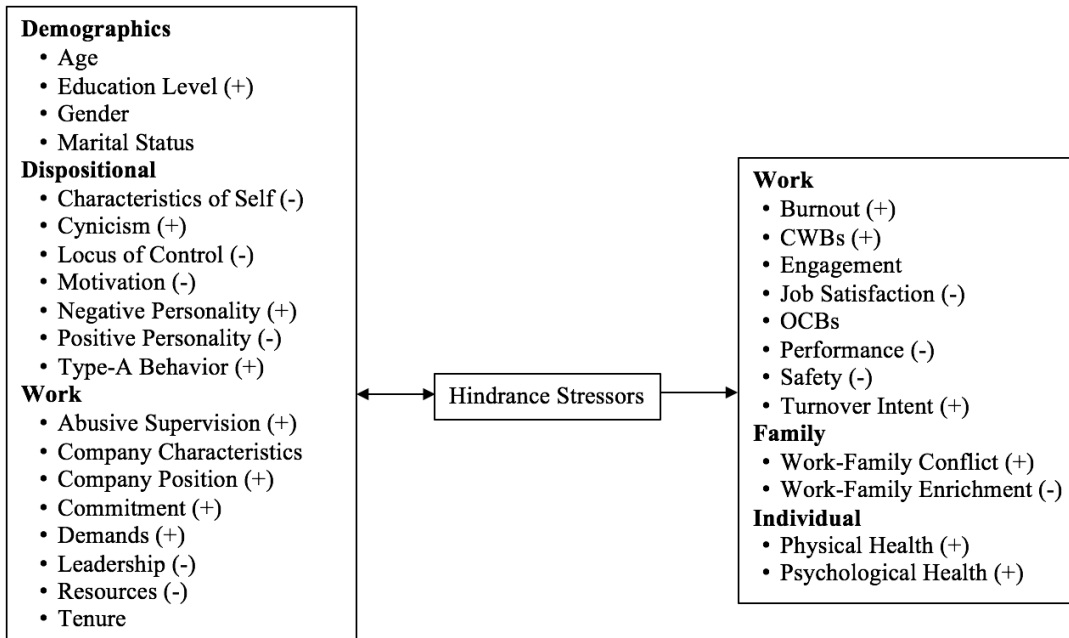


Figure 3. Summary of meaningful correlates and outcomes of hindrance workplace stressors





In testing Hypothesis 1, it was found that challenge-related workplace stressors, in opposition to common conception, result in more adverse outcomes than favorable outcomes. As is highlighted in the above figures, while commonly thought of and written about as “good” workplace stressors, challenge-related workplace stressors do not, across the 39 studies sampled, lead to positive outcomes and are not related to positive correlates. Therefore, Hypothesis 1 did not receive support. Instead, challenge workplace stressors were found to be more strongly related to poor outcomes. From these meta-analytic results, challenge-related workplace stressors lead to increased levels of burnout, increased performance of counterproductive work behaviors, increased levels of work-family conflict, increased physical and psychological health ailments, decreased job satisfaction, and decreased engagement in safety behaviors. The only positive relationship found between challenge stressors and a favorable outcome was with engagement, and this was a small effect size at best ( $\rho = .10$ ). These findings are interesting, given the common notion that challenge stressors should be viewed as an opportunity for employees to grow and develop in the workplace and not as stressors that stymie productivity or goal completion.

Given that these relationships were only extrapolated from use with the Cavanaugh and colleagues (2000) measure, there may be several possible explanations for this. First, this lack of meaningful relationships between challenge-related workplace stressors and positive outcomes may be because of issues with the Cavanaugh et al. (2000) instrument. It could be that these items do not capture the construct of challenge-related workplace stressors well, and that thus relationships with favorable outcomes are not found. This would mean that a reassessment of the way in which we measure challenge-related workplace stressors may be warranted. Second, it could be that our past conceptualization of challenge stressors as being experienced by workers

as stressors that are truly challenging or developmental may be construed. How do we know that employees are actually interpreting challenge stressors as stressors that provide them with the chance to grow and develop? Could these stressors actually not be perceived by employees as challenges, but instead are maybe viewed by as employees as being similar to other, hindrance-related workplace stressors? Since items are classified as either a challenge or a hindrance before employees rate their experience with that stressor, there is no opportunity for employees to provide their own view of the stressor that they are rating. It could be that asking for employees' appraisal of stressors as challenges or hindrances could help us to better understand how challenges and hindrances are actually viewed in the workplace. This second interpretation of the results would indicate that the Cavanaugh et al. (2000) measure is not necessarily incorrectly developed, but just lacks the component of having the assessment of employees' appraisals of the stressors. This idea of including employees' appraisals of challenge and hindrance workplace stressors will be further discussed in the future directions section.

Hypothesis 2 stated that hindrance-related workplace stressors would be related to a slew of negative work and family outcomes. Support for this hypothesis was found. Relationships between hindrance-related workplace stressors and outcomes were all found in the expected direction. Experiencing hindrance-related stressors results in higher levels of burnout, less job satisfaction, higher turnover intention, decreased performance, increased performance of counterproductive work behaviors, decreased safety behaviors, increased work-family conflict, decreased work-family enrichment, and increased experiences of physical and psychological health ailments. Given that literature and theory commonly support the notion that hindrance stressors are related to negative workplace and personal outcomes, these findings are expected. However, it is reassuring to have meta-analytic evidence that the Cavanaugh and colleagues

(2000) scale consistently measures hindrance stressors as being predictors of adverse work, family, and individual outcomes. Hindrance stressors such as these that lead to negative outcomes match well with our natural schema of stress. People typically have a negative viewpoint of stress, and therefore these hindrance workplace stressors are likely more salient for employees and may be better represented in the measurement of workplace stressors.

Hypothesis 3 stated that both challenge and hindrance workplace stressors would be related to increased levels of poor physical and poor psychological health. This hypothesis was supported. Hindrance-related workplace stressors exhibited larger effect sizes with physical and psychological health ( $\rho = .59$  and  $\rho = .37$ , respectively) than did challenge-related workplace stressors ( $\rho = .30$  for each physical and psychological health). Yet, given that the confidence intervals of these relationships overlapped between challenge and hindrance stressors, challenge's and hindrance's relationship with physical and psychological health are viewed as not significantly different. As was originally hypothesized, these results show that even though being given extra opportunities or challenges might be sometimes, by some employees, interpreted as a positive, challenge stressors are still likely to cause increases in physical and psychological strain or issues for employees. Additionally, our results show that hindrance stressors, those that impede work success, also lead to decreased physical and psychological health, which aligns well with extant literature on hindrance-related workplace stress.

In considering the examination of correlates of challenge and hindrance workplace stressors per Research Question 1, again some results were found that were counter to much of the literature on challenge-related workplace stressors. Notably, it was found that challenge-related workplace stressors overwhelmingly were related to negative correlates. The results show that experiencing challenge-related workplace stressors was related to increased levels of abusive

supervision, Type-A behavior, work demands, cynicism, negative personality traits, and decreased levels of resources, positive personality traits, motivation, locus of control, and characteristics of self. Few correlates were related with challenge workplace stressors in the expected direction. There was a positive relationship between challenge-related workplace stressors and education level, intelligence, position within the company, and marital status. While these four positive findings are notable, the overall negative findings provide stronger evidence to support the notion that challenge-related workplace stressors are related to negative correlates. Again, it may be that challenge-related workplace stressors are misunderstood by researchers and therefore are difficult for employees to respond to with integrity. Additionally, given that the results show that both outcomes and correlates of challenge stressors tend to be adverse, maybe challenge and hindrance stressors are not perceived very differently by employees. While challenge-related workplace stressors may seem to be, according to extant definitions, providing opportunities for growth to employees, maybe this is not how these stressors are actually appraised by workers. More probing of true differences in how challenge and hindrance workplace stressors are interpreted may be warranted and will be propositioned more in the future directions section.

As for correlates of hindrance-related workplace stressors, most of the observed relationships were in the more intuitive direction. Hindrance stressors were likely to be comorbid with increased levels of negative personality traits, decreased levels of positive personality traits, increased Type-A behaviors, decreased locus of control, decreased self-image, decreased motivation, increased expressions of cynicism, decreased experience of positive leadership styles, decreased work resources, increased work demands, and increased experiences of abusive supervision. The only favorable correlates of hindrance stressors were commitment, education

level, and company position, in which experiencing more hindrance workplace stressors is related to increased commitment, higher attained levels of education, and a higher position with the company. Yet, these findings still overwhelmingly bolster the idea that hindrance stressors are related to other negative variables, and thus these results only add to the already full area of literature discussing hindrance workplace stressors and relations with adverse work and personal variables.

When examining possible differential relationships between challenge-related workplace stressors and correlates/outcomes and relationships between hindrance-related workplace stressors and matched correlates/outcomes, very few differences were observed. This is exhibited by the aforementioned lack of non-overlapping confidence intervals, and is also evident through similar relationships (e.g., strength, positive or negative) between correlates/outcomes and workplace stressors. Therefore, the relationships between challenge stressors and common correlates/outcomes and hindrance stressors and common correlates/outcomes are not that different. Due to the immense amount of overlapping confidence intervals observed, it can be deduced that challenge and hindrance workplace stressors do not differ in the variables that they are likely to predict or variables that they are likely to be correlated with within employees' work and personal domains. These findings allude to the idea that challenge and hindrance workplace stressors, at least as measured by Cavanaugh and colleagues (2000), may be more similar than previously considered.

Lastly, in considering Research Question 2, the presence of moderators was overall not found. Only twice was the presence of a moderator identified, and this was between hindrance workplace stressors and leadership (moderated by publication status) and challenge workplace stressors and psychological health (moderated by gender). Publication status moderated this

relationship between hindrance stressors and leadership in that published articles exhibited a strengthened relationship between hindrance workplace stressors and leadership in comparison to unpublished articles. Even though a significant moderation by publication status was only found for this one relationship, the notion that published studies may sometimes exhibit larger, more robust effect sizes is an issue in academia and reinforces the chrysalis effect mentioned by O'Boyle and colleagues (2017). This meta-analysis, while only through one relationship, does point to this issue and highlights the necessity to consider publication status as a potential moderator of similar relationships in future meta-analyses.

Additionally, while it is commonly assumed that men and women as well as different age groups might experience stressors differently and therefore may have differing outcomes or correlates with stressors, this was generally not found in the present meta-analysis. As mentioned, only the relationship between challenge workplace stressors and psychological health was significantly moderated by gender. This moderation shows that being female strengthens the relationship between challenge workplace stressors and adverse psychological health outcomes. Essentially these results show that challenge stressors, while intended to be perceived as opportunities to grow as an employee, have a strong impact on psychological health issues for females. This fits well with research that shows women experience higher levels of psychological distress in comparison to men, as well women generally perceiving life events to be more negative and less controllable (Matud, 2004). Additionally, Day and Livingstone (2003) also show that women are more likely to rate events as stressors and are therefore likely to experience increased negative outcomes. Again, it is evident that a deeper understanding of how the stressors are perceived, possibly through individual appraisal, is warranted. However, gender did not moderate any of the other relationships between stressors and outcomes or correlates.

One explanation for this may be that, while men and women and different age groups may experience workplace stressors differently, this does not necessitate that the different levels of stressors will have differing impacts on individuals, with psychological health as an exception. For example, women or younger individuals may experience more workplace stressors than men, but that may not generally change how women's or younger employees' workplace stressors relate to other areas of their lives. More research could be done here to increase the number of studies that examine gender and age in relation to workplace stressors in order to understand the process of workplace stressors more.

### **General Contributions and Practical Implications**

The contributions and possible practical implications of the present study are threefold. First, this meta-analysis is the first to meta-analyze only those relationships between challenge and hindrance workplace stressors as measured by Cavanaugh and colleagues (2000) with correlates and outcomes. This meta-analysis, while smaller in the number of studies included (i.e., smaller  $k$ ), still provides rich information about workplace stressors' relationships with other variables and provides a great deal of insight into how challenge and hindrance workplace stressors are conceptualized according to Cavanaugh and her team as well as how these stressors relate to other variables.

Second, this meta-analysis answers worries about inability to partition out differences between hindrances and challenges. Much of the challenge and hindrance research does not take into consideration the differences between challenges and hindrances because of greater focus on the workplace stressor construct as a whole. Therefore, this meta-analysis is unique in that the hypotheses and research questions revolve around examining similarities and differences between the separate dimensions of challenge and hindrance workplace stressors. Moreover,

Michel and colleagues (2011) call for more studies to conduct primary research concerning challenge and hindrance workplace stressors as separate variables so that secondary studies can be conducted. In the present meta-analysis, relationships between both challenge-related workplace stressors and hindrance-related workplace stressors and outcomes and correlates were identified, which answers this call. Additionally, by meta-analyzing workplace stressors with consideration to the two facets of challenges and hindrances, the present study helps the field to better understand the similarities and differences between these two types of stressors and related variables.

Lastly, with this better understanding of challenge and hindrance workplace stressors and the relationships with correlates and outcomes, implementation of the information garnered from these results can be executed. For example, reducing challenge and hindrance workplace stressors may be a viable option if the goal is to buffer employees from experiencing adverse outcomes, such as reduced job satisfaction, reduced performance, or increased levels of work-family conflict. Possibly targeting workplace stressors and working to reduce them may result in more favorable outcomes for employees. Future workplace initiatives aimed at reducing adverse outcomes for employees should consider both the possible impacts of both hindrance and challenge stressors.

### **Limitations and Future Directions**

No study is without limitations. First, the small number of samples ( $k$ ) for many of the variables included in this meta-analysis may be impeding both the strength of the results and the ability to generalize the results. However, given that one of the major aims of this meta-analysis was specifically to evaluate the use of the Cavanaugh and colleagues (2000) measure, the articles that could be included in this meta-analysis were narrowed at the outset. Future meta-analyses



that focus on the challenge and hindrance framework could broaden the results found here by including more forms of measurement in future analyses.

Additionally, due to a smaller number of studies that used the Cavanaugh and colleagues (2000) measure, aggregation of variables was necessary in order to cluster similar variables together so that similar concepts and constructs could be analyzed together, and also to increase the number of samples per variable. However, this clustering of the variables may limit the results that can be drawn from the analyses. Ideally, it would be best to have a high number of samples, or  $k$ , for every variable observed in the articles included. Yet, because of the lower number of articles included, more clustering was necessary in order for analyses to be conducted. This clustering results in the loss of more specific information on relationships between correlates and outcomes and challenge and hindrance workplace stressors but was deemed necessary in the present study. More primary research in the future should consider challenge and hindrance stressors as separate variables to examine in order to aid in the conduction of more robust secondary research on such stressors.

As for future directions, as was noted, this meta-analysis sheds light on the lack of differential relationships between challenge and hindrance workplace stressors and correlates and outcomes. As is the typical conception of the challenge and hindrance workplace stressor framework, extant research states that challenge and hindrance workplace stressors exhibit different relationships with correlated and outcomes. Specifically, it has been found that challenge stressors lead to positive outcomes and are comorbid with positive correlates, while hindrance stressors lead to negative outcomes and are comorbid with negative correlates. However, as displayed here, the aggregate effect sizes for relationships between challenge and hindrance workplace stressors and correlates and outcomes do not provide evidence for

differences in relationships of correlates and outcomes with these types of stressors. Evidence was found to show that the relationships between challenge and hindrance stressors and correlates and outcomes are actually very similar. More research should explore the possible reasons for this lack of difference in relationships. As has been discussed, assessing more closely employees' interpretation of these types of stressors to ascertain how challenge and hindrance stressor items are viewed may be important. If employees do not perceive items labeled as challenge stressors as stressors that provide them opportunities and/or challenge them, or if employees do not perceive items labeled as hindrance stressor to be stressors that are impeding their ability to complete their work, then a reevaluation of challenge and hindrance workplace stressor measurement may need to be conducted. It is suggested here and by others (e.g., Webster et al., 2011) that appraisals or interpretations of challenge and hindrance workplace stressors, such that employees rate how much they view the items as challenges or hindrances, should be incorporated into future measurement to ascertain information about how employees view these items. From this information, more recommendations for measurement in this area can be developed as needed.

### **Conclusion**

This meta-analysis assessed the reliability and nomological network of the Cavanaugh and colleagues (2000) measure of challenge and hindrance workplace stressors, specifically, the relationship of these stressors with correlates and outcomes. The measure exhibits a high reliability across studies, as the average reliability found for both challenge and hindrance facets of the Cavanaugh and colleagues (2000) was  $\alpha = 0.85$ . Additionally, it was found that challenge and hindrance workplace stressors, overall, do not exhibit differential relationships with correlates and outcomes. Challenge stressors and hindrance stressors both, relatively equally, are

related to negative correlates and outcomes, such as issues with work, family, and health. This is in conjunction to much of the challenge and hindrance framework literature, which typically finds that challenge-related workplace stressors are related to favorable outcomes and are correlated with favorable correlates. These findings leave a lot of room for future research directions, in which more examination of other challenge and hindrance workplace measures could be meta-analyzed or in which the perception of challenge stressors could be assessed. Understanding how employees view what have been previously labeled as challenges could be an important next step for researchers within the workplace stress domain. It is suggested here for researchers to more closely examine employees' perceptions of challenge and hindrance workplace stressors to determine if there are difference in how these items are appraised. Given that challenge stressors may be appraised similarly to hindrance stressors, this could inform future measure development.

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## Appendix

### Cavanaugh et al. (2000) Items

Instructions: Report how much stress each of the items causes you using a Likert scale ranging from 1 (*produces no stress*) to 5 (*produces a great deal of stress*).

#### Challenge Items

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

#### Hindrance Stressors

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